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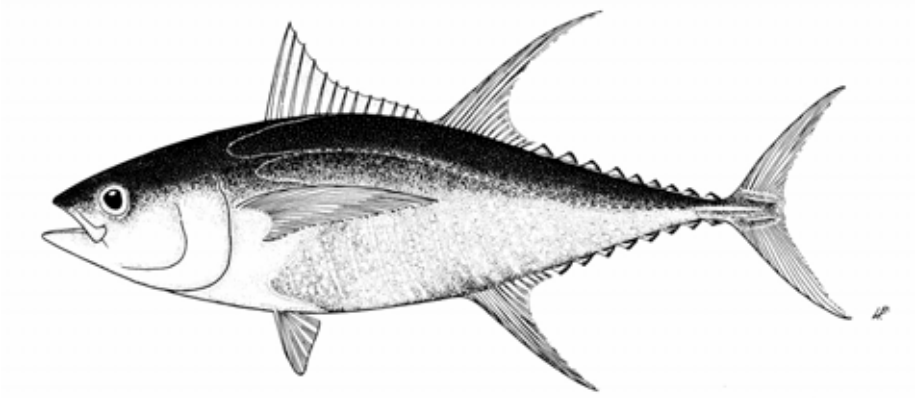
TUVALU

Tuvalu National Tuna Fisheries Report

(Science Committee 2 Meeting, Manila, Philippines, 7-18 August 2006.)



Falasese Tupau

Fisheries Department, Ministry of Natural Resources & Lands

Funafuti, Tuvalu.

June 2006

1. Background to the Fishery

Over the past five (5) years, the tuna fishery in Tuvalu waters has been commercially occupied by Distant Water Fishing Nations (DWFNs). Additionally, the Tuvalu fishers have been involved in the tuna fishery but mostly on subsistence and artisanal level. However, the artisanal market is gradually expanding with several fishers on the main island targeting tuna as the main species.

The effective gears used by DWFNs fleets were mainly purse seine, long-line and pole and line. In the past five (5) years, the purse seine and long-line gear maintained their fishing activity therefore application for fishing licenses maintained but pole and line gear appeared to decline. Tuvalu fishers had rapidly changed from using traditional pole and line canoes to outboard engine twenty (20") ft plywood punts for manual trolling in the tuna fishery.

There are no domestic vessels operating commercially or in large scale but the artisanal tuna fishery has developed and is slowly expanding. The National Fishing Corporation of Tuvalu (NAFICOT) in 2004 operating under limited budget at the time managed to obtain two (2) medium size long-line vessels to resume their commercial operations after the sinking of FV Te Tautai in 1993. However, budget constraints continue to hamper its commercial objectives.

2. Fleet Structure

2.1 Domestic & Artisanal Fleet

The domestic fleet mostly consists of outboard engine twenty (20") ft plywood punts which are used by local fishers for manual trolling in the tuna fishery. The fleet appears to be expanding annually.

2.2 Distant Water Fishing Nation (DWFN) Fleet 2001-2005

Several of DWFNs were interested in Tuvalu waters allowing them to apply for fishing access agreements.

Table 1-3 shows the breakdown of fishing fleet by gear type, licensed to fish in Tuvalu waters over the past five years. They show the breakdown DWFN fleets by gear type which were active from 2001 to 2005. The most licensed gear type is purse seine which maintained its activity but the other gears continue to decline. During the period the Tuvalu zone reporting system in the Tuna Fisheries Data Management System (TUFMAN) confirmed that some vessels did not make use of their fishing licenses.

Table 1. Active DWFNs Fleet for Long-line Gear 2001-2005

YEAR	FIJI	JAPAN	KOREA	TAIWAN	TOTAL
2000	0	17	25	7	49
2001	0	4	77	0	81
2002	0	1	61	0	62
2003	0	0	12	7	19
2004	2	2	51	0	55
2005	1	0	42	8	51

Source: TUFMAN (Tuna Fisheries Data Management Database)

Table 2. Active DWFNs Fleet for Purse Seine Gear 2001-2005

Year	Antille Netherlands	FSM	Japan	Korea	Marshall Island	NZ	PNG	Taiwan	US	TOTAL
2000	0	0	34	26	5	1	0	0	34	100
2001	1	1	34	0	5	3	0	2	30	76
2002	0	1	34	0	0	4	0	2	26	67
2003	0	2	35	0	0	4	0	1	20	62
2004	1	1	36	0	0	5	0	6	20	69
2005	1	0	29	0	0	4	1	8	14	57

Source: TUFMAN

Table 3. Active DWFNs Fleet for Pole and line Gear 2001-2005

YEAR	Japan	Korea	NZ	US	TOTAL
2000	0	0	0	0	0
2001	0	0	0	0	0
2002	7	0	0	0	7
2003	7	0	0	0	7
2004	19	0	0	0	19
2005	3	0	0	0	3

Source: TUFMAN

Therefore, table 4 shows the actual number of DWFN vessels, which were actually active during the 2001 – 2005 fishing season.

