Economic Indicators Update

October 2010

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Introduction

This report is a fifth in the series that attempt to provide economic indicators with the objective of developing and implementing a system to monitor key parameters of the WCPO tuna fishery and its impact on FFA members. The project commenced in early 2006 with the FFA Secretariat restructure, establishment of the Fisheries Economics Advisor position, the commencement of sourcing and collating data, and the development of a process to enable collection of domestic development indicators data from FFA member countries on an on-going basis.

This paper reports on a range of data that has been collected so far using recommended indices in a paper produced by the World Bank Tuna Industry Indicators presented at FFC 59, some of the additional indices suggested in the last series and feedback on these reports. The indicators reported on in this report come under two broad headings of 'economic conditions in the fisheries' and 'domestic development indicators' under which the range of indicators considered are as follows:

- Tuna production and values trends in WCPO and FFA member waters
- Tuna price trends
- Catch and value trends per unit of effort
- Fuel cost relative to fish price trends
- Access fees estimates
- FFA fleet size
- FFA Tuna fishing contribution to GDP
- Employment trends in FFA countries
- FFA tuna export value and composition trends

With respect to domestic development indicators, the data collection process has been facilitated through appointment of individuals at the national level during 2008/09. These appointments were made on contractual arrangements with the contract terms covering regular quarterly data submission of selected indicators and remunerations. There is expectation of further improvement in the process, however, including provision of the full range of data required on a timely basis. Where there has been apparent shortfall in the process, other data sources have been used.

All catch and effort data in this report for WCPO/WCP-CA and FFA member waters are based on SPC-OFP provisions, noting that the data for 2009 are preliminary.

2. Global tuna production

Global tuna catch of the four major tuna species (albacore, bigeye, skipjack and yellowfin) came to 4.2 million metric tonnes in 2009, a marginal decline of 0.7% from the previous year but a 4.5% decline from the peak of 4.4 million Mt in 2005. Compared to 2005 levels, production in all oceans declined except in the WCPO which increased by almost 300,000 Mt, from 2.17 million to 2.44 million Mt. The major decline occurred in the Indian Ocean at almost 300,000 Mt. On account of the increase in WCPO production in 2009 relative to 2005, the proportional share of WCPO in total production rose from 49% to 58% compared to declines in other shares. Other ocean shares were Indian Ocean 21% (26% in 2005), Eastern Pacific 14% (15%) and Atlantic Ocean 7% (9%).

Production by species indicates that the greatest drop in 2009 relative to 2005 was in yellowfin, by close to 300,000 Mt. Skipjack catch in 2009 rose by around 100,000 Mt. The global catch

distribution by species in 2009 were skipjack 60% (55% in 2005), yellowfin 26% (30%), bigeye 9% (10%) and albacore 5% (5%).

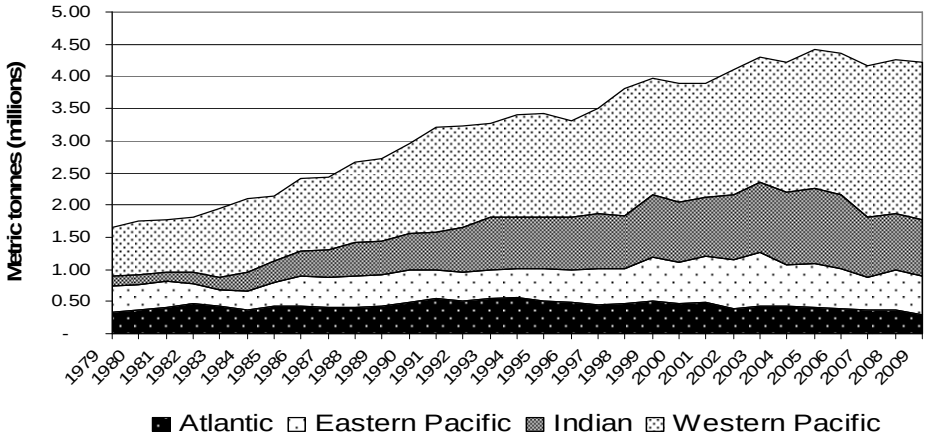


Figure 1. Global tuna production by ocean area
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

3. Purse seine fishery

3.1 Economic conditions in the fishery

3.1.1 Supply

Global purse seine production for lightmeat in 2009 rose 1.3% to 2.99 million metric tonnes, a second consecutive record level that follows from 2008 2.95 million Mt. Purse seine catch in the WCPO registered an increase in 2009, a moderate 4%. In the Indian Ocean production dropped by 4% while in the Eastern Pacific a drop of 3% was recorded. In the Atlantic Ocean, purse seine production increased 14%.

The global production trends for lightmeat by the purse seine fleets by ocean area since 1979 are provided in Figure 2. While production varied between years, with stagnancy over several years (e.g. 1991 to 1997), total production by the end of 2009 at 2.99 million Mt was more than five times that of 565,000Mt in 1979. The long-term uptrend in the purse seining catch at the global level has been underpinned by production increases in the WCPO.

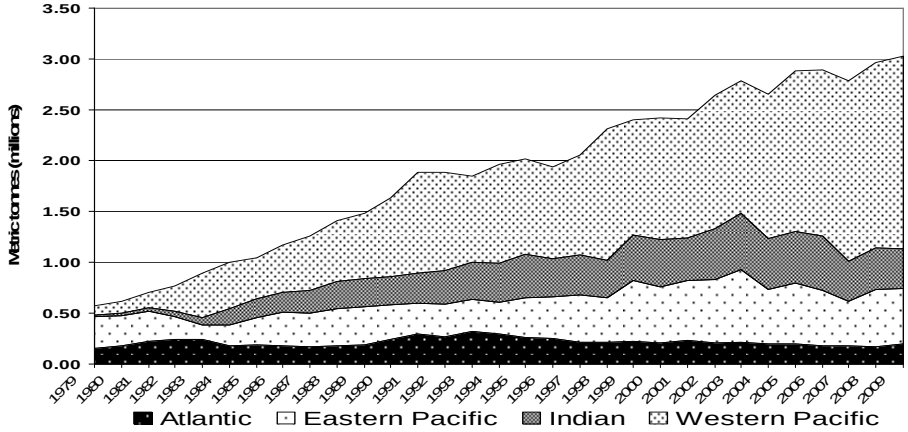


Figure 2. Global purse seine production by ocean area
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

The WCPO share of global purse seine production in 2009 was 63% or 1.89 million Mt. In the period 1983-2009, the share of the WCPO purse seine production ranged 39 to 69% that had followed from the range of 16 to 33% in the period 1979-1982. Purse seine production in the Eastern Pacific in 2009 at around 0.54 million Mt represented 18% of the global production. The Indian Ocean contributed 13% and the Atlantic Ocean 5%.

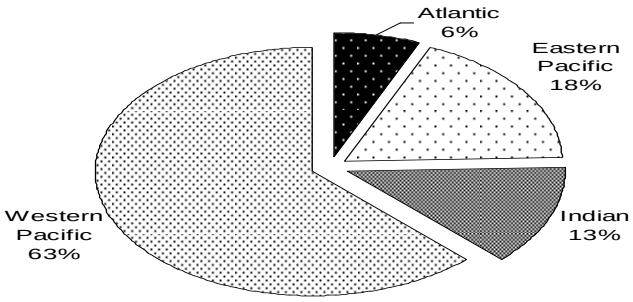


Figure 3. Global distribution of purse seine production by ocean, 2009
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

The FFA member waters are the most productive in the WCPO (Figures 4). Total production in FFA waters in 2009 was a record 1.1 million Mt, up 4% on 2008 and accounting for 57% total catch in WCPO. Over the period 1997-2009, the catch from FFA waters ranged between 0.5 and 1.1 million Mt, with the last four years showing increasing trends consistently above the 1.0 million Mt mark.

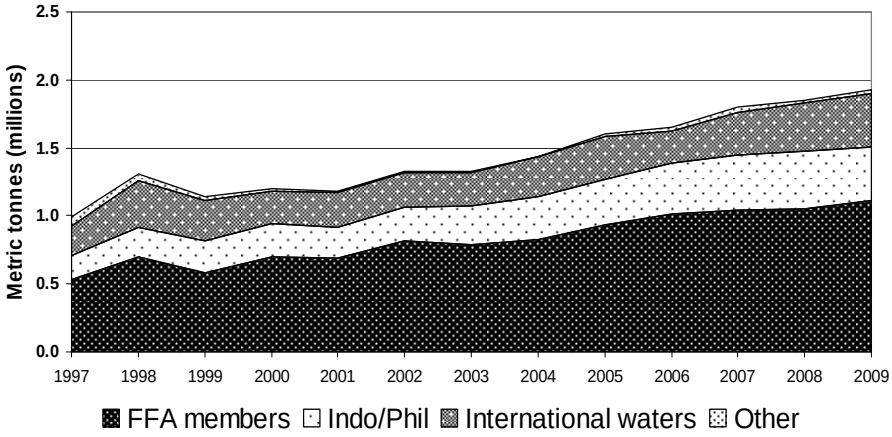


Figure 4. WCPO purse seine production by water
Source: SPC-OFP (August 2010)

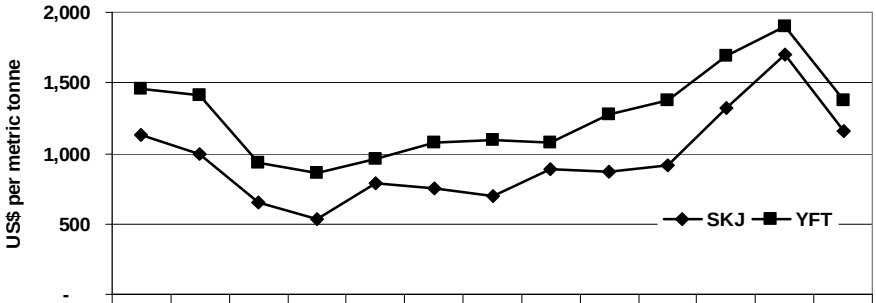
3.1.2 Purse seine product prices

The oversupply in lightmeat canning raw material towards the end of 1998 to 2000 saw dramatic reductions in both skipjack and yellowfin prices in 1999 and 2000. Prices remained low until the end of 2003, when prices only gradually picked up. Not until 2007 did lightmeat prices see major increases underpinned by shortages in canning raw material supplies, dramatic increases in fuel costs as well as food costs at the global level. These forces impacted on purse seine fish prices well into 2008 before the severity of the international financial crisis reversed the trends. 2008 nonetheless registered record price levels with SKJ and YFT at $1,700 and $1,896 respectively.

From peak levels in mid-2008, prices trended down sharply well into the first quarter of 2009. There were moderate improvements towards mid-2009 however prices declined again over the rest of the

year. These overall declining trends in lightmeat prices were accompanied by reversals in the trends of some of the important factors that previously had driven up fish prices, including trends in global food and oil prices as well as skipjack supplies in 2009. The WCPFC conservation and management measures for this fishery undoubtedly will also increasingly have very important influences on price trends.

Skipjack prices in 2009 averaged around 30% lower than 2008 prices while yellowfin prices were lower by 28%.



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
SKJ	1,130	993	652	536	788	751	700	889	873	918	1,319	1,700	1,154
YFT	1,454	1,408	935	863	960	1,074	1,093	1,080	1,278	1,375	1,696	1,896	1,373

Figure 5. Thai import frozen prices, 1997-2009

3.1.3 WCPO purse seine fishery values trends

Total estimated delivered value[1] of the WCPO purse seine fishery in 2009 was $2.3 billion, 57% of total estimated delivered value of $4.1 billion for all tuna fisheries catch in WCPO. The $2.3 billion in 2009 represents a 29% ($940 million) decrease from the previous year that reversed the increase of 32% ($800 million) the previous year. The significant decrease in 2009 came principally from price declines as purse seine production increased by 3% (58,200 Mt). In the previous year the significant improvement came from both production and price increases. The downtrend in purse seine delivered value in 2009 follows from strong increases since 2004 underpinned by increases in both production and prices. The annual trends of purse seine catch, price and delivered value are illustrated in Figure 6 below.

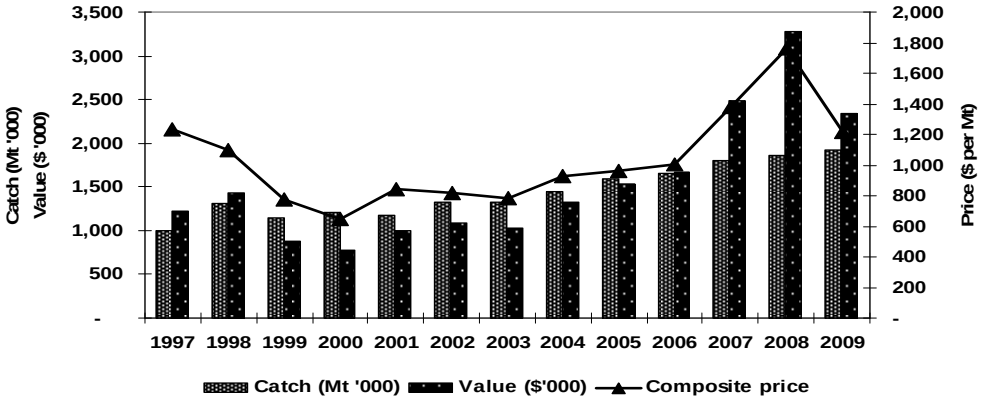


Figure 6. WCPO Purse seine values, catch and price trends, 1997-2009

[1] Delivered value of the purse seine fishery represents the value of the catch at the unloading point of final market destination whether it is delivered by the fishing vessel or transhipped.

