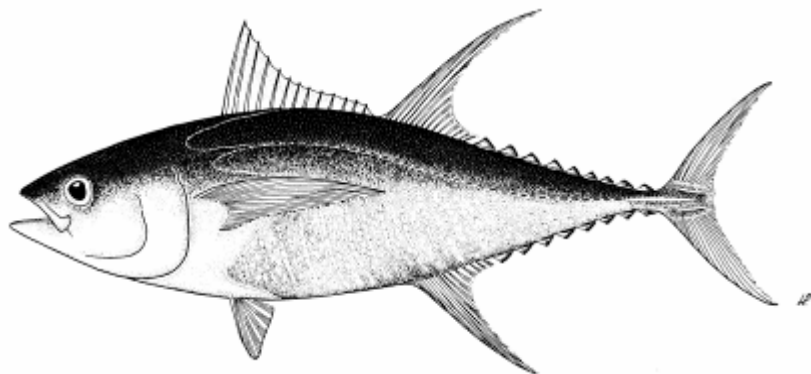




## **FSM Tuna Fisheries Report**



National Oceanic Resource Management Authority (NORMA),  
Federated States of Micronesia (FSM).

August 2005

## WCPFC – 1<sup>st</sup> Meeting of the Scientific Committee

### Fisheries Report – Federated States of Micronesia

#### 1. Introduction

The Federated States of Micronesia Exclusive Economic Zone (EEZ) is known to be one of the most productive fishery in the Western Central Pacific Ocean (WCPO). The EEZ covers an approximate ocean area of 2,780 km<sup>2</sup>, comprised of four states, (Chuuk, Yap, Kosrae, and Pohnpei State). Within its 200-mile EEZ, management of the tuna stock is vested in the NORMA (National Oceanic Resource Management Authority). The tuna fisheries targeting skipjack, yellowfin and bigeye are the major commercial fisheries in the FSM EEE. These fisheries comprise the only commercial fishing activities in the FSM EEZ, with three gear types; purse seine, longline, and pole and line. The majority of the vessels licensed by NORMA to fish in the FSM EEZ are foreign vessels, and the license revenue from the activities of these vessels represents a significant percentage of overall government revenue. Catch and effort has fluctuated with total catches of target tuna species ranging from about 75,000 tons to over 200,000 tons during the last decade.

#### 2. Fleet structure

The number of both domestic and foreign fishing vessels licensed annually to fish within the EEZ from 13 flagged countries, ranging from 340 to 400 vessels over the last decade. Japanese fishing vessels (all three gear types) have been the most numerous amongst the other countries. Japan also employed all and the only pole and line vessels in the fishery. For this period (2004), the total count of vessels licensed is 399, slightly over 2003 of 389 vessels.

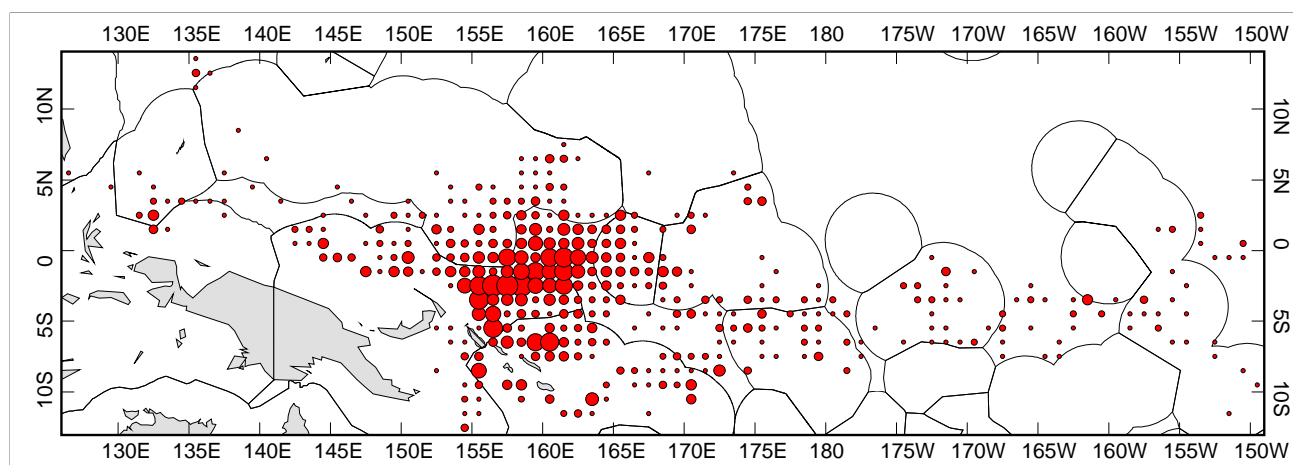
	Longline		Pole & Line		Purse Seine	
Country	2003	2004	2003	2004	2003	2004
Taiwan	71	69	-		36	34
South Korea	-		-		26	28
United States	-		-		26	22
Japan	81	88	37	30	33	34
Peoples Republic of China	24	27	-		4	8
Vanuatu	-		-			11
Papua New Guinea					8	9
Belize	2	2	-			
Kiribati			-		1	1
FSM	20	22	-		11	6
Rep. of Marshall Islands	-		-		1	3
New Zealand			-			4
Philippines			-		1	1
<b>Total</b>	<b>199</b>	<b>208</b>	<b>37</b>	<b>30</b>	<b>148</b>	<b>161</b>