Table 4. Total DWFNs Vessels each fleet actually fished 2001-2005.

Year	Bunker	Longline	Pole-and-line	Purse seine	Total
1999	0	3	0	2	5
2000	0	49	0	100	149
2001	0	81	0	76	157
2002	1	62	7	67	137
2003	0	19	7	62	88
2004	0	55	19	69	143
2005	0	51	3	57	111
2006	0	0	0	24	24

Source: TUFMAN

3. Annual Catch Species by Fleet by Gear 2001-2005.

Annual catches by species by the active DWFN fleets during the 2001-2005 period was essential to bring about some information on how much the DWFNs were harvesting from Tuvalu's EEZ. The main active gears are shown below.

3.1 Long-line

Tables 5-7 show the annual catch by the only active DWFNs long-line fleet from 2001-2005. The database system TUFMAN has proved beyond reasonable doubt that the long line fleet catches reported in Tuvalu waters is approximately 50% coverage mainly due to the low returns of catch logsheets by FFVs to Tuvalu when compared to zone reports of activity in the Tuvalu EEZ. Therefore please note the actual catch by the DWFNs long-line fleet may have been larger but that these estimates are based on logsheets provided to Tuvalu by DWFN long-line fleets therefore may not reflect 100% coverage.

Table 5: Annual Catch by Japanese Long-line Fleet

Year	ALB	BET	YFT	BLM	BUM	MLS	SWO	OTH	TOTAL
2001	36	81	46	0	14	0	2	0	179
2002	2	1	0	0	0	0	0	0	3
2003	3	1	2	0	0	0	0	0	6
2004	NA	NA	NA	NA	NA	NA	NA	NA	NA
2005	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: CES (Catch and Effort Query System)

Table 6 indicates the annual catches by the Korean fleet from 2001 to 2005. This fleet is reported for not submitting all the catch logsheets for Tuvalu waters to Tuvalu as required under their obligations in the fishing access arrangements.

Table 6: Annual Catch by Korean Long-line Fleet

Year	ALB	BET	YFT	BLM	BUM	MLS	SWO	OTH	TOTAL
2001	82	226	169	12	76	1	9	9	582
2002	189	413	464	8	107	8	16	7	1,211
2003	19	82	71	3	24	2	3	2	206
2004	40	129	215	7	33	8	4	2	439
2005	129	193	278	9	75	5	9	0	698

Source: CES

Table 7 shows the annual total catch by the active DWFNs long-line fleet from 2001-2005. From the table it indicates that the most long line activity was in the year 2002 and dropped tremendously in the following year.

Table 7: Annual Total Catch by All Long-line Fleets

Year	ALB	BET	YFT	BLM	BUM	MLS	SWO	OTH	TOTAL
2001	132	308	221	12	94	1	11	11	789
2002	206	418	470	8	107	9	17	8	1,243
2003	63	106	85	3	27	2	4	8	299
2004	202	200	412	10	42	9	7	33	915
2005	252	226	358	11	81	5	10	36	980

Source: CES

Figure 1 shows the most active DWFNs long line fleet in Tuvalu EEZ from 1990 to 2005.

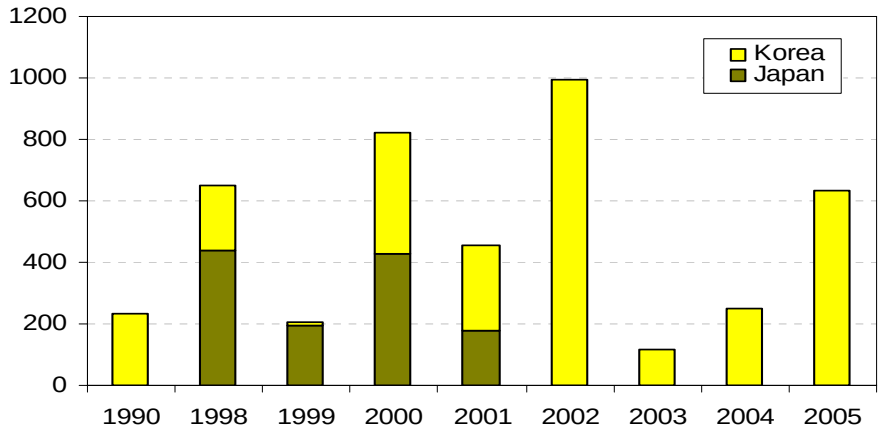


Figure 1. Annual total long line catches by vessel nation, 1995-2005.