3.1.3.1 Total Value relative to other fisheries

The growing significance of the purse seine fishery in the context of the WCPO tuna fisheries, in value terms, is further shown in the contributions to total WCPO values. Prior to 2005, the share of purse seine catch value ranged between 33% and 48%, however, as of 2005 this had exceeded 50%. In 2009 the proportion averaged 57% (Figure 7). The other main fishery has always been the longline fishery which historically has the more valuable catch. However, with the strong recent uptrend in purse seine prices and increased effort, as against the extended stagnancy in the sashimi market and down-sizing of distant water fleets, the value of purse seine fishery has become the most important contributor to the value of WCPO tuna fisheries.

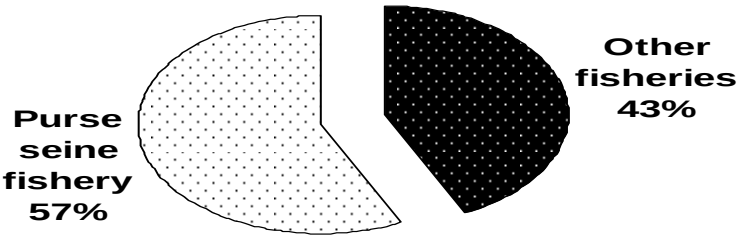


Figure 7. Proportional values share of purse seine fishery in WCPO, 2009

3.1.3.2 Values by species

Skipjack as the primary target species of the purse seine fishery generally accounts for between 70 and 80% of total purse seine values. Figure 8 shows the distribution of purse seine catch values by species in 2009 with skipjack at 81%, yellowfin 17% and bigeye 2%.

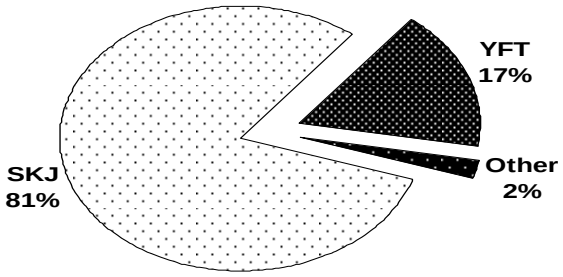


Figure 8. WCPO purse seine value proportions by species, 2009

3.1.3.3 Values by waters

The distribution of the delivered values of the purse seine fishery in the WCPO by waters reflects easily the importance of FFA member waters. In 2009, of the total purse seine delivered value of close to US$2.3 billion, 56% (US$1.3 billion) was accounted for from the waters of FFA member states (Table 1). The proportional shares of values by water indicate that over the thirteen-year period 1997-2009, between 50 and 61% of total WCPO purse seine delivered value was from FFA member zones. The proportion for FFA waters is most likely to increase further from anticipation of the impact of existing and potential management measures such as the seasonal FAD and proposed high seas closures.

The estimated WCPO purse seine fishery taken from individual FFA member waters in the last five years is provided in Table 1. Table 1 indicates that annually in the last four years the value of the purse seine fishery take from FFA waters is more than $1 billion and in 2008 when prices for purse seine products were at record levels, the value was close to $2 billion.

Table 1. WCPO Purse seine delivered from FFA member waters, 2005-2009 (US$ millions)

FFA members	2005	2006	2007	2008	2009
Australia	-	-	-	-	-
Cook Islands	0	0	0	2	1
Fiji	0	0	0	1	0
FSM	207	198	209	155	132
Kiribati	198	167	235	400	373
Marshall Islands	19	16	16	48	17
Nauru	48	57	90	103	65
New Zealand	10	6	14	15	5
Niue	-	-	-	-	-
PNG	293	429	653	825	517
Palau	2	5	1	7	1
Samoa	-	0	0	0	0
Solomon Islands	88	107	140	198	112
Tokelau	4	1	1	7	8
Tonga	-	-	-	-	-
Tuvalu	13	15	58	69	78
Vanuatu	-	0	-	0	-
Total	883	1,000	1,418	1,830	1,308

3.1.3.4 Value by fleet

The purse seine fleets with considerable importance in WCPO include US, Japan, Taiwan, Korea, more recently FFA members' fleets (local and foreign locally- based) and Indonesian and Philippines fleets. The individual and combined significance of these fleets is highlighted in Figure 9 and Table 2 below.

While the Philippines / Indonesian fleets account significantly for the WCPO catch, most fishing activity is undertaken in their own EEZs.

The FFA-flagged vessels share of delivered values of the WCPO purse seine fishery value have increased over the years, from 9% in 1997 to a peak of 27% in 2004 and 2005 but lowering to 19% in 2008 and 2009). The overall rise in this contribution is attributed to the extent to which some FFA member states have succeeded in domesticating the purse seine industry through both establishing own fleets and in having foreign fleets based locally. Annual variation is explained by vessel movement between fleets through re-flagging.

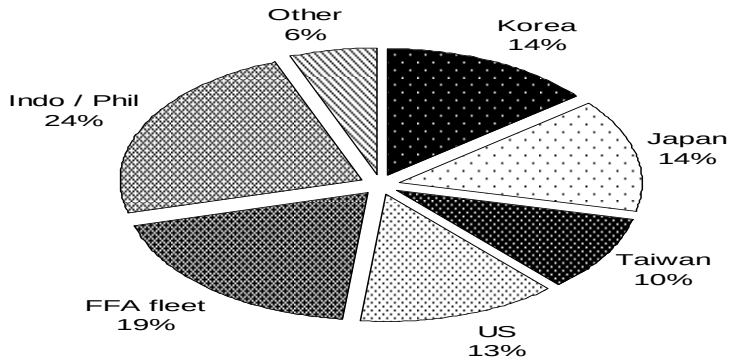


Figure 9. WCPO purse seine catch values by fleets, 2009

Table 2. WCPO Purse seine catch value by flag, 2005 - 2009 (US$ million)

	2005	2006	2007	2008	2009
Korea	193	251	356	433	332
Japan	244	266	354	480	337
Taiwan	181	202	314	354	225
US	81	67	121	364	314
FFA fleet	415	390	592	597	451
Indo / Phil	366	421	621	834	547
Other	55	72	124	221	136
Total	1,536	1,668	2,481	3,282	2,342
FFA fleet % share	27%	23%	24%	18%	19%

3.1.4 WCPO purse seine CPUEs and CPUE values

3.1.4.1 CPUEs (catch per day)

The unit of effort used in the calculation of catch per unit of effort (CPUE) for purse seine fleets is fishing days[2]. For purposes of this report, CPUE as an indicator of the performance and relatedly the health of the fishery, is based on data for a number of selected fleets only, namely those of China, Japan, Korea, Taiwan and US. The calculations are for CPUEs within FFA member waters only. The catch and effort (2005–09) by these selected fleets in FFA and other waters are presented in Table 3.

The annual variability in catch rates would normally be explained by a combination of variations in fishing conditions, vessel catching efficiencies, status of stock and quality of data.

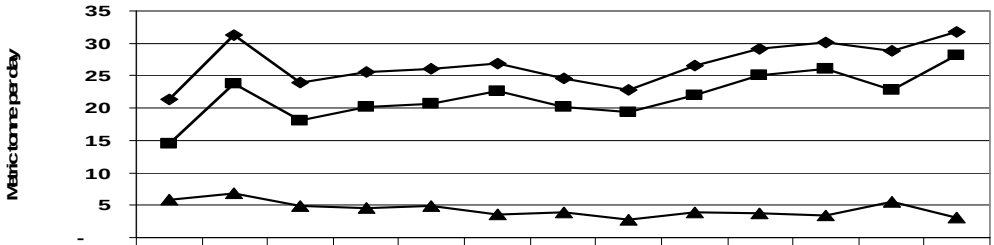
Table 3. Selected fleets catch and effort in FFA and Other waters, 2005 - 2009

		2005	2006	2007	2008	2009
FFA waters	Catch ('000 Mt)	541	633	627	673	693
	Days effort ('000)	20.8	21.3	21.3	22.8	21.5
Other waters	Catch ('000 Mt)	245	201	272	299	358
	Days effort ('000)	8.8	7.2	8.5	10.8	11.6
All waters	Catch ('000 Mt)	785.6	833.6	898.8	971.7	1,050.3
	Days effort ('000)	29.6	28.5	29.8	33.6	33.1
% catch in FFA waters		69%	76%	70%	69%	66%
% days in FFA waters		70%	75%	71%	68%	65%

The annual trends of the total/overall CPUEs based on selected fleets are presented in Figure 10 below. Also included are species CPUEs for skipjack and yellowfin.

Broadly, over the 13-year period considered, the overall trend had fluctuated narrowly, for the most part between 25Mt and 30Mt per day in the period 1998-2005. Between 2006 and 2008 catch rates sustained at an higher average of 30Mt per day, a result of improved skipjack catches. In 2009, purse seine catch rates in FFA waters improved further to an average of 32Mt per day, the best ever over the period. This result also benefitted from record catches for skipjack that more than offset the decline in yellowfin catch rate.

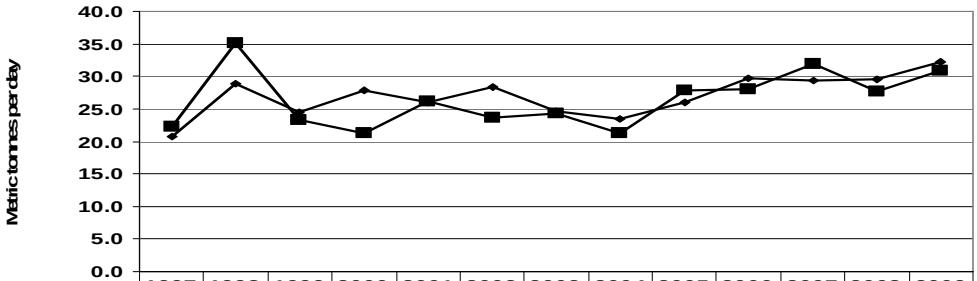
[2] Fishing day is defined as fishing or searching.



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	21	31	24	26	26	27	25	23	27	29	30	29	32
SKJ	15	24	18	20	21	23	20	19	22	25	26	23	28
YFT	6	7	5	5	5	4	4	3	4	4	3	6	3

Figure 10. Selected fleets CPUEs in FFA waters

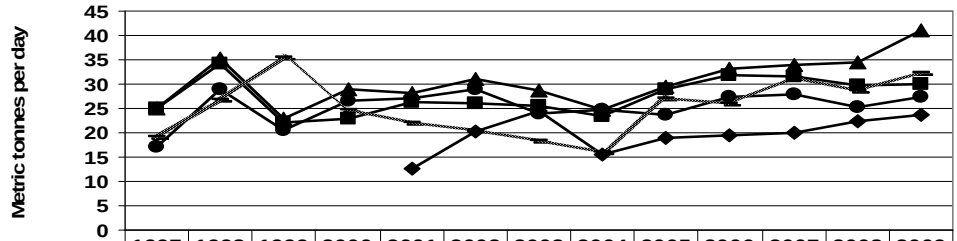
Comparison of selected fleets CPUEs in FFA waters and in other waters, principally in high seas, is provided in Figure 11. While the earlier years indicate contrasting patterns of variation between years broadly at around 25Mt a day, overall catch rates in more recent years, 2006 to 2009, have been at around 30Mt per day.



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
FFA	20.7	28.9	24.5	27.8	26.0	28.3	24.7	23.5	26.1	29.6	29.4	29.5	32.2
Other	22.3	35.2	23.3	21.3	26.2	23.5	24.4	21.2	27.8	28.0	31.9	27.6	30.9

Figure 11. Selected fleets CPUEs in FFA waters and other waters

The selected individual fleet catch rates in FFA waters are shown in Figure 12. The Korean fleet consistently out-performs other fleets with earlier years catch rates of around 30Mt, improving to 35Mt between 2006 and 2008 and in 2009 also recorded the highest catch rate of 41Mt per day. The Japan fleet performed closest to the Korean fleet.



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CN					13	20	24	15	19	19	20	22	24
JP	25	34	22	23	26	26	26	24	29	32	32	30	30
KR	25	35	23	29	28	31	29	25	30	33	34	35	41
TW	17	29	21	27	27	29	24	25	24	27	28	25	27
US	19	27	35	25	22	20	18	16	27	26	31	29	32

Figure 12. Selected fleets CPUEs in FFA waters, 1997-2009

3.1.4.2 CPUE values

Value of a fishing day for the selected fleets that operated in FFA waters is derived by dividing the respective calculated catch values in FFA waters by the corresponding number of days expended in FFA waters. The estimated day values are essentially "delivered market values" as prices applied in the catch valuations are delivered prices.

The annual trends in the average value per unit of effort for the years between 1997 and 2009 are presented in Figure 13 and the respective individual fleet day values for the years 2005 to 2009 are presented in Table 4. As expected, the day values follow closely the annual trends of fish prices where the period between 1999 and 2006 was a generally a period of slump and recovery. During this period, the average day value of a purse seine catch in FFA waters ranged between $18,000 and $29,000. In 2007 the day value improved significantly to $40,000 and in 2008 increased further to more than $50,000 but declined to $39,000 in 2009 as fish prices declined.

At the individual fleet level, the Korean and Japan fleets consistently had higher day values which, in the most recent three years ranged between $41,000 and $62,000 per day (Table 4).