Table 1. Active 2003-2004 vessel license records (sourced from NORMA logsheets).

### 3. Annual catches in the WCPFC Convention Area, 2000–2004

#### 3.1 FSM Purse Seine Catch in the WCPO

There were six domestic purse seine vessels for FSM from three companies with catch records (derived from submitted logsheet sources) of 26,958 mt in the Convention Area, (WCPFC). The six vessels dominantly fished with the most effort in the equatorial region of PNG waters and disbursed in the highseas pocket adjacent to Nauru and FSM waters.



**Figure 1. Distribution of FSM purse seine effort for 2004**

The total catch is dominantly composed of skipjack (>85%) of 22,998, yellowfin (~14%) of 3,914 mt, and 45 mt of bigeye (<1%). This is the second highest and most productive catch by the purse seine domestic fleet in the WCPO area over the last five years.

Year	Boats	Catch (metric tonnes)				Total
		Skipjack	Yellowfin	Bigeye	Other	
2000	5	15,162	5,074	57	0	20,293
2001	5	10,689	5,735	230	0	16,654
2002	8	15,531	5,254	0	0	20,785
2003	8	24,054	5,761	81	0	29,895
2004	6	22,998	3,914	45	1	26,958

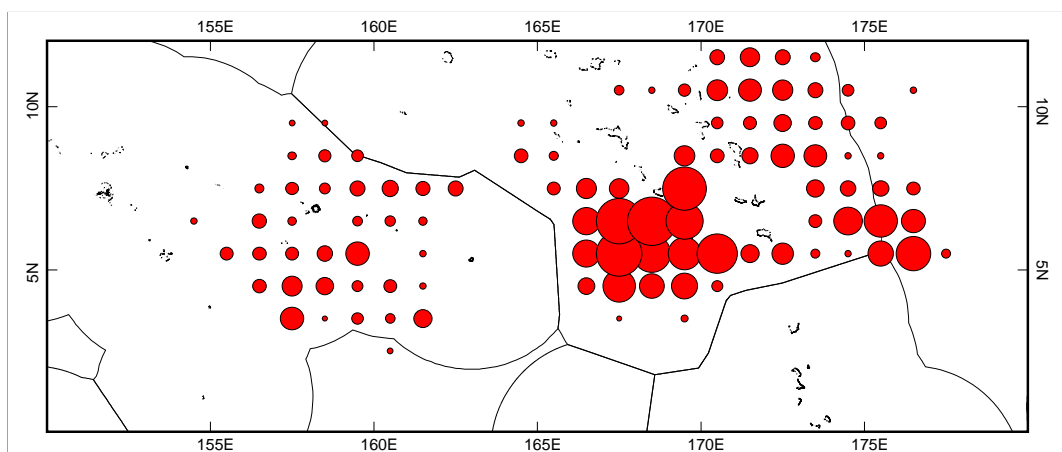
**Table 2. Estimates of the catch by species for FSM purse seine fleet in the WCPFC Convention Area, 2000–2004** (Source : Best estimate of logsheet and unloadings data; coverage is close to 100%)

#### 3.2 FSM Longline Catch in the WCPO

The 2004 FSM longline total catch for all species in the WCPO region by submitted logsheets was reported to be 849 mt. The total catch is comprised of 520 mt of bigeye (~82%), 207 mt of yellowfin (14 %), and 54 mt (~4%) of other species caught as bi-catch. Total FSM longline catch for 2004 in the WCPO is approximately 20% over 2003 catch. For this period, (2004) most of the fishing effort is concentrated in the republic of the Marshall Islands (RMI) EEZ by the Clearwater longline fleet licensed to fish and based in RMI.