3.2 Pole and line

The Japanese fleet was the only active DWFN in pole and line in Tuvalu's EEZ. From Table 3, it is clear that very minimal pole and line activities in the period. However, note the actual catch may have been larger but that these estimates are based on logsheets provided to Tuvalu by DWFN fleets and may not reflect 100% coverage.

Table 8: Annual Catch Japanese Fleet

Year	SKJ	YFT	BET	OTH	TOTAL
2001	NA	NA	NA	NA	NA
2002	NA	NA	NA	NA	NA
2003	1	0	0	0	1
2004	242	1	0	0	243
2005	NA	NA	NA	NA	NA

Source: CES

3.3 Purse Seine

Purse seine activity is related in some way to the ENSO (El Nino Southern Oscillation) index. Generally, there is more activity expected in the Tuvalu EEZ during El Nino years than in La Nina years.

The table 9 shows annual catch from the Multilateral US treaty. The fleet was active throughout the period allowing itself as the main purse seine fleet. Data coverage is approximately 100% for this fleet.

Table 9: Annual Catch by the US Multilateral Fleet

Year	SKJ	YFT	BET	OTH	TOTAL
2000	29,440	6,248	52	0	35,739
2001	13,536	1,744	102	0	15,382
2002	17,270	1,569	51	1	18,891
2003	1,381	281	0	0	1,662
2004	9,123	1,946	22	0	11,091
2005	2,662	472	18	0	3,152

Source: CES

The table 10 shows annual catch by the Japanese fleet was active particularly in 2000 and 2001. After that period, catches decreases the following year and appears to continue decreasing. Note the actual catch may have been larger but that these estimates are based on logsheets provided to Tuvalu by DWFN fleets and may not reflect 100% coverage.

Table 10: Annual Catch by the Japanese Fleet

Year	SKJ	BET	YFT	OTH	TOTAL
2000	1,191	16	259	19	1,485
2001	1,191	0	106	55	1,352
2002	713	0	66	16	795
2003	561	3	220	32	816
2004	832	0	107	41	980
2005	121	0	23	16	160

Source: CES

The table 11 shows annual catch from the New Zealand fleet which was active throughout the period where 2002 was a very successful fishing season. Note the actual catch may

have been larger but that these estimates are based on logsheets provided to Tuvalu by DWFN fleets and may not reflect 100% coverage.

Table 11: Annual Catch by the New Zealand Fleet

Year	BET	SKJ	YFT	OTH	TOTAL
2000	0	869	195	0	1,064
2001	0	3,001	287	0	3,289
2002	5	3,969	601	0	4,576
2003	8	985	333	0	1,325
2004	0	3,102	756	0	3,858
2005	0	1,242	186	0	1,428

Source: CES

The table 12 shows annual catch from the Vanuatu fleet was only active from 2004 to 2005. Note the actual catch may have been larger but that these estimates are based on logsheets provided to Tuvalu by DWFN fleets and may not reflect 100% coverage.

Table 12: Annual Catch by the Vanuatu Fleet

Year	SKJ	BET	YFT	OTH	TOTAL
2000	0	0	0	0	0
2001	0	0	0	0	0
2002	0	0	0	0	0
2004	1,010	0	0	0	1,010
2005	1,460	0	20	1	1,481

Source: CES

The table 13 shows annual total catch all the active purse seine fleet in Tuvalu's EEZ. Note the actual catch may have been larger but that these estimates are based on logsheets provided to Tuvalu by DWFN fleets and may not reflect 100% coverage.

Table 13: Annual Total Catch by All Purse Seine Fleets

Year	SKJ	YFT	BET	OTH	TOTAL
2000	33,459	7,138	74	19	40,690
2001	19,571	2,225	102	55	21,954
2002	23,520	2,314	56	17	25,907
2003	2,927	834	11	32	3,804
2004	15,086	2,922	22	41	18,070
2005	7,256	937	18	17	8,228

Source: CES

Figure 2 shows the most active DWFNs purse seine fleet in Tuvalu EEZ from 1990 to 2005. From figure it is clear that the Multilateral US treaty fleet was the most active fleet over the period catching the most in Tuvalu's EEZ.