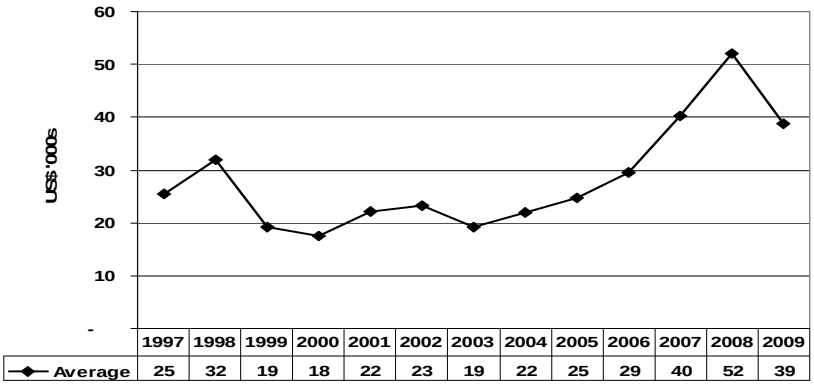


Figure 13. Annual trends of selected fleets average day values in FFA waters

Table 4. Selected fleets day values in FFA waters, 2005 – 2009 (US$'000s)

Year/Flag	China	Japan	Korea	Taiwan	US	Average
2005	17	30	28	22	26	25
2006	19	36	34	27	25	30
2007	27	41	47	37	42	40
2008	41	67	62	43	51	52
2009	25	51	48	32	38	39

3.1.4.3 Fuel costs and purse seine fish prices

Diesel oil price is the single most important operational cost for fleets. Given that different fleets access different supply sources for their fuel, Singapore spot diesel price is used as proxy to generalise about fuel cost trends. Singapore is the regional hub for oil refining and fuel imports in the Pacific are sourced largely through the Singapore market and the prices there also serve as the basis for fuel purchased from tankers operating in the Western Pacific even though the fuel may not be shipped out of Singapore.

The trend at which fuel cost has escalated over the years, relative to fish prices, has been a continuing threat to the viability of fleets. Figure 14 compares the trends of average purse seine prices (weighted average of purse seine skipjack and yellowfin) and that of fuel prices.

Comparison of the trends would imply that whatever profitability levels the fleets were at in 2000, assuming other operational costs remain constant and catch rates broadly unchanged or improved, those profitability levels would have deteriorated at least over the next three years as fish prices declined and levelled off while fuel costs rose and levelled off as well. The uptrend in purse seine average prices relative to stable fuel costs in 2005 and 2006 to an extent would have reversed the earlier deterioration in profitability. And most likely this would have been maintained in the most recent two years given the broadly similar rate of increases/decreases in fuel costs and fish price in 2008 and 2009.

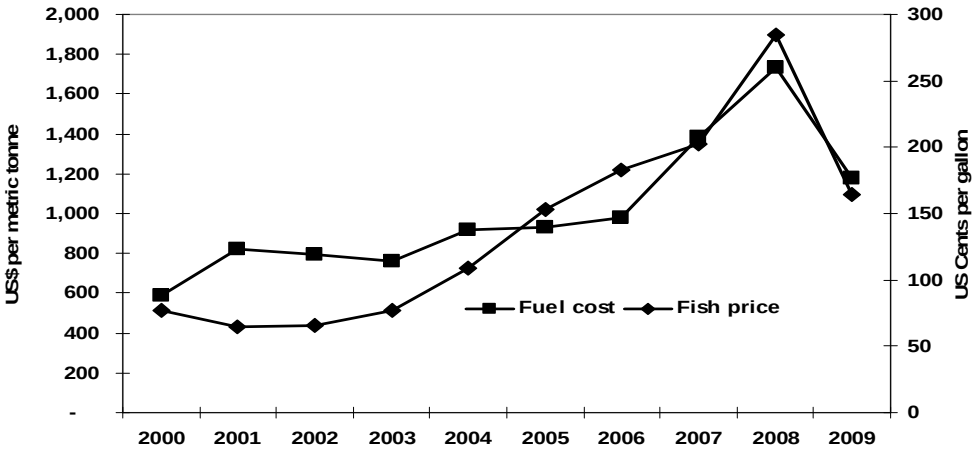


Figure 14. Annual trends of fuel costs and purse seine average prices, 2000-2009

4. Longline fishery

In this section of the report we examine conditions relating to South Pacific albacore and the whitemeat tuna market and for sashimi longline caught bigeye and yellowfin in the WCP-CA. As well, comparison of fleets in terms of their revenue performances is made.

Longline vessels target both albacore, predominantly destined for the whitemeat canning market, and yellowfin and bigeye, predominantly destined for the sashimi markets.

4.1 Economic conditions in the fishery

4.1.1 Supply

4.1.1.1 Albacore

Global catch levels of albacore rose rapidly through the 1990s rising from 156,100 MT in 1991 to around 262,500 MT in 1999, an increase of 68% (Figure 15). This increase was driven primarily by a large increase in catch from the North Pacific Ocean where catch increased more than three-fold from 37,900 to 122,200 MT (Figure 16).

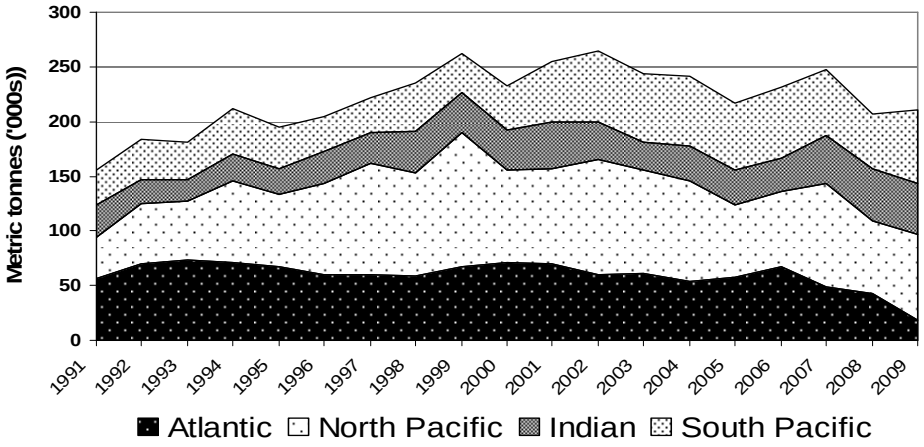


Figure 15. Annual trends of global albacore production by ocean area

Sources: South Pacific and North Pacific Oceans from SPC (2010), Estimates of Annual Catches in the WCPFC Statistical Area (2010); Atlantic Ocean from WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

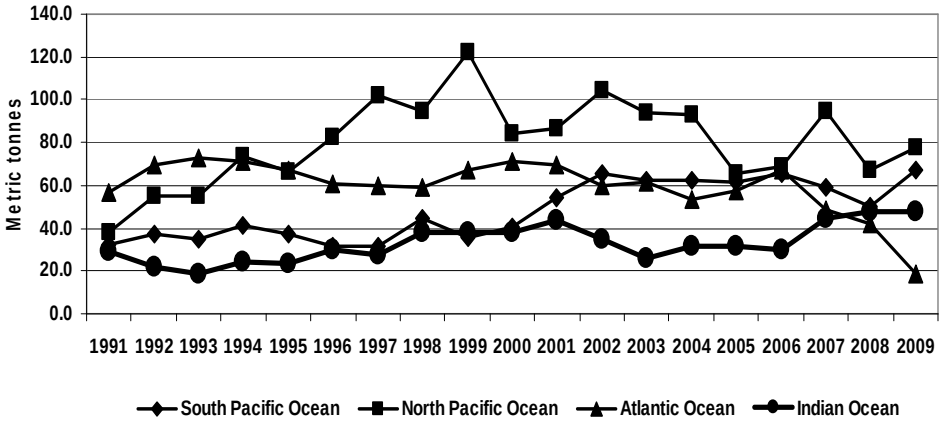


Figure 16. Annual albacore production trends by ocean area

Sources: South Pacific and North Pacific Oceans from SPC (2010), Estimates of Annual Catches in the WCPFC Statistical Area (2010); Atlantic Ocean from WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

Since 1999, global catches have been on a downward trend with catches in 2008 of under 211,000 Mt, about 20% below the record 2002 level, driven by substantial declines in the North Pacific (down by 26 per cent to 77,500 Mt) and Atlantic Ocean (down from by 69 per cent to 18,900 Mt).

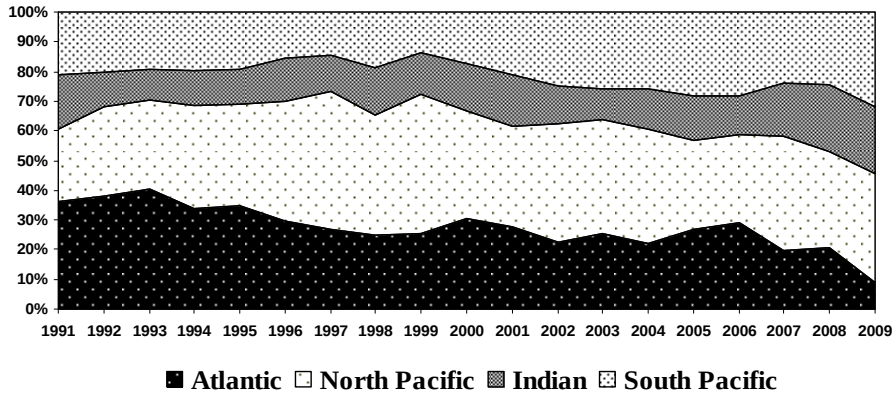


Figure 17. Proportional shares of albacore production by ocean
Sources: South and North Pacific Oceans from SPC (2010), Estimates of Annual Catches in the WCPFC Statistical Area (2010); Atlantic Ocean from, Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

Albacore catches in the South Pacific Ocean have followed a different trend with catch ranging between 31,400 and 40,500 Mt between 1991 and 2000, before increasing dramatically in 2002 and 2009 to reach more than 67,000 MT. Catches in 2003 were marginally lower than 2002 at around 62,500 Mt and then increased to a record 67,000 Mt in 2009.

The decline in catch from the North Pacific in recent years and the corresponding increase in catch from the South Pacific Ocean has resulted in a significant change in the composition of global catches since 1999. The proportion of the global albacore catch taken in the North Pacific declined from 47% in 1999 to 37% in 2009, while the proportion of the global catch taken in the South Pacific rose from 14% to 32% over the same period. The proportion of the global albacore catch taken from the Atlantic has decreased from 26% to 9% over this period while the Indian Ocean component of the catch rose from 14% to 23%.

4.1.1.2 Longline caught Bigeye

Figures 23 to 25 provide a breakdown on global longline caught bigeye catches by ocean area over the period 1997-2009. The WCPO and Indian oceans provide the main sources of bigeye tuna fishing and broadly account for similar proportions of total production in recent years.

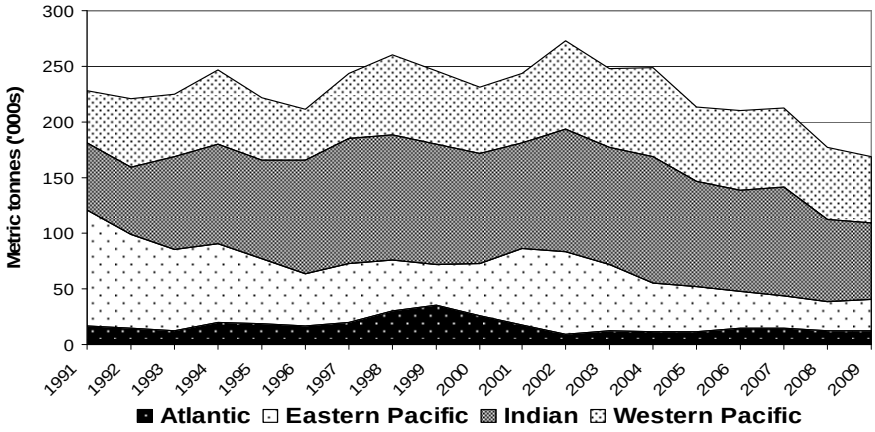


Figure 18. Global trends of bigeye production by ocean area
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

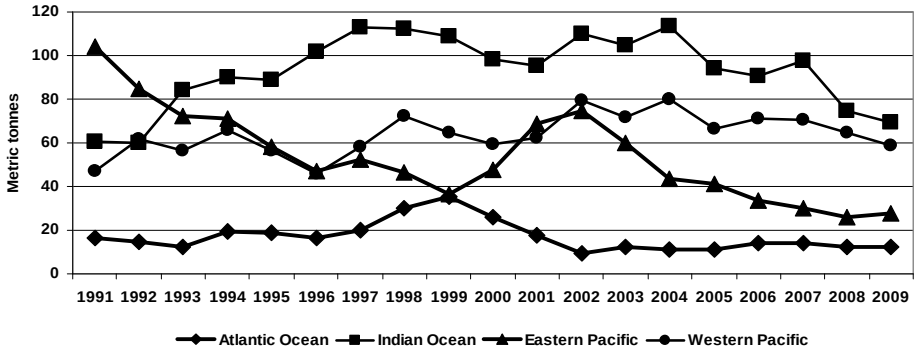


Figure 19. Annual trends for bigeye production by ocean area
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

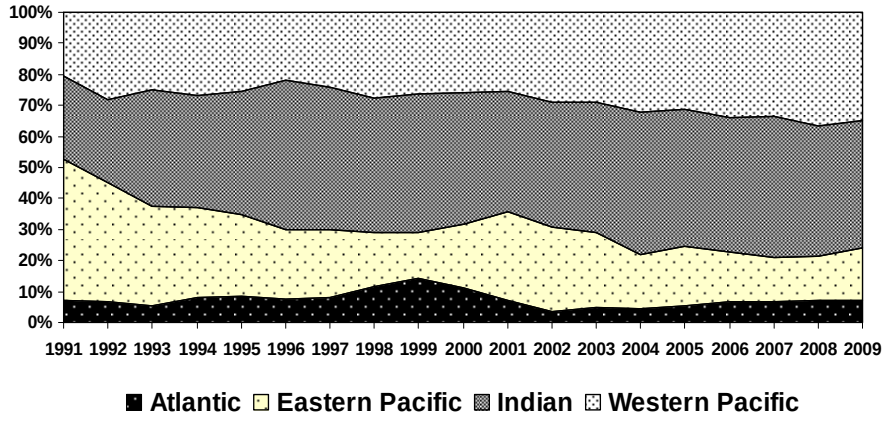


Figure 20. Proportional shares of bigeye production by ocean area
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

4.1.1.3 Longline caught Yellowfin

Figures 26 to 28 provide a breakdown on global longline caught yellowfin catches by ocean area over the period 1991-2009.