Year	Boats	Trips	Catch (metric tonnes)								% cov. (logs)	
			ALB	Bigeye	Yellowfin	Black Marlin	Blue Marlin	Striped Marlin	Sword-fish	Other		
2000	26	501	5	895	495	70	19	5	25	13	1,527	50%
2001	23	322	3	647	345	69	5	0	23	18	1,111	62%
2002	22	407	0	723	199	45	6	0	21	8	1,002	44%
2003	25	396	1	620	314	47	9	0	12	86	1,088	61%
2004	18	216	0	520	207	7	51	2	9	54	849	44%

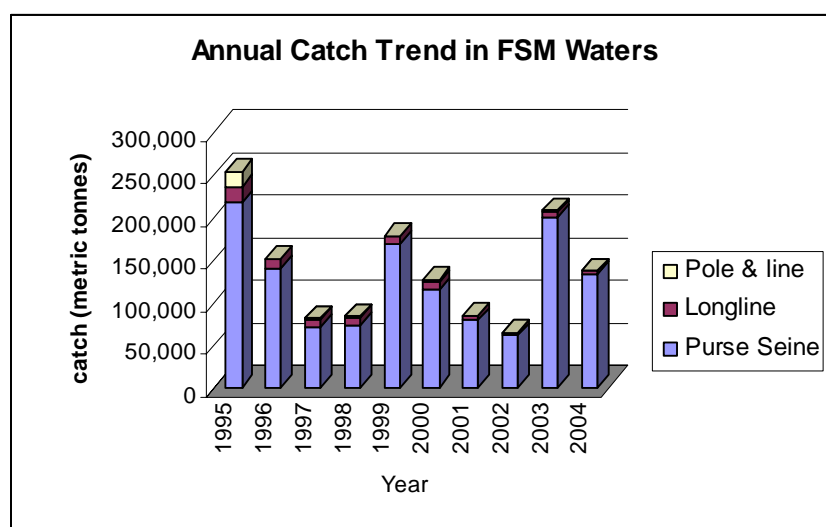
**Table 3. Estimates of the catch by species for FSM longline fleet in the WCPFC Convention Area, 2000–2004** (Source : Best estimate of logsheet and unloadings data)



**Figure 2. Distribution of FSM longline effort for 2004**

#### 4. Catch in the FSM Waters

The 2004 catch by the tuna fishery in the FSM EEZ by logsheets is estimated to be 137,436 mt, though it is still an underestimate. The three gear types comprise the total catch in the target tuna catch in the following order: purse seine 132,997mt; longline 3,425 mt; and pole and line 1,014 mt. This is only 66% of the 2003 total catch, 207,514 mt. *The 2004 target annual catch of tuna within the FSM EEZ by all gear types have marked a significant rise and fall pattern within the last 10 years; three years of declining slope, followed by a one year steep high in total catch. It is then expected for the next two years for the total catch to be declining.*



**Figure 3: Annual catch by gear type in FSM waters sourced by logsheet.**

Year	Purse Seine	Longline	Pole & Line	Total
1995	216,294	18,724	18,156	253,174
1996	139,731	11,081	1,054	151,866
1997	70,572	9,597	1,003	81,172
1998	73,027	9,216	1,026	83,268
1999	168,127	9,791	555	178,473
2000	114,372	9,080	3,814	127,266
2001	70,246	4,947	687	75,880
2002	61,101	2,841	N/A	63,942
2003	199,188	6,593	1,733	207,514
2004	132,997	3,425	1,014	137,436

**Table 4. FSM Annual Catches (target species) Estimates by gears. (Pole and line catch record of 2004 sourced from NORMA licensing records.)**

#### 4.1. Purse Seine catch in FSM Waters

A total of 140 vessels of 10 different flags fished in the FSM waters for the 2004 period. A record of over 133,000 mt of the three target species (skipjack >84%, yellowfin ~15%, and < 1%) of tuna was harvested.

The Japanese purse seine fleet of 34 active vessels dominantly fished with the most effort of 2,087 fishing seadays for a total of 55,409 mt of target catch. The Taiwanese purse seine fleet of 35 active vessels (the largest fleet) fished a total of 30,500 mt with a record of 1,625 fishing seadays. The Korean purse seine fleet of 26 vessels showed a much lesser fishing effort as the Taiwanese of 1,259 fishing seadays with a total catch of 21,021 mt. These are the three dominant fleets with the most catches of over 1, 000 mt of the target species.