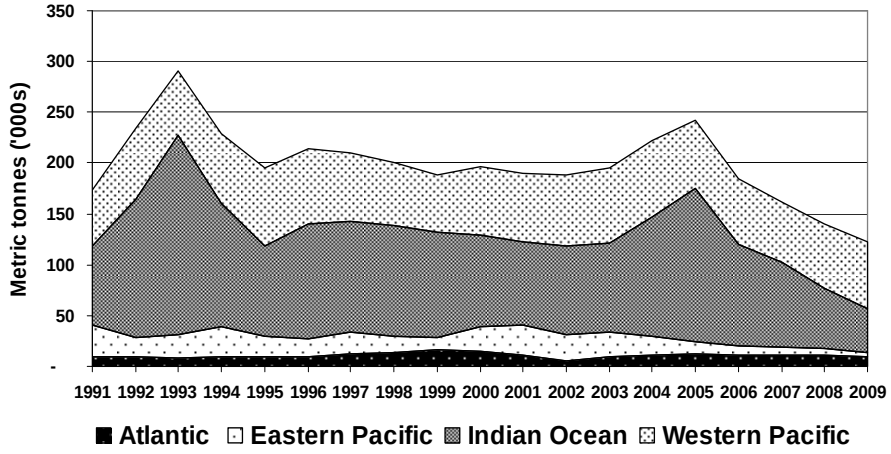


Figure 21. Annual global trends of yellowfin production by ocean area
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

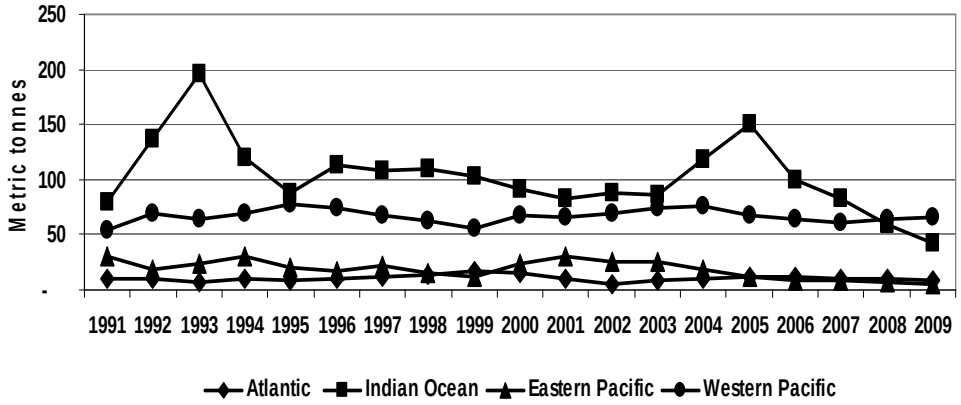


Figure 22. Annual production trends of yellowfin by ocean area
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

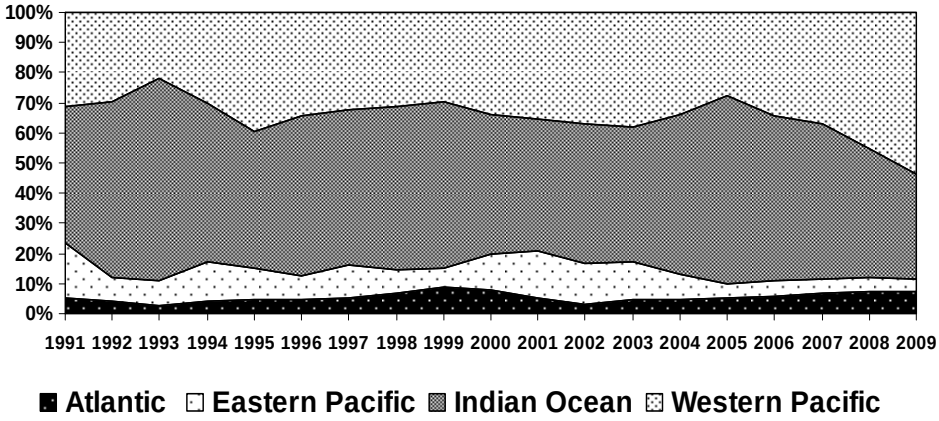


Figure 23. Proportional shares yellowfin production by ocean area
Sources: WCPO and EPO from SPC (2010), Atlantic Ocean from ICCAT www.iccat.int/atl.asp; Indian Ocean from ww/w.iotc.org/English/data.php

4.1.2 Price trends

The price indicators for longline caught fish are as follows: For fresh longline prices, the Japanese fresh yellowfin and bigeye import prices from Oceania are used. For yellowfin caught by frozen longline vessels Yaizu market prices (in Japan) for longline caught yellowfin are used. For bigeye caught by frozen longline vessels frozen bigeye price at selected major Japanese ports are used. For albacore caught by fresh and frozen longline vessels Thai import prices are used.

4.1.2.1 Albacore

The trends in Thailand frozen import prices (cif) for albacore are shown in Figure 24. The trends show that prices have fluctuated widely over the years, from lows of less than $2000/Mt to highs exceeding $2,500/Mt. The average price fell from around US$2,200/Mt in 1997 to US$1,910/Mt in 1999. In 2000 and 2001 prices increased substantially to nearly US$2,500/Mt. In 2002 price fell sharply, to around US$1,790/Mt, the lowest levels on record. Albacore prices showed steady uptrend over the following years to peak at close to US$2,700 in 2006. Prices have since declined, reducing to an average of US$1,950 in 2007. Prices have trended up strongly in the last two years, averaging $2,488/Mt in 2008 and increasing further to an average of $2,643/Mt in 2009.

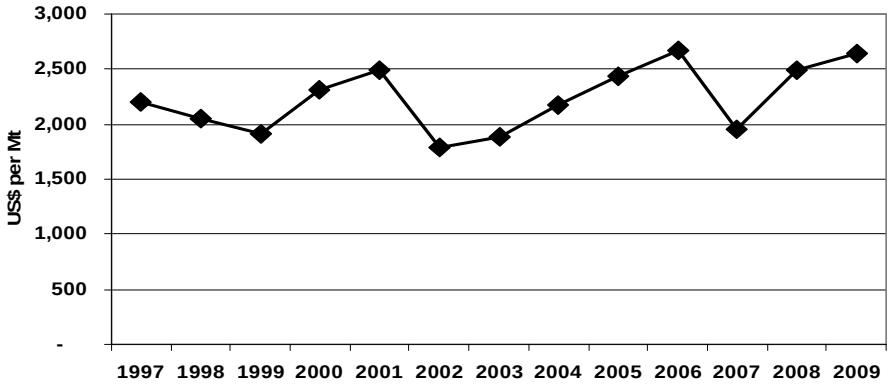


Figure 24. Thai import frozen albacore prices

4.1.2.2 Longline caught bigeye and yellowfin prices

Figure 25 illustrates movements in average annual prices of selected indicator prices. Over the years 2000 to 2002, all longline prices declined sharply.

Frozen longline prices (for both bigeye and yellowfin) trended down sharply between 1999 and 2002. Frozen bigeye tuna price declined from a peak of more than $9,094/Mt to $5,182/Mt and frozen yellowfin prices declined from a peak of $5,141/Mt to $3,496/Mt. Between 2002 and 2006 prices for both species were relatively stagnant and not until 2008 and 2009 did noticeable improvements occur. In US$ terms, frozen sashimi products showed new peak levels in 2009 with bigeye prices averaging $9,560/Mt and yellowfin prices $6,580/Mt. It is noted however that these improvements are in US$ terms and the impact of the substantial Yen appreciation against the Dollar in recent years must be taken into account. (The frozen sashimi fleets in fact were the worst affected fleets during the 2007/2008 period especially from fuel price hikes and slump in sashimi grade products that led to significant reductions in the fleet size)

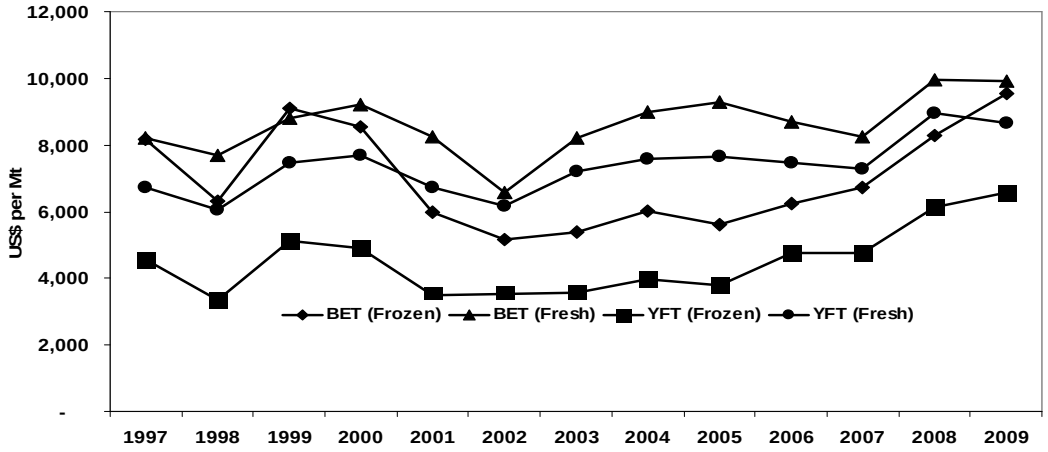


Figure 25. Japan fresh and frozen sashimi prices

Fresh sashimi product prices generally followed similar trends except in 2009 when both fresh bigeye and yellowfin prices declined somewhat from 2008 levels. Nonetheless fresh prices are only marginally lower from peak levels in 2008. The 2009 average prices were $9,932 (0.3% down on 2008) and $8,638/Mt (3% down on 2008) for bigeye and yellowfin respectively.

Overall, price movements in the last two years have been favourable for the fleets.

4.1.3 WCP-CA longline fisheries catch values

Total estimated delivered value of the WCP-CA longline fishery in 2009 was $1.2 billion, 30% of total estimated delivered value of US$4.1 billion of WCPO values. The $1.2 billion in 2009 represents a marginal 1% ($9 million) increase from the previous year that follows from the previous year's significant increase of 24% ($234 million). The marginal increase in 2009 came from marginal increases in both production of 1% (2,946 Mt to 210,504 Mt) and price. In the previous year the significant improvement in values came from price increase alone as production marginally dropped (by 2,564 Mt to 207,558 Mt). The annual trends of longline estimated delivered value, catch, and composite price are illustrated in Figure 26 below.

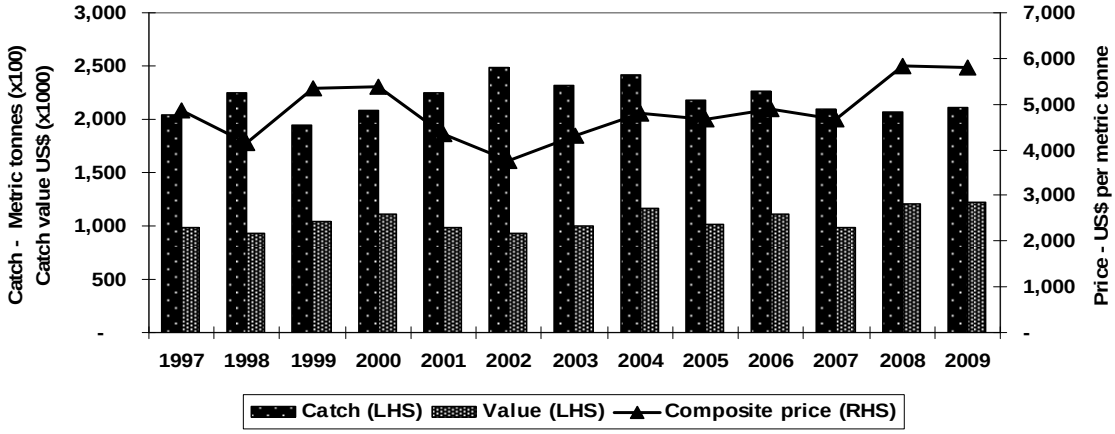


Figure 26. Annual trends of longline values, catch and composite price, 1997-2009

4.1.3.1 Values by species

Bigeye tuna catch values in the WCP-CA by far has the greatest importance compared to the values of other longline target species of yellowfin and albacore. The annual trends between 1997 and 2009 are shown in Figure 27. For 2009, of the total estimated longline value of $1.2 billion, 47% was the value of bigeye, 35% yellowfin and 18% albacore (Figure 28).

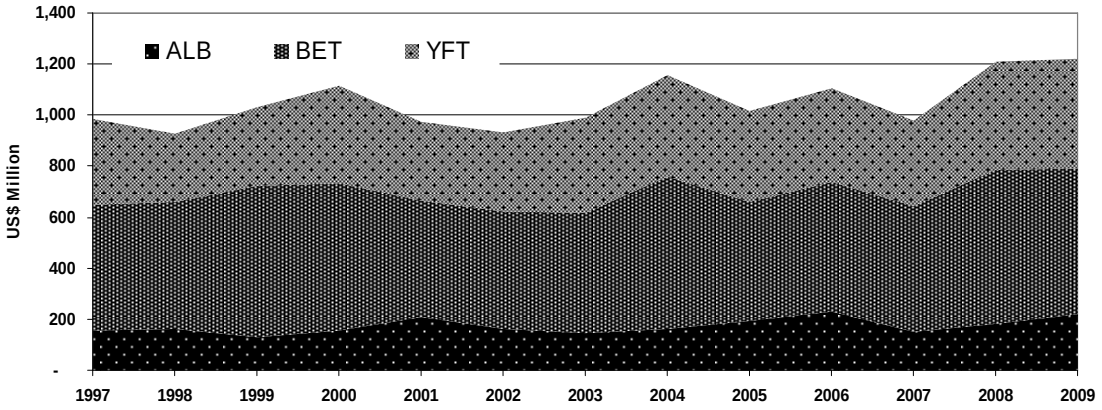


Figure 27. Delivered values of longline fishery within the WCP-CA by species, 1997-2009

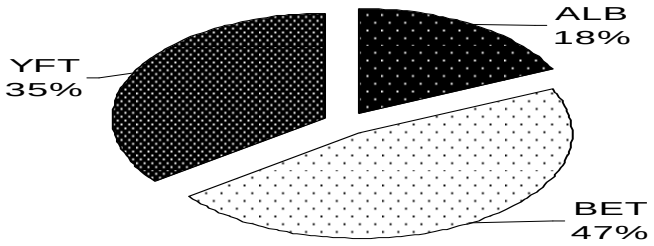


Figure 28. Proportional distribution of longline values by species, 2009

4.1.3.2 Values by water

The distribution pattern of estimated values of the longline fishery by waters show a consistent pattern – the highest proportion of between 40% and 50% is normally attributed to international water catches, around 30% to other national waters and 20% to 27% for catches from FFA member waters (Table 5). In 2009, the proportion of the longline value from FFA member waters was at 20% (21% in 2008), one of the lowest in the last 5 years. Of the US$1.2 billion longline value in 2009, 56% was attributed to catch from international waters and 24% as value of catches from other national waters.

Table 6 provides individual FFA member country data on the value of longline catches in their waters between 2005 and 2009.

Table 5. Estimated delivered longline values by waters ($millions)

	2005	2006	2007	2008	2009
FFA waters	202	292	266	253	244
Other national waters	302	316	293	316	297
International waters	512	500	421	645	682
Total	1,016	1,109	980	1,213	1,223
% in FFA waters	20%	26%	27%	21%	20%

Table 6. Estimated longline values in FFA member waters, 2005 – 2009 ($ millions)

	2005	2006	2007	2008	2009
Australia	16	21	19	24	16
Cook Islands	10	8	6	7	17
Fiji	16	24	15	31	25
FSM	30	37	34	15	12
Kiribati	23	37	51	49	52
Marshall Is	15	19	24	23	27
Nauru	0	0	0	0	-
New Zealand	3	3	2	2	3
Niue	0	1	1	0	0
PNG	15	21	16	23	26
Palau	20	31	21	31	9
Samoa	5	7	8	8	11
Solomon Is	19	46	40	15	17
Tokelau	0	0	0	0	0
Tonga	3	4	4	3	2
Tuvalu	4	0	8	4	3
Vanuatu	23	33	17	19	22
Total	202	292	266	253	244

4.1.3.3 Values by fleet

The longline fishery in the WCP-CA is dominated by fleets other than those of FFA member countries. The longline fleets with considerable importance in WCP-CA include Taiwan, Japan, Korea, China and Other countries, in that order on the basis of fleet catch values. As Figure 29 illustrates, the FFA fleet contributes $162 million or 13% of the $1.3 billion total longline catch value in the WCP-CA in 2009. The trends in the value of FFA fleet catches in the last five years show annual variations, largely a reflection of the impact of variations in economic conditions and entry and exit into the fishery.

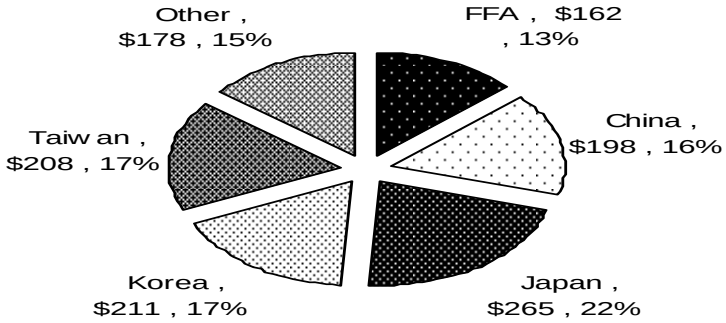


Figure 29. WCP-CA longline values distribution by flag, 2009

Table 7. WCPO purse seine values distribution by major flags, 2005-2009

	2005	2006	2007	2008	2009
FFA	135	171	123	157	162
China	75	115	74	144	198
Japan	279	319	314	306	265
Korea	147	126	112	192	211
Taiwan	209	212	195	230	208
Other	170	165	161	185	178
Total	1,016	1,109	980	1,213	1,223

4.1.4 WCP-CA Longline Catch composition, CPUEs, CPUE values

Comparative operating data and revenue performances of three distinct longline fleets in the WCP-CA are presented below. The fleets comprise of:

- Fresh sashimi – China, Japan and Taiwan vessels Pacific-based
- Frozen sashimi – Japan and Korea DW vessels
- South Pacific albacore fleets – all FFA and FFA-based foreign fleets under charter or joint arrangements

4.1.4.1 Species catch composition

The prime distinctions between the fleets compared are the target species and the form with which the products are marketed. Figure 30 provides comparison of average species catch composition of the three fleets based on recent historical catch data. As illustrated, the fresh sashimi fleet primarily targets bigeye tuna (55%) while the frozen fleet, although primarily targeting bigeye, also has greater flexibility to switch targeting between bigeye, yellowfin and albacore as fishing and market conditions dictate. The frozen fleet species catch composition typically had the proportions of 45% bigeye 41% yellowfin in the last five years. The frozen fleet also has a higher albacore proportion

than fresh fleet, 14% compared to 11%. The south Pacific albacore fleet with albacore as the prime target species, typically had around 80% of catch comprising of albacore with yellowfin around 15% and bigeye 7% in recent years.

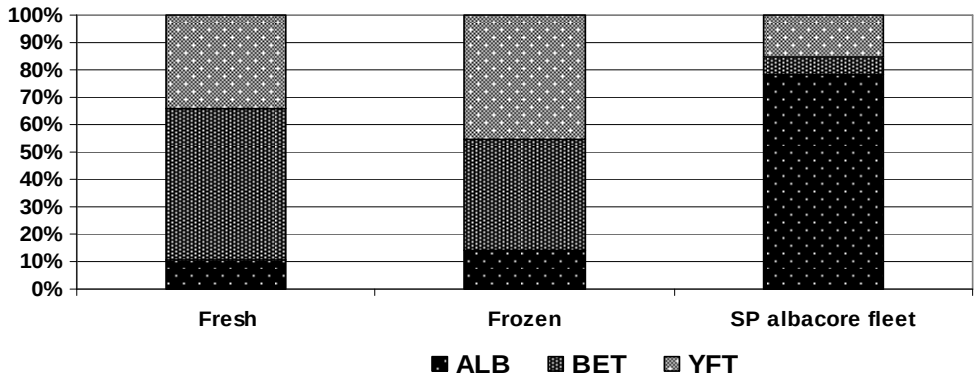


Figure 30. Species catch composition for fresh, frozen and south albacore fleets

4.1.4.2 CPUEs

The comparison of CPUEs is facilitated using a unit of effort of one hundred hooks (hhks). The trends between 1997 and 2009 show clearly the differences between the fleets as Figures 31 shows.

The data suggests that catch rates among the three fleets are quite distinct with the frozen sashimi fleet consistently posing the highest CPUE broadly within the range of 40 to 50Kg/hhks, the south Pacific albacore fleets between 30 and 40Kg/hhks and the fresh sashimi fleet between 20 and 30Kg/hhks.

All the fleets appear to have experienced overall declines in catch rates as the trend lines for the respective fleets CPUEs show. These trends have reversed somewhat in recent years however. For the frozen longline fleet, the decline was most steady between 1997 and 2005 with CPUE reducing from more than 50Kg/hhks to a low of less than 40Kg/hhks in 2005. Despite a moderate recovery in the following year it reduced again to less than 40Kg/hhks in the two years that follow and only in 2009 that the catch rate improved significantly to almost 50Kg/hhks.

The decline in the catch rates for the fresh sashimi fleet has been less steep. There was only a gradual reduction from just under 30Kg/hhks in 1997 to 20Kg/hhks in 2002, This trend reversed moderately over the next four years and though some decline occurred again in 2007, there have been steady improvements since and the CPUE for the fleet has remained above 20Kg/hhks through to 2009.

The performance of the south Pacific albacore fleets broadly has been consistent with overall trends in other fleets. However, the deterioration in catch rates was particularly sharp between 1997 and 2003, from more than 40Kg to 27Kg/hhks. The steady recovery in the three years that followed were reversed again in the next two years. In 2009, the catch rate for this fleet improved quite significantly to 40Kg/hhks, broadly comparable with the good years between 1997 and 2000.

Overall, catch rates in 2009 were an improvement on 2008 and 2007 for all fleets.

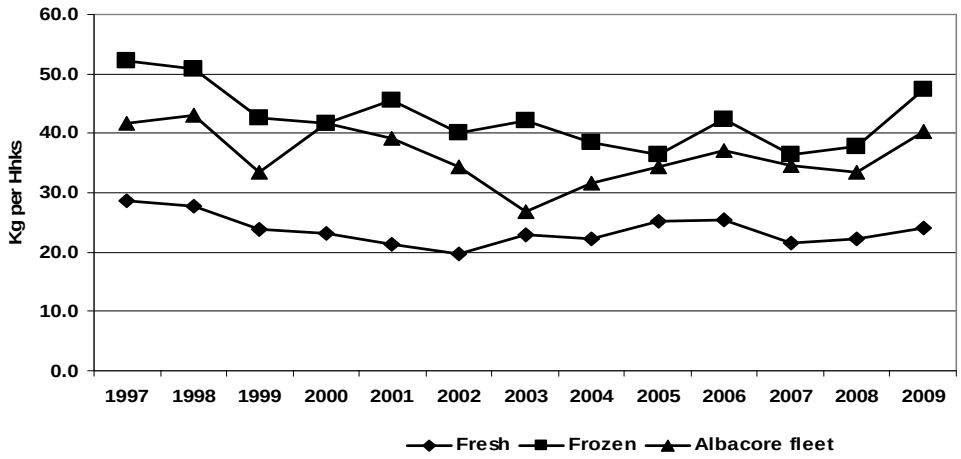


Figure 31. CPUE trends for fresh and frozen sashimi and south albacore fleets

4.1.4.3 CPUE values

Values per unit of effort performances of the longline fleets in terms of per hundred hooks and per day basis are provided below. The two determinants of values performances of the fleets are price and catch rates where the higher the catch rate for a fleet is relative to another, the greater the difference in the value per unit of effort. Against the backdrop of catch rates and price trends noted above, Figures 32 and 33 provide estimates of values per unit of efforts trends for the different fleets between 1997 and 2009.

As shown in Figure 32, all fleets have experienced overall declining per unit of effort values trends until recently.

The frozen sashimi fleet, on account of higher catch rates and despite prices being lower than fresh sashimi products, on a per hundred hook basis earns more. 2009 appears to have been the best year for the frozen longline fleet to date, with earnings per hundred hooks at $369 compared to the previous year's $259 and previous peak level of $301. Both the catch rate and price improvements contributed.

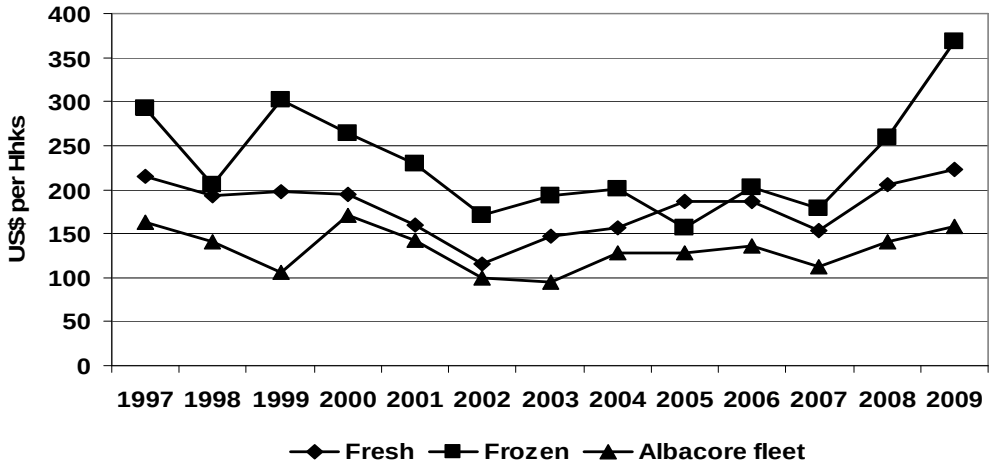


Figure 32. Annual trends of revenue rates for fleets, 1997-2009

The fresh sashimi fleet performance was also the best to date with values per hundred hooks at $224 compared to the peak of $215 in 1997. As in the case of the frozen fleet, the uptrend in 2009 was a continuation of the trend in 2008 that had been preceded by two years of declines. The higher catch rate and price in 2009 contributed.