YEAR	FLAG	Days	Boats	SKIPJACK		YELLOWFIN		BIGEYE		OTHER	TOTAL	
				MT	CPUE	MT	CPUE	MT	CPUE		MT	CPUE
2003	CN	194	3	5,439	28.0	589	3.0	0	0.0	0	6,028	31.1
2003	FM	239	8	4,094	17.1	335	1.4	30	0.1	0	4,460	18.7
2003	JP	1,998	36	65,159	32.6	5,413	2.7	997	0.5	0	71,569	35.8
2003	KI	48	1	504	10.5	75	1.6	36	0.8	0	615	12.8
2003	KR	1,469	26	38,470	26.2	2,500	1.7	90	0.1	0	41,060	28.0
2003	MH	47	6	1,625	34.6	40	0.9	0	0.0	0	1,665	35.4
2003	NZ	173	3	2,977	17.2	233	1.3	0	0.0	0	3,210	18.6
2003	PG	615	17	13,910	22.6	2,918	4.7	191	0.3	0	17,020	27.7
2003	TW	1,992	40	38,712	19.4	5,471	2.7	22	0.0	5	44,210	22.2
2003	US	316	23	5,191	16.4	586	1.9	84	0.3	0	5,861	18.5
2003	VU	163	4	3,162	19.4	335	2.1	0	0.0	0	3,497	21.5
<b>7,254</b>				<b>179,243</b>	<b>24.7</b>	<b>18,495</b>	<b>2.5</b>	<b>1,451</b>	<b>0.2</b>	<b>5</b>	<b>199,193</b>	<b>27.5</b>
2004	CN	93	4	926	10.0	44	0.5	0	0.0	0	970	10.4
2004	FM	121	5	862	7.1	102	0.8	0	0.0	0	964	8.0
2004	JP	2,087	34	46,406	22.2	7,918	3.8	1,085	0.5	0	55,409	26.6
2004	KI	49	1	625	12.8	132	2.7	28	0.6	0	785	16.0
2004	KR	1,259	26	17,198	13.7	3,804	3.0	19	0.0	0	21,021	16.7
2004	MH	13	4	220	16.9	5	0.4	0	0.0	0	225	17.3
2004	PG	818	19	17,171	21.0	2,855	3.5	1	0.0	5	20,033	24.5
2004	TW	1,625	35	26,263	16.2	4,175	2.6	54	0.0	8	30,500	18.8
2004	US	61	8	279	4.6	183	3.0	0	0.0	0	462	7.6
2004	VU	118	4	1,921	16.3	720	6.1	0	0.0	0	2,641	22.4
<b>6,244</b>				<b>111,871</b>	<b>17.9</b>	<b>19,938</b>	<b>3.2</b>	<b>1,187</b>	<b>0.2</b>	<b>14</b>	<b>133,011</b>	<b>21.3</b>

**Table 5: Estimates of the catch by species for purse seine fleets in FSM waters, 2002–2004.**  
(Source : logsheet data; coverage expected to be high)

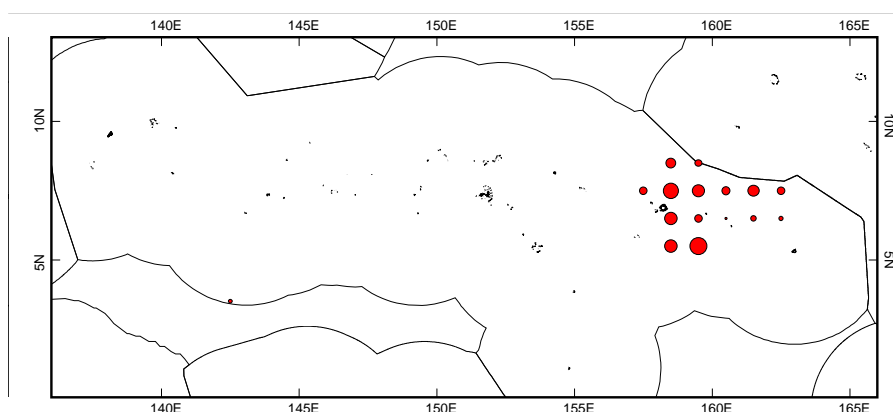
## 4.2 Longline Catch in FSM waters

The total catch by the four longline fleets in the FSM waters for the 2004 period (3,747mt) is ~ 47% of the 2003 total catch (7,892mt). The Japanese longline fleet has been the most dominant fleet in catch for the last seven years within the FSM waters. Currently, their total catch is still an underestimate as logsheets are yet to be processed hence, making the total catch still an underestimate for the 2004 period. *Their current total catch record is showing only 3,445 mt from 80 boats sourced from SPC CES but NORMA database indicated a much higher value of slightly above 4,000 mt. The data is yet to be reviewed cautiously though.* All four fleets have declined in total catch from the last two years. The very low catch by the FSM domestic fleet resulted ever since the Clearwater vessels migrated from the FSM waters into RMI waters in early 2002.