The south Pacific albacore fleet values on a per hundred hook basis ranges between $100 and $150, lower than other fleets considering the lower value target species that more than offset the higher catch rate compared to the fresh sashimi fleet. In 2009, against improvement in both catch rate and price, value was $158 per hundred hooks, the best in the last eight years.

Values on a per day basis for the respective fleets are shown in Figure 33. Generally, a similar trend in values per hundred hooks is seen, however the major difference is in the south Pacific albacore fleet displaying almost the same level of performance as fresh sashimi longline fleets. The main reason is in the number of hooks per day set. Over the years, the level of effort in terms of hooks per day set by the albacore fleet is noted to have always exceeded those of the fresh sashimi fleet. Furthermore, while data indicates that the fresh sashimi fleet has increased effort in terms of hooks per day set over the years, so did the albacore fleet. The data also indicates an almost constant number of hooks per day set by the frozen sashimi fleet, except in the last two years that show substantial reduction.

Taking a day as a unit of effort and valuing the catch rates on this basis using the same price sets, it is shown that on a day, the frozen fleet generates between $4,000 and $7,500. The trend has been on a sharp decline in earlier years up to 2008 before a noticeable uptrend was shown. In 2009, a day's catch value for the frozen fleet was $7,020, the best in the last ten years.

For the fresh sashimi and albacore fleets, the range is between $1,500 and $4,000. In contrast to the frozen fleet, there was only moderate declines between 1997 and 2002. In the years following up to 2009, there has been a clear upward trend, largely attributed to the increasing trend in hooks per day set by both fleets. In 2009, the estimated earnings per day by both fleets averaged $4,000.

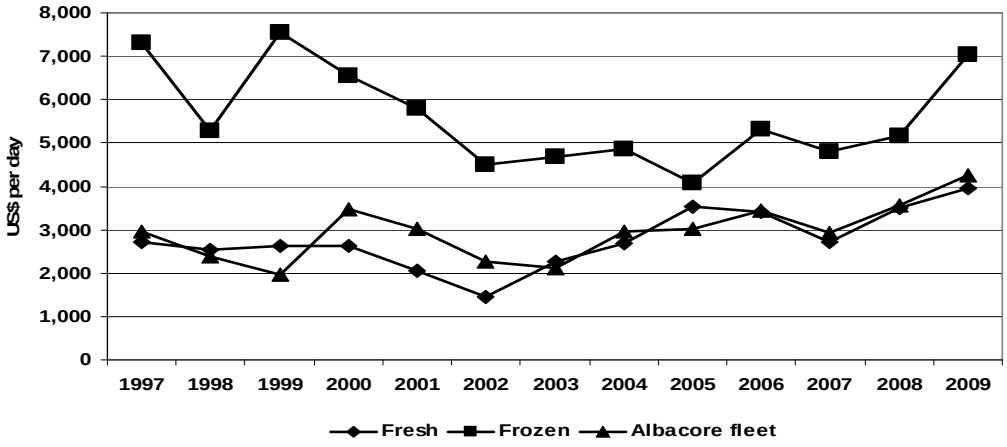


Figure 33. Annual trends of per day earnings rates by fleets, 1997-2009

3.1.4.3 Fuel costs and fish prices

Diesel oil price is the single most important operational cost for fleets. Given that different fleets access different supply sources for their fuel, Singapore spot diesel price is used as proxy to generalise about fuel cost trends. Singapore is the regional hub for oil refining and fuel imports in the Pacific and Singapore prices also serve as the basis for fuel purchased from tankers operating in the Western Pacific even though the fuel may not be shipped out of Singapore.

The trend at which fuel cost has escalated over the years, relative to fish prices, has been a continuing threat to the viability of fleets, especially longline fleets. Figures 34 and 35 below attempt to illustrate the trends of fresh and frozen sashimi prices and albacore prices relative to that of fuel cost trends.

For the sashimi product prices it is evident that the decline and stagnancy between 2000 and 2006 is contrasted by the escalation in fuel costs as of 2004 and even more in 2007. Despite some upturn in prices in 2008, the rate at which fuel costs escalated would probably more than wipe out any gains from fish price increases. In 2009, the fuel price escalation reversed sharply while fish prices were at 2008 level or improved.

Similarly, for the frozen albacore prices, the trends relative to fuel price trends indicate that probably the worst years were in 2002 when albacore prices plummeted against relatively stable fuel prices and more recently in 2007 and 2008. In 2007 albacore prices once again plunged while fuel costs increased sharply, continuing into 2008 at even higher increase rate that exceeded the increase in albacore prices during the year. As for other fleets, developments in 2009 have been a significant improvement relative to preceding two years experiences.

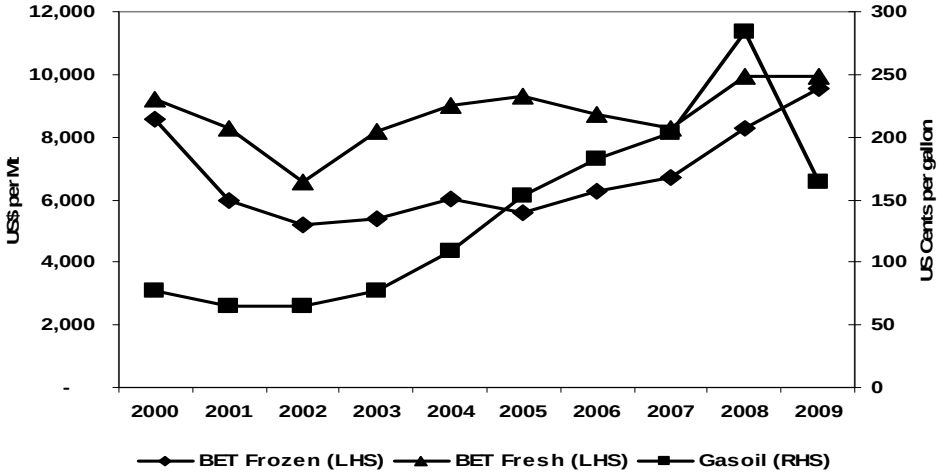


Figure 34. Annual trends of sashimi grade fish prices and fuel costs, 1997-2009

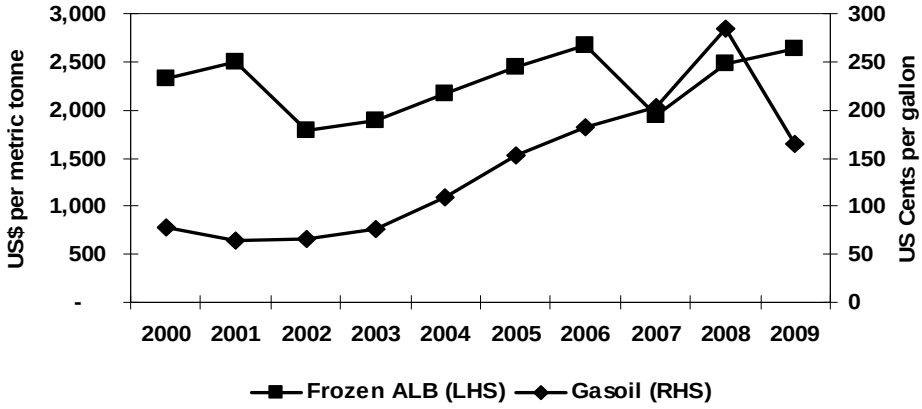


Figure 35. Annual trends of frozen albacore price and fuel costs, 1997-2009

5. Domestic tuna industry development indicators

This section of the report focuses on FFA member countries (excluding Australia and New Zealand) development indicators. These indicators include trends in: access fees, tuna fishing contribution to GDP, employment in the tuna sector and tuna product exports. The following indicators have been compiled from SPC catch and effort data, Scientific Committee Country Reports from SC5, FFA market and industry data, and publicly available import data from importing countries. Some of the proposed domestic indicators reported on last year and intended to be improved upon with updated data series were obtained during the course of the year but with further room for improvement in the collection of these data. The established process of collecting economic data through appointed agents at national levels has come a long way and is expected to continue to improve over time.

5.1 Access fees

Access fees, though identified as an essential indicator to monitor the trend of benefits from access granted in exchange for fishing rights in FFA EEZs, unfortunately has not been possible to collect to the extent desired. This is understandable given the sensitivity around this data, specifically fees under bilateral arrangements, although the Secretariat would only publish aggregated data to reduce this sensitivity.

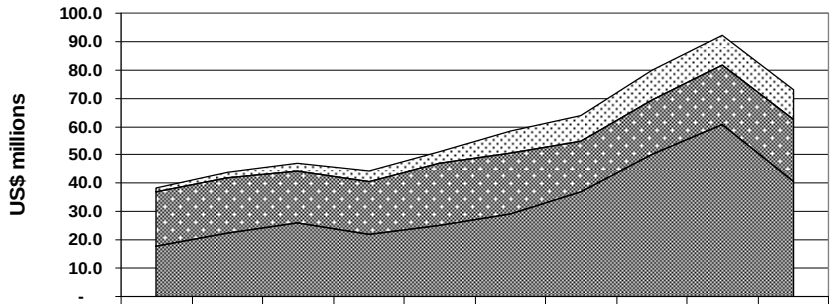
For purposes of highlighting the possible trends and to a lesser extent the magnitude of what may have been received in access fees over the years, what follows is aggregation of multilateral fees under the US Treaty and FSMA with 6% of value of catch by fleets under bilateral arrangements. The basis for the 6% is that typically bilateral arrangements require 5-6% of landed catch value in access fees. In actual fact, countries receive more than 5 or 6% of catch values, as high as 8% to 12% or even more, depending on the fee structure in place, the extent to which licensed fleets actually take up the opportunity to fish, and actual fish price and catch rates which may differ from historical values used in the initial fees calculations.

Catch values for each gear type and for each of the FFA member zones are available and the approach to approximate fees receipts has been to apply 6% of catch values of purse seine catches and 5% on longline catch values.

5.1.2 Purse seine fees

The access fees values for the purse seine fishery from bilateral and multilateral arrangements are shown in Figure 36. Over the years 2000 to 2009 the trend has been increasing. The major component is from bilateral sources contributing between $40 and $60 million in the last three years. The $60 million peak in 2008 follows from an estimated $50 million in 2007. The substantial increases in these two years relative to prior years came from the rise in catch value in FFA zones from increased effort and substantially improved fish prices. The drop off in 2009 to $40 million is attributed to fish price declines.

In aggregate, estimated access fees for 2009 was $65 million compared to $92 million in 2008 and $80 million in 2007.

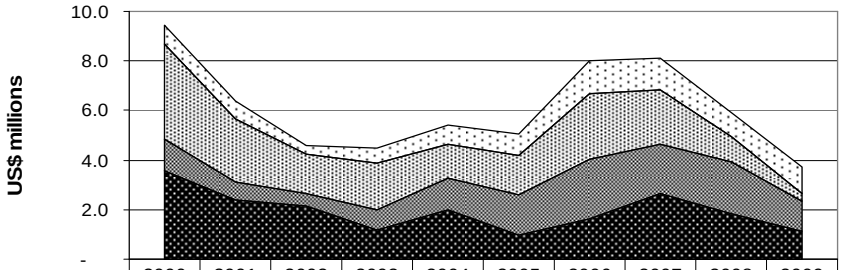


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
FSMA	1.6	1.9	2.8	3.7	3.7	7.8	9.0	10.4	10.7	10.7
UST	19.1	19.3	18.3	18.5	21.9	21.5	18.1	19.4	20.9	21.9
Other	17.8	22.6	25.9	22.0	25.3	29.1	36.9	50.1	60.6	40.5

Figure 36. Access fees under multilateral arrangements and 6% of catch value of bilateral partners

5.1.3 Longline fees

Access fees from longline fishery is based on 5% of landed catch values of major fleets including China, Japan, Korea and Taiwan. There has been an apparent decline over the years despite recovery in 2006 and 2007. In 2009, an estimated 5% of longline catch value was about $4 million as against more than $9 million in 2000.

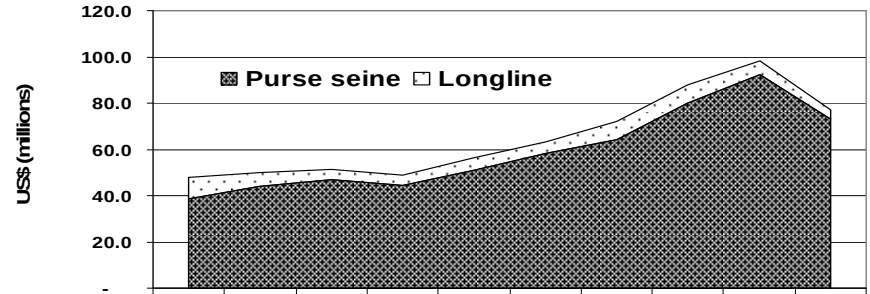


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
China	0.8	0.7	0.4	0.6	0.8	0.9	1.3	1.2	1.0	1.1
Japan	3.8	2.5	1.6	1.9	1.4	1.6	2.6	2.2	1.0	0.3
Taiwan	1.3	0.7	0.5	0.8	1.3	1.6	2.4	2.0	2.1	1.2
Korea	3.6	2.4	2.2	1.2	2.0	1.0	1.6	2.7	1.8	1.1

Figure 37. Estimated 5% of longline catch values of bilateral fishing partners

5.1.4 Comparative access fees between purse seine and longline

Comparison of the fees contributions from purse seine and longline fleets are shown in Figure 38. From the estimates made, between $70 and almost $100 million in the last three years with purse seine accounting for more than 90%.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Longline	9.4	6.4	4.6	4.5	5.4	5.0	8.0	8.1	5.9	3.7
Purse seine	38.5	43.7	47.0	44.3	51.0	58.4	64.0	79.9	92.2	73.1

Figure 38. Estimated proceeds under multilateral and bilateral access arrangements

5.2 FFA fleets – Local and Locally-based foreign

The FFA fleet has grown substantially in the last decade or so, facilitated by domestication policies that have resulted in growth of both domestic and domestically based foreign purse seine and longline vessels. The trends in the growth of the purse seine and longline fleets are shown in Figures 39 and 40. In more recent years there has been some trending down in the fleet size however. In the case of purse seine fleet, this is more a consequence of reflagging while for the longline fleet it relates more to economic conditions for the fleet.

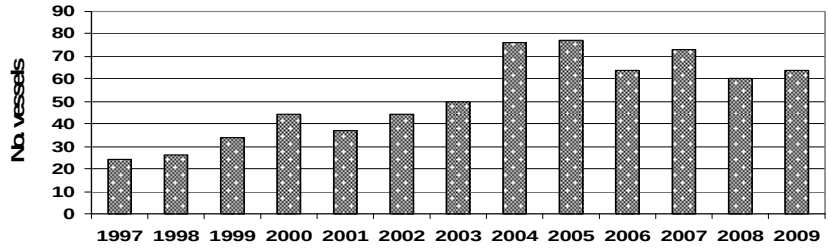


Figure 39. FFA No. of purse seine vessels

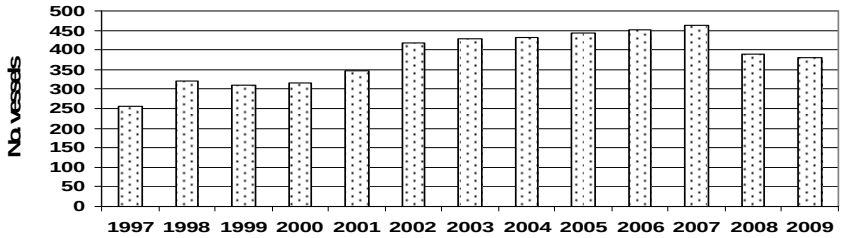


Figure 40. FFA No. of longline vessels

5.3 Tuna fishing contribution to GDP

The significance of the growth in fleet size is in the contribution this makes to the additional flow of economic benefits to national economies in various forms. Measurements of the contributions to GDP by local and locally based foreign fishing fleets, (facilitated through use value added ratios), is presented below in Figure 41 and country-specific data in Table 8.

As Figure 41 shows, the overall contribution of tuna fishing to GDP has markedly increased over the years parallel with the trends of increases in fleet capacity. Tuna fishing in 2009 contributed $206 million, a decrease from the previous year's $263 million on account of lower purse seine value. The overall trend of contribution is largely determined by the contribution from the purse seine fleet because of the magnitude of the value of output from purse seine fishing relative to other fishing.

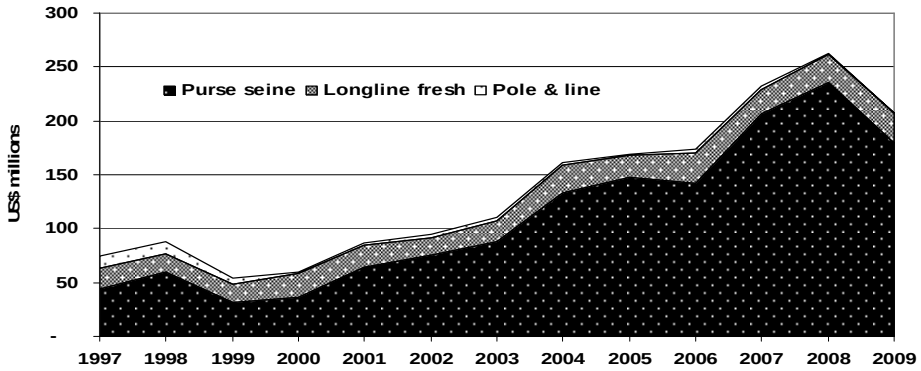


Figure 41. Tuna fishing contribution to GDP by gear type, 1997-2009

The contribution the pole and line fishery is negligible. By country, the contribution from the PNG purse seine fleet has been the major contributing factor to this uptrend. Since 2002, more than 50 percent of the total tuna contributions to GDP came from PNG – Table 8.[3]

Table 8. Tuna fishing contributions to GDP by year by country (US$ millions)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2009	2008
Cook Islands	-	-	-	-	0.0	0.2	0.8	1.7	1.7	1.5	1.1	1.4	1.2
Fiji	2.5	2.1	2.2	5.8	6.1	5.1	5.8	10.1	6.4	8.6	5.0	7.8	7.1
FSM	4.5	6.9	4.1	6.9	7.0	7.7	10.8	11.6	11.4	4.7	10.0	15.0	12.2
Kiribati	-	-	-	-	-	-	-	-	-	-	-	-	-
Marshall Is	-	-	-	1.8	12.2	12.6	11.6	17.9	22.2	16.8	33.9	24.7	22.5
Nauru	-	-	-	-	-	-	-	-	-	-	-	-	-
Niue	-	-	-	-	-	-	-	-	0.1	0.2	0.1	0.0	0.1
PNG	10.3	23.6	12.2	18.4	34.0	44.4	54.7	89.0	96.8	100.2	135.9	153.6	110.3
Palau	0.0	-	-	0.2	0.1	0.0	0.0	0.0	-	-	-	-	-
Samoa	5.6	5.5	4.5	5.2	5.4	3.4	2.2	2.1	1.6	2.7	2.9	2.9	3.8
Solomon Is	28.4	25.6	16.9	6.1	7.2	8.3	10.9	12.5	8.9	13.9	13.5	12.8	9.9
Tokelau	-	-	-	-	-	-	-	-	-	-	-	-	-
Tonga	0.4	0.4	0.6	0.7	1.0	0.8	0.6	0.3	0.5	0.6	0.6	0.6	0.2
Tuvalu	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanuatu	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	51.7	64.2	40.4	45.2	73.0	82.4	97.3	145.2	149.6	149.2	202.9	218.7	167.3

5.4 Employment

Employment data in the tuna industry shows an uptrend between 2002 and 2008 with 2009 data showing slight decrease from 2008. Presently more than 12,000 people are engaged in the tuna industry, either on vessels or in onshore facilities. Of the total, about 3,400 are on vessels (including observers) and the rest in onshore facilities (Figure 42). The trend has been up since 2002 when around 8,500 employment in the tuna industry was recorded, with around 3,000 on vessels and 5,500 in onshore facilities.

Table 9 shows the respective country data on employment in their respective tuna industry and between periods.

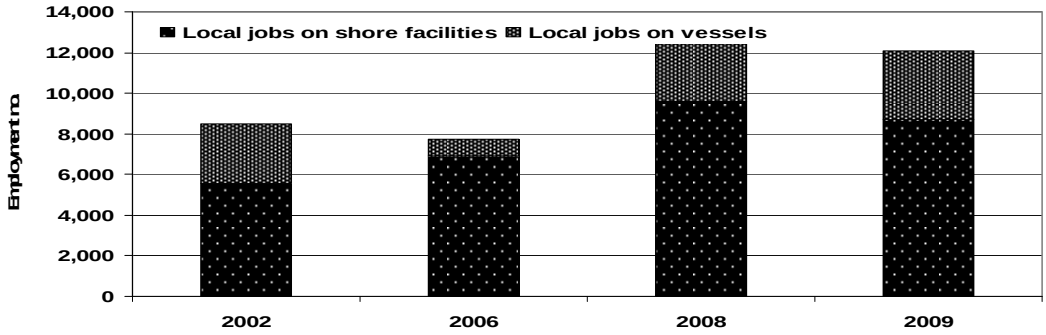


Figure 42. Tuna industry employment in FFA member countries for selected years

[3] Values for the annual tuna fishing contribution to GDP were derived by obtaining the gross values of fleet production and applying the estimated country and fleet-specific value-added-ratios to the respective catch values and then aggregating these figures. The prices applied to obtain catch values are those used as the main price indicators, but with adjustments made to exclude estimated freight costs. The value added ratios were obtained from recent studies conducted under DEVFISH to estimate the economic contributions of domestic longline and purse seine fleets to FFA members.

Table 9. Tuna industry employment in FFA countries for selected years

	Local Jobs on Vessels					Local Jobs in Shore Facilities			
	2002	2006	2008	2009		2002	2006	2008	2009
Cook Is.	50	15	12	8		15	15	10	10
Fiji	893	330	150	590		1496	2200	1250	990
FSM	89	36	323	98		131	24	140	199
Kiribati	39	15	157	479		47	80	70	0
Marshall	5	0	547	539		457	100	414	626
Nauru	5	0	2	0		10	2	0	0
Niue	5	0	4	0		0	14	18	0
Palau	1	0	4	0		11	5	20	8
PNG	460	110	944	905		2,707	4,000	6,715	6,000
Samoa	674	110	277	177		108	90	60	65
Solomon	464	66	107	90		422	330	827	732
Tokelau	0	0	1	0		0	0	0	0
Tonga	161	75	57	30		85	35	35	20
Tuvalu	59	20	65	218		36	10	10	0
Vanuatu	54	20	175	258		30	30	30	22
TOTAL	2,959	797	2,825	3,392		5,555	6,935	9,599	8,672

Sources: FFA (2010), FFA (2009), Gillet (2008), Gillet 2002

5.5 Exports

The trends of tuna product export values by FFA member states provide useful indications of the progress and status of development of the tuna industry at the domestic harvesting and processing levels. Export data from FFA member states, though now collected from member countries, are as yet incomplete. As such, the alternative of sourcing data from export destinations is the more reliable and the import data and trends presented below are from these sources[4]. Focus is on export trends to three major export destinations - EU, US and Japan markets – in the last decade. The following are the highlights.

- The overall annual export values trend to the EU, US and Japan have shown steady growth over the years, from $65 million in 2000 to $169 million in 2005 and increasing further to 195 million in 2009.
- The US has been the major export destination in the last decade, consistently accounting for more than 40% of export values and increasing to 51% in 2008 and 2009. The most important product export to this market has been tuna loins, traditionally from Fiji but more recently increasingly from PNG and to a lesser extent Marshall Islands. Other product forms include canned and pouched products, in brine or oil.
- The EU as the second most important market accounts for between $80 and $100 million worth of exports from FFA member countries, primarily for canned tuna products that enjoy duty free access. PNG, Solomon Islands and Fiji have been the sole suppliers but PNG has been the more consistent and on an uptrend.
- Japan provides the main market for fresh sashimi products. The overall trend of exports to Japan has been on the decline in recent years however, largely due to the economic difficulties experienced by FFA fresh longline fleets.

[4] Adjustments were made to the cif import values of the EU and Japan to approximate FFA export values in fob terms. The EU import values were adjusted down by a factor of 20% and Japan by a factor of 30%. No adjustment has been made to US import values as these are expressed f.a.s. (free alongside ship) which sufficiently approximate fob values.

Figures 43 to 46 highlight these key features and the more detailed composition of exports to these markets.

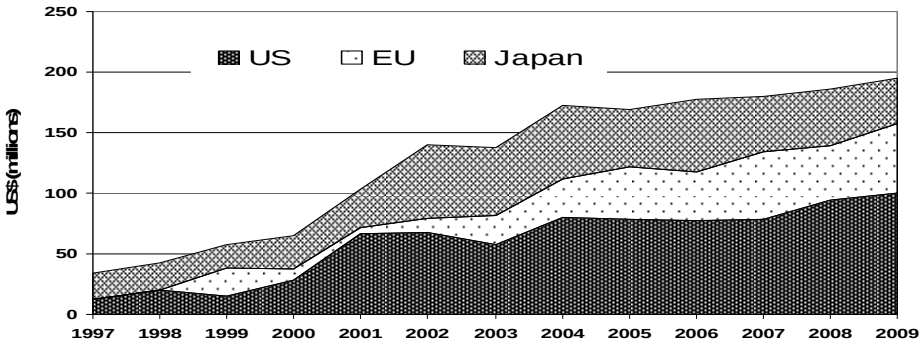
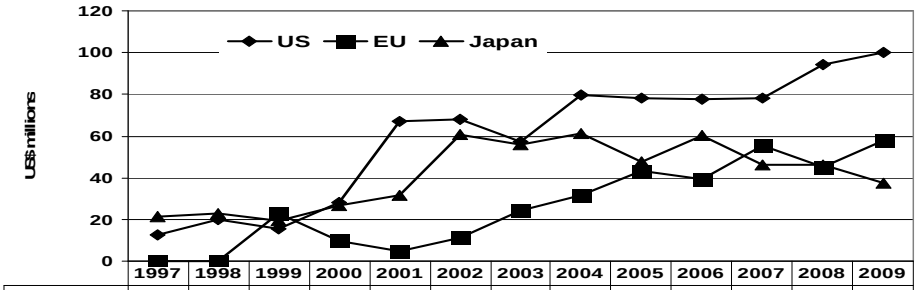