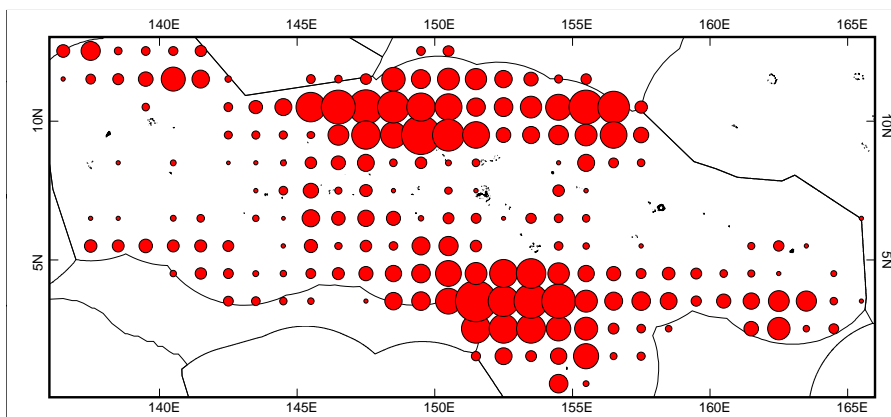
YEAR	FLAG	BOATS	ALB MT	BET MT	YFT MT	BLM MT	BUM MT	MLS MT	SWO MT	OTH MT	TOTAL MT
2002	CN	47	2	383	117	28	3	0	23	27	583
2002	FM	18	0	226	50	15	1	0	5	1	299
2002	JP	61	3	933	563	1	49	1	18	1	1,569
2002	TW	62	0	374	190	23	85	1	42	114	828
			5	1,916	920	66	138	2	88	143	3,279
2003	CN	21	1	380	135	69	8	2	26	38	659
2003	FM	21	1	267	118	23	0	0	5	47	460
2003	JP	102	63	2,452	2,145	3	211	4	52	16	4,947
2003	TW	70	6	648	377	41	259	6	99	389	1,825
			71	3,747	2,775	137	478	13	182	490	7,892
2004	CN	16	0	26	4	5	1	0	1	2	38
2004	FM	14	0	38	17	3	0	1	0	8	67
2004	JP	80	50	1,932	1,241	3	172	5	35	6	3,445
2004	TW	27	0	78	40	5	34	0	12	27	197
			50	2,074	1,301	16	207	6	49	43	3,747

**Table 6: Estimates of the catch by species for longline fleets in FSM waters, 2002–2004.** (Source : logsheet data; coverage of the Japanese fleet is expected to be high, but unknown for the other fleets)

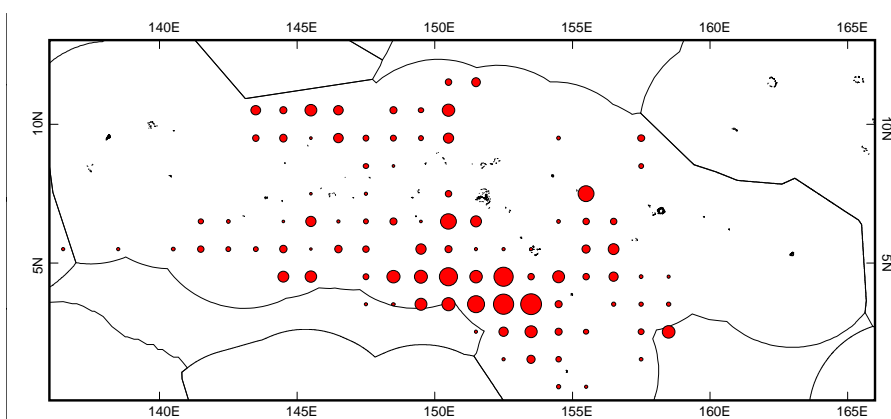
Fishing effort by both the Japanese and domestic fleets were mostly concentrated in both the upper and lower, central zone of the FSM waters, while the Chinese fleet catch and effort was more pronounced in the eastern area. Japan fished with the most effort of 1,932 fishing seadays. The other three fleets is expected to decline in catch as the fleet sizes were lessen compared to the last two years.