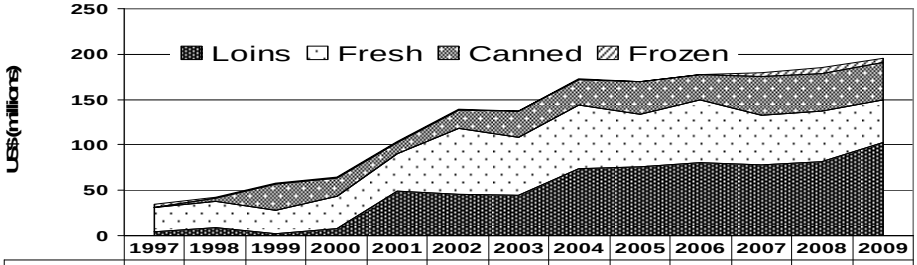
Figure 43. Tuna export values trends and distribution by major markets, 1997-2009

Sources: http://www.st.nmfs.gov/st1/trade/index.htm;
http://www.customs.go.jp/toukei/download/index_d011_e.htm;
http://epp.eurostat.ec.europa.eu/portal/page/portal/external_trade/



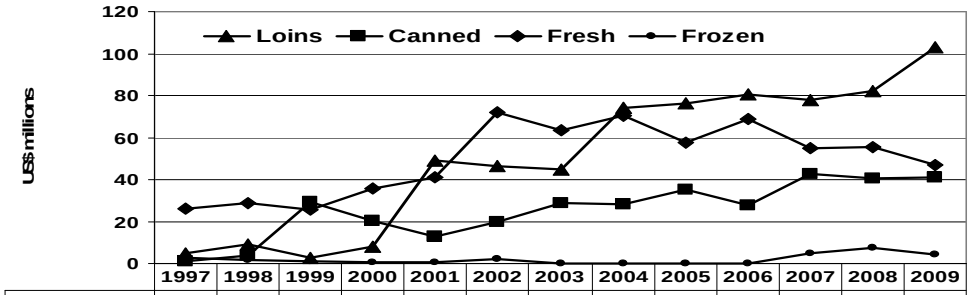
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
US	13	20	15	28	67	68	58	80	78	78	78	94	100
EU	0	0	23	10	5	11	24	32	43	40	56	45	58
Japan	21	23	20	27	32	61	56	61	48	60	46	46	37

Figure 44. Tuna export values trends to major markets, 1997-2009



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Frozen	3	2	1	1	0	2	0	0	0	0	5	8	4
Canned	1	4	29	20	13	20	29	28	35	28	42	40	41
Fresh	26	29	25	36	41	72	64	70	58	69	55	56	47
Loins	5	9	2	8	49	46	45	74	76	81	78	82	103

Figure 45. Tuna export values trends and distribution by product, 1997-2009



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Loins	5	9	2	8	49	46	45	74	76	81	78	82	103
Canned	1	4	29	20	13	20	29	28	35	28	42	40	41
Fresh	26	29	25	36	41	72	64	70	58	69	55	56	47
Frozen	3	2	1	1	0	2	0	0	0	0	5	8	4

Figure 46. Tuna export values trends by product from FFA countries, 1997-2009

5.5.1 Exports to EU market

The FFA tuna exports to the EU are presently from three sources – Fiji, PNG and Solomon Islands. The range of exports is confined to canned tuna and to a lesser extent tuna loins. Total value of exports to EU market in 2009 was $58 million, $40 million (around 70%) of which was value for canned tuna. Figure 47 shows the annual trends of exports by the respective countries. PNG, since 2003, has accounted for the highest value of exports to the EU.

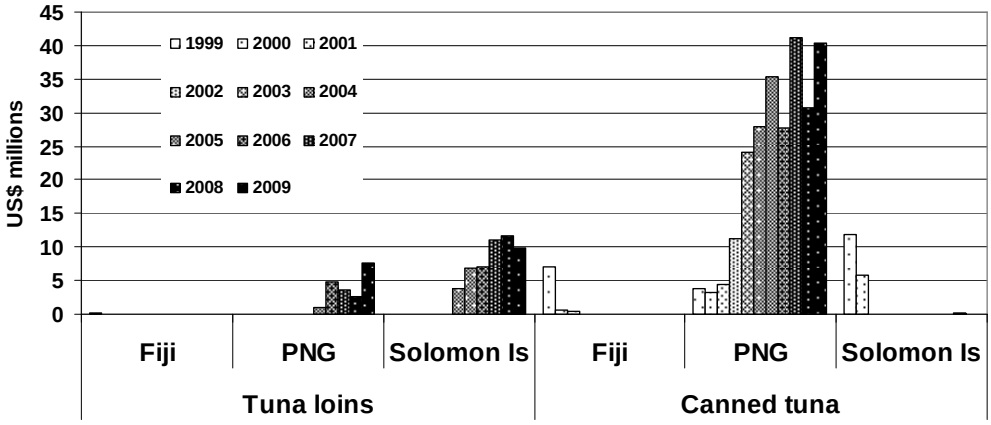


Figure 47. Tuna export product values trends from FFA countries to EU, 1999-2009

5.5.2 Exports to US market

The value of tuna and tuna products from the FFA member states to the US market over the past decade or so has risen, from only $28 million in 2000 to $78 million in 2005 and to $100 million in in 2009.

Exports to the US is presently dominated by tuna loins with Fiji as the principal supplier (Figures 48 and 49). The canned tuna exports comprises only of albacore (not in oil) but these have not been consistent and in relatively small values with PNG the sole supplier between 2006 and 2007. The fresh exports to the US consists of albacore, bigeye and yellowfin. Fiji is the main supplier of albacore and yellowfin and Marshall Islands bigeye tuna.

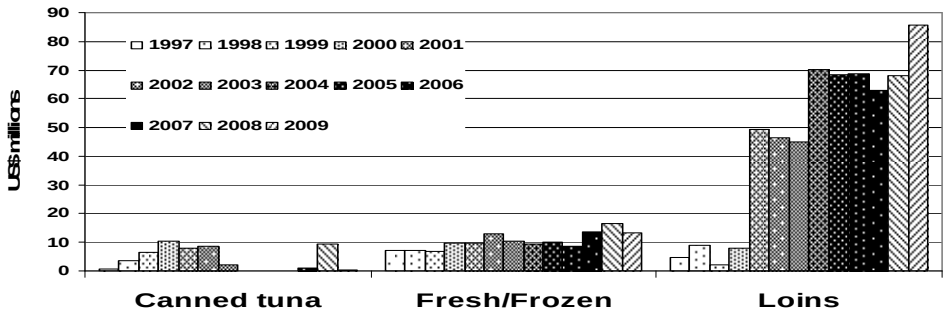


Figure 48. Tuna export product values to US market, 1997-2009

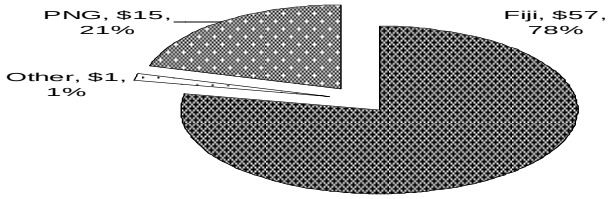


Figure 49. FFA member shares of tuna loin exports to US, 2009

5.5.3 Exports to Japan

The Japanese market as the major destination for tuna sashimi grade products is of great importance to countries with longline fleets targeting sashimi grade products. (The available data from Japanese sources shows that bigeye was not included in the import list until 2002). Exports from FFA member countries to Japan fluctuated between $30 and $60 million over the period 2000-2009. Exports in 2009 totalled US$37 million. Exports of fresh sashimi products from FFA countries have been on the decline in recent years (Figure 50).

Palau plays a relatively significant role in the supply of fresh products to Japan. This is on account of the locally-based Taiwanese longline fleet there. Other major suppliers of fresh bigeye and yellowfin in the last three years are PNG and Fiji (Figure 51).

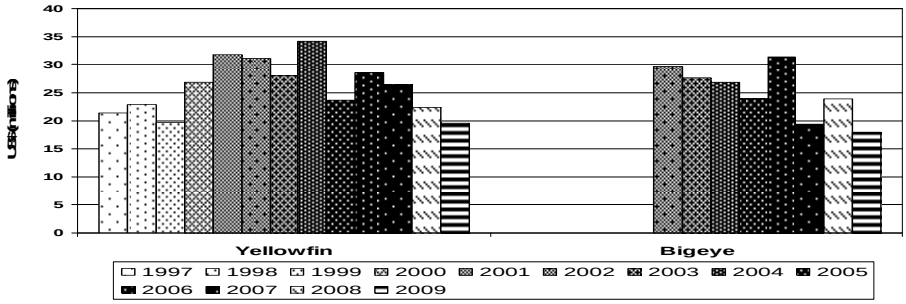


Figure 50. Fresh tuna export trends from FFA members to Japan, 1997-2009

Source: http://www.customs.go.jp/toukei/download/index_d011_e.htm

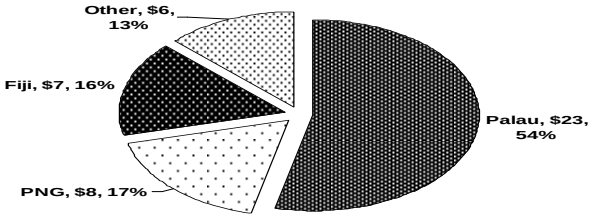


Figure 51. Japan fresh tuna market shares by FFA exporters, 2007-09

Source: http://www.customs.go.jp/toukei/download/index_d011_e.htm

6. Summary of results and conclusions

A summary of the analysis of the economic indicators as presented in this report and issues arising from these, is presented below.

The WCPO, the world's most important fishing ground for the purse seine fishery, produced 1.9 million Mt in 2009, 3% higher than in 2008 and represented 63% of total global purse seine production. The WCPO increase in catch in 2009 resulted from exceptionally higher skipjack catch as yellowfin catch declined. Over the 1997-2008 period, the annual catch trends for skipjack by the purse seine fleets has generally been increasing and for yellowfin declining. The trends in 2009 were consistent with these following contrasting trends in 2008.

FFA member countries' waters represent the major fishing ground in the WCPO for purse seine and the share of total production in 2009 was 58%, at a record of more than 1.1 million metric tonnes. Total delivered value of purse seine fishery production in the WCPO was $2.3 billion, of which US$1.3 billion was from FFA waters.

The economic conditions for the purse seine fleets in the WCPO in 2009 varied across the fleets, but the overall trends of the key parameters broadly indicate important improvements. The increase in global lightmeat raw material supply had an important impact on the price for purse seine products. The purse seine prices though declined some 30% from record high in 2008, was broadly matched by reduction in the key operating cost of fuel.

Fishing conditions as measured by overall catch per day rates of selected fleets, improved from an average of 30Mt in the preceding three years to 32Mt in 2009. On the basis of these considerations, and providing other operating costs remain constant, it is most likely that the fleet would have at least maintained a comparable if not improved level in profitability than in previous years. This is despite the fact that the average value of a fishing day in 2009 at $39,000 was lower than the $52,000 in 2008.

For the longline fishery, total catch in the WCP-CA came to 210,504 Mt in 2009, valued at US$1.2 billion comprising of the albacore fleets and sashimi or bigeye/yellowfin fleets. Of the total production in 2009, 47,448 Mt valued at more than $244 million was value from FFA waters, of which 15,944 Mt valued at about $75 million was by the FFA fleet in own waters. There has been variation in the longline fleet capacities in recent years owing to preceding years' unfavourable economic conditions, particularly for the sashimi fleets.

The economic conditions in the longline fishery broadly showed improvements in 2009. Frozen longline prices for bigeye, yellowfin and albacore showed increases while fresh prices declined or remained unchanged from 2008. Frozen longline prices only recently have improved following previous years of declining and stagnant prices. At the same time the catch rates across the fresh and frozen sashimi and south albacore fleets have improved, resulting in improved revenue generation performances on a per unit of effort basis. Such performance against the drop in fuel costs would suggest that in 2009 profitability for the fleets would have improved over 2008.

At the domestic level, development indicators on access fees, fleet capacities, catch and catch values and contributions of tuna fishing to GDP, employment and exports have been constructed. The significance of the purse seine fleet contribution to economic activity has risen sharply in recent years to reflect domestication policies in FFA member countries where this has been pursued, as well as development of own fleets by some; and similarly for the longline fleet. The pole and line fleet has lost its importance. Reflective of the rise in the fleet capacities, the volume of catch and catch value have also risen sharply over the years. This has resulted in increased tuna fishing monetary contributions to national economies. The total estimated contribution from the fleets was

$180 million in 2009, lower than previous two years in nominal terms but substantially ahead of tuna fishing contributions in prior years.

The overall trend in the value of exports to the EU, US and Japan markets shows moderate increases in recent years. In 2009 total exports to these destinations came to $195 million, a 15% increase from five years earlier in nominal terms but 200% on ten years earlier. Growth in exports has substantially slowed from earlier years. Tuna exports comprises largely of loins to the US and canned tuna to the EU, essentially from two sources with Fiji supplying tuna loins to US and PNG supplying canned tuna to EU. Unless processing capacities in the two supplier countries or other FFA member countries increase, it is likely that the overall trend will stabilise given that the fresh export products have been on a declining trend already.

Attempt is continuing to try and improve the established collection process of agency network. The main issue is there still exists considerable gaps in the range of data provided and those requested of the agents. There is also the issue of promptness with data submissions. In all, these make any attempt to provide regular quarterly reporting by the Secretariat on the indicators still not possible. Nonetheless, the progress to date has facilitated use of some data previously not available on an annual basis and this will improve as these issues with the process get addressed.