**Figure 4. Distribution of Chinese longline effort in the FSM EEZ in 2004**

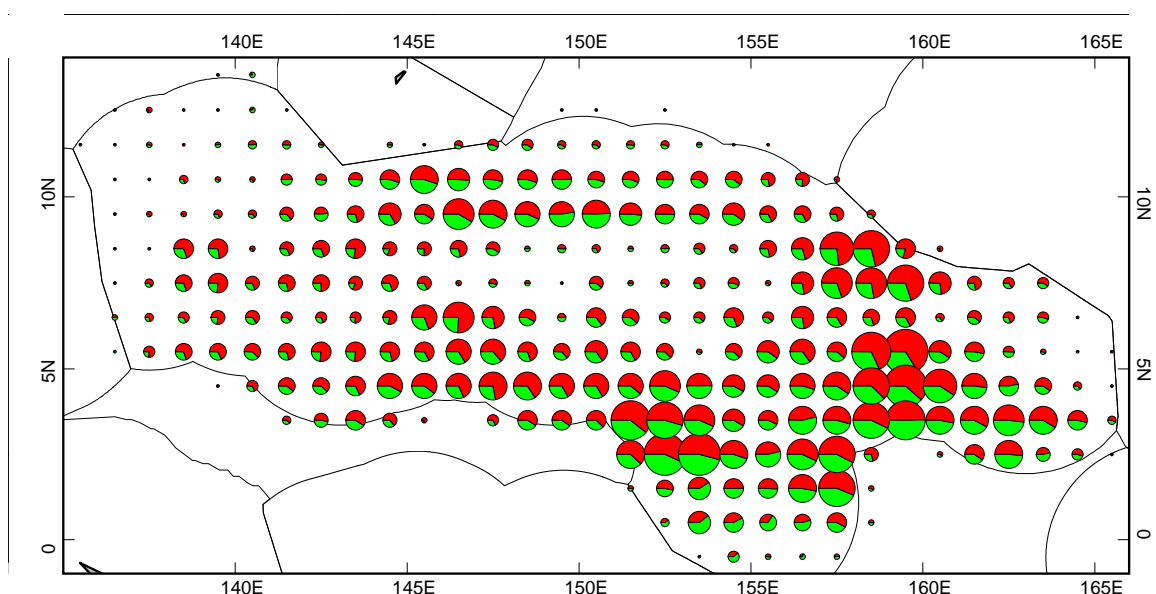


**Figure 5. Distribution of Japanese longline effort in the FSM EEZ in 2004**



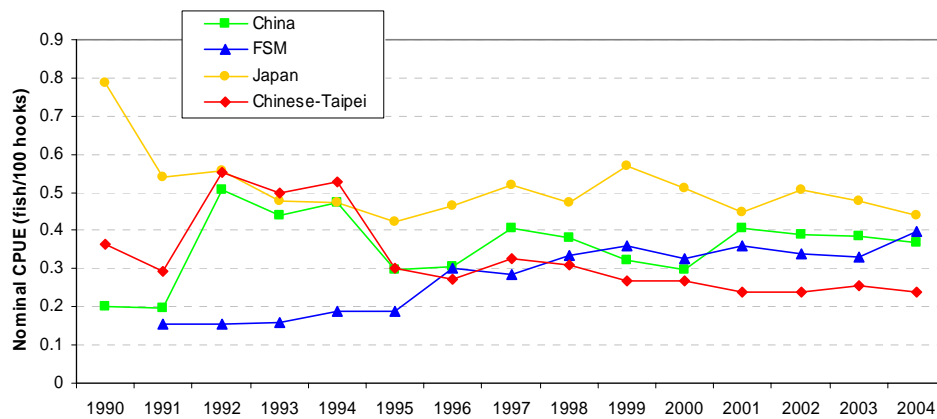
**Figure 6. Distribution of Taiwanese longline effort in the FSM EEZ for 2004**

The total catch (3,774mt) is dominantly composed of bigeye tuna (53%), yellowfin was approximately 1,301 mt (36%), 229 mt of billfish(6%), and 142 mt of swordfish, albacore and other bi-catch species(<5%). The catch within the FSM waters for the two longline targeted species (bigeye and yellowfin) are mostly productive in the lower eastern area of the EEZ by all fleet, and scattered within the central area.



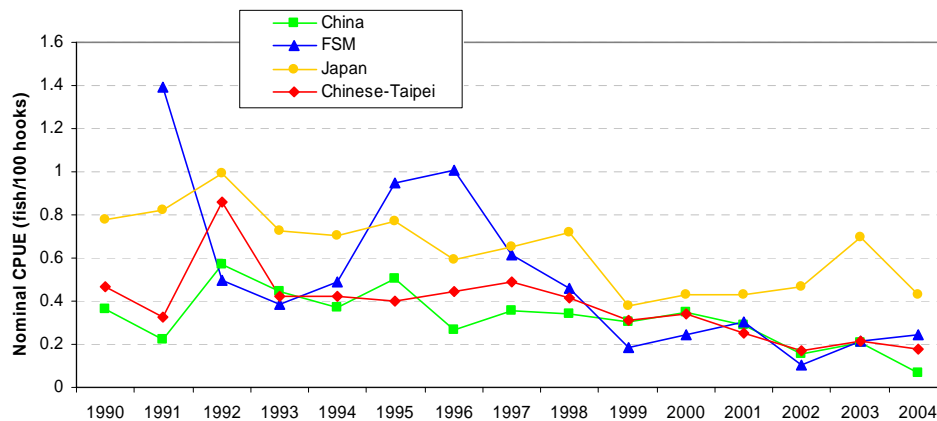
**Figure 6. Distribution of the longline catch (metric tones) by species in the FSM EEZ, 2000–2004**  
(Red–Bigeye; Green–Yellowfin )

The trend in the longline catch (by the four fleets) of the bigeye tuna in the FSM waters have known to be steady over the last decade. The catch of bigeye tuna by all fleets during the early 90s was remarkably high and began to slope downward towards the mid 90s. It remained steady ever since.



The trend of the catch of yellowfin tuna by the four fleets in the FSM waters fluctuated in the early 90s and declined continuously during the last 12 years by all fleet. The inclining total catch of yellowfin tuna by the longline fishery indicated does not necessarily mean over harvesting of the species but could mean other changes in the fishing patterns and gear technology.

**Figure 7. Annual trends in nominal bigeye CPUE (number of fish per 100 hooks) for longline fleets operating in the FSM EEZ**



**Figure 8. Annual trends in nominal yellowfin CPUE (number of fish per 100 hooks) for longline fleets operating in the FSM EEZ**



## 5.0 Transshipments and unloading in FSM

YEAR	FLAG	UNLOADINGS	METRIC TONNES				TOTAL
			SKJ	YFT	BET	OTH	
2003	CN	14	6,126	851	0	0	6,977
2003	FM	24	8,837	1,952	40	0	10,829
2003	KR	68	28,181	7,064	102	0	35,347
2003	NZ	2	706	153	0	0	858
2003	PG	55	28,012	5,474	0	0	33,486
2003	TW	203	72,606	13,158	851	80	86,695
2003	US	3	1,571	279	0	0	1,850
2003	VU	12	5,240	48	0	0	5,288
		<b>381</b>	<b>151,278</b>	<b>28,979</b>	<b>993</b>	<b>80</b>	<b>181,330</b>
2004	CN	9	4,370	295	0	0	4,665
2004	FM	24	12,325	1,756	0	1	14,081
2004	KI	2	1,181	125	34	0	1,340
2004	KR	55	28,398	4,489	23	0	32,910
2004	PG	81	55,855	6,559	7	11	62,433
2004	TW	190	104,502	10,207	263	32	115,004
2004	US	1	799	149	0	0	947
2004	VU	1	1,220	230	0	0	1,450
		<b>363</b>	<b>208,649</b>	<b>23,809</b>	<b>327</b>	<b>44</b>	<b>232,830</b>

**Table 7. Annual purse-seine unloads in FSM ports, 2002–2004**

(source : Logsheet data – regional tuna database, SPC)

Port	Flag	BET	YFT	Billfish	Others	Total	Exported	Local	Unloadings
Chuuk	TW	5.11	4.45	0	0	<b>9.56</b>	4.25	0.2	6
Pohnpei	CN	285.86	86.84	98.96	0	<b>471.77</b>	323.82	147.95	293
	FM	192.1	99.93	22.37	2.98	<b>317.5</b>	255.1	62.39	126
<b>Total</b>		<b>483.06</b>	<b>191.22</b>	<b>121.33</b>	<b>2.98</b>	<b>798.83</b>	<b>583.17</b>	<b>210.54</b>	<b>425</b>

**Tabel 8. Longline Unloading for 2004, sourced by NORMA unloading records.**

## 6.0 The FSM Observer Program

As part of its tuna management mandate, NORMA operates an observer program that has been recognized as one of the initial national observer programs amongst the Pacific Island nations. The NORMA onboard fisheries observer and port sampling programs are undertaken for the primary purpose of collecting information on target species caught by the commercial fleets licensed in the FSM EEZ.

In 2004 NORMA FOP made 40 trips of 1,467 sea-days on the three main fishing gear types operating. If the number of observer trips are compared to the number of trips into the FSM EEZ reported on logsheets by vessels this equates to a coverage of 2.7 % overall for 2003, slightly lower than that of 2002, (3.8) the highest coverage ever. However this needs to be viewed cautiously as the logsheets are incomplete and some observer trips did not actually enter FSM.

Observer Name	2003 Trip Counts	2003 No of Seadays	2004 Trip Counts	2004 no of seadays	Trip Counts by Record	Total Seadays by Record
Simon Lorenzo	1	64	3	94	55	2396
Paulino James	3	90	1	32	66	1793
Arty Hadley	3	197	0	0	39	1386
Henry Norman	0	0	0	0	38	932
Raymond Ysam	4	185	4	128	31	1160
Steve Peter	7	204	5	186	38	1121

Francisco Sigrah	3	93	1	28	31	857
Truman Jano	0	0	0	0	23	617
Lauriano Saipwerik	2	51	1	29	21	618
Benson Fredrick	4	207	2	52	23	897
Kenait Fritz	0	0	0	0	8	154
Francisco Sigrah	3	93	1	33	7	293
Reagan Sidney Lebehn	0	0	0	0	3	86
Mohns Gilmete	0	0	0	0	4	28
Valerie Allain	0	0	0	0	1	23
Stephan Carlos	8	212	4	55	12	424
Joster Nena	2	71	6	129	9	142
<b>Total</b>	<b>40</b>	<b>1,476</b>	<b>28</b>	<b>766</b>	<b>364</b>	<b>12,927</b>

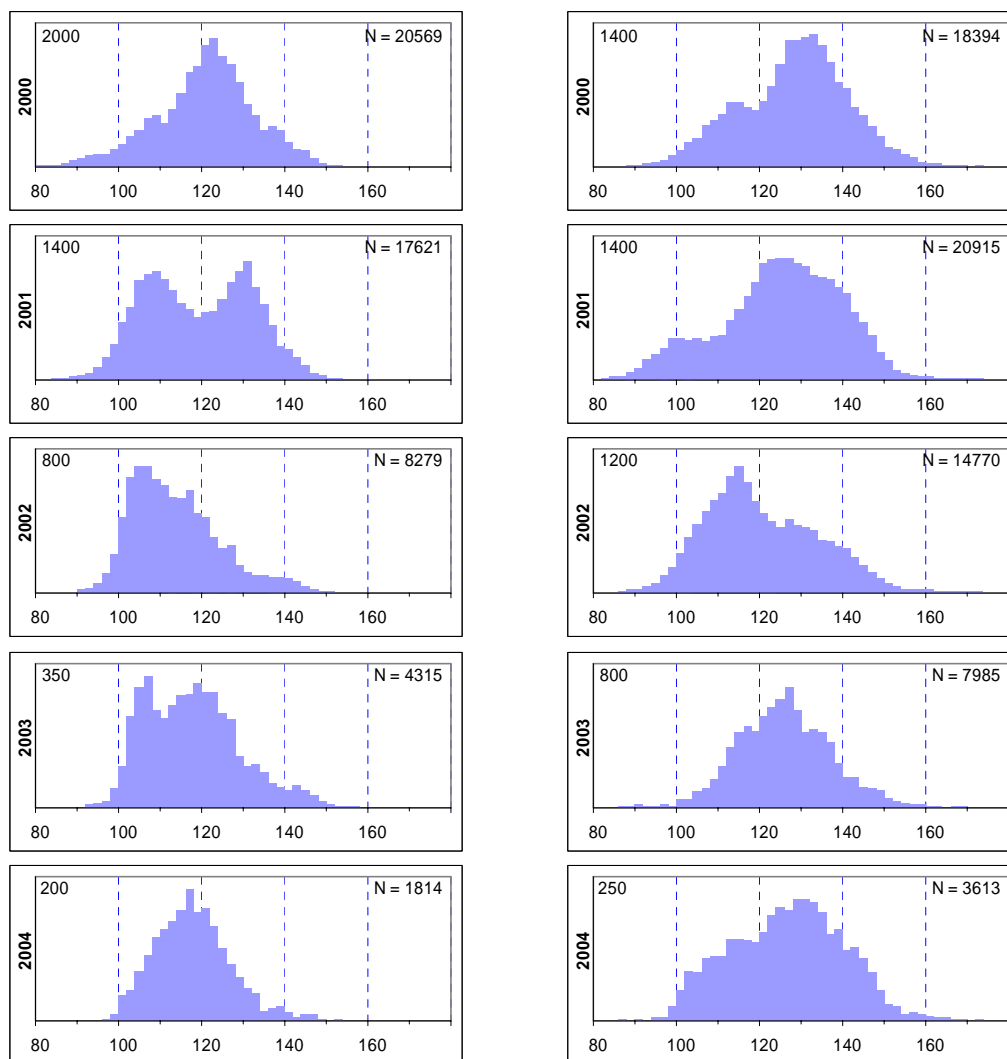
**Table 11. 2003 Successful OBS Placements by gear type and flag;**

### **6.1 Coverage**

The trend in coverage for the program has been positive with a general increase in coverage over the past few years.

The observer coverage is restricted each year by observer program logistics such as the budget and by an M.O.U. that limits the number of trips made on Japanese vessels to 6 longline 5 purse seine and 2 pole and line trips per agreement year. The large Japanese and Taiwanese fleets that base in Guam also add difficulties and expense to placements.

**1. Developments concerning tuna fisheries research and statistics, such as port sampling and observer programmes**



**Figure 7. Annual size composition of longline-caught bigeye (left) and yellowfin (right) taken in FSM waters, 2000–2004** (Source : Port sampling data collected by NORMA)

# National Tuna Status Report for 2004

Federated States of Micronesia

National Oceanic Resource Management Authority  
(NORMA)  
Palikir, Pohnpei

August 2005