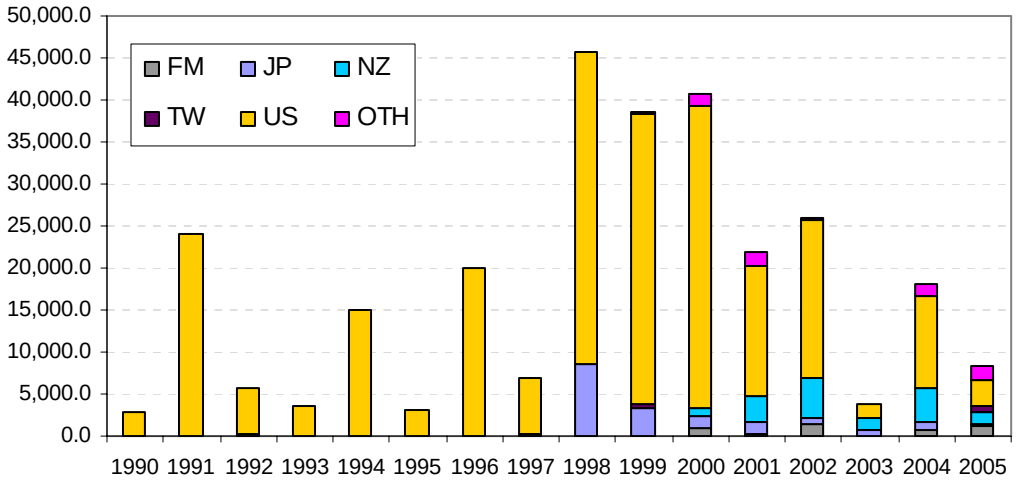


Figure 2. Annual total purse seine catches by vessel nation, 1995-2005

4. DWFN Effort Trends 2001-2005

4.1 Long-line

The trends of DWFN long-line effort show activity is widespread throughout the Exclusive Economic Zone (EEZ), with some concentration of effort in the northern areas in some years. In more recent years, there has been increased activity in the most southern area of the EEZ.

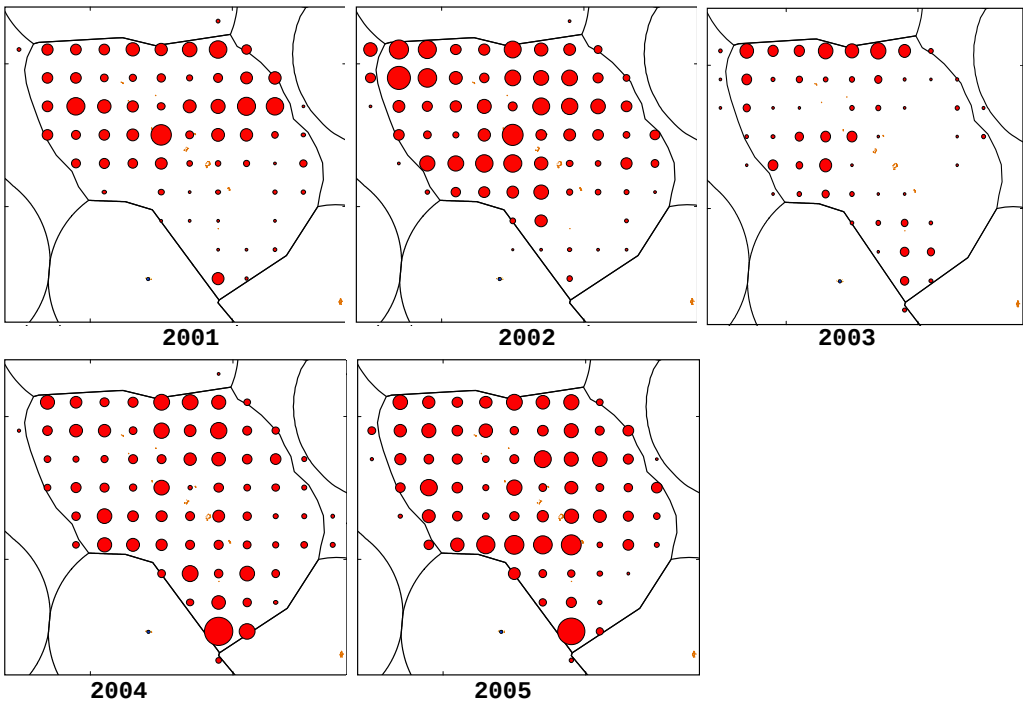


Figure 3. Annual distribution of Long line effort (100s of hooks) in the Tuvalu EEZ, 2001–2005

4.2 Purse seine

Figure 4 indicates the annual distribution of purse seine fleet fishing effort from 2001 to 2005. Most of the purse seine effort is usually restricted to the northern half of the EEZ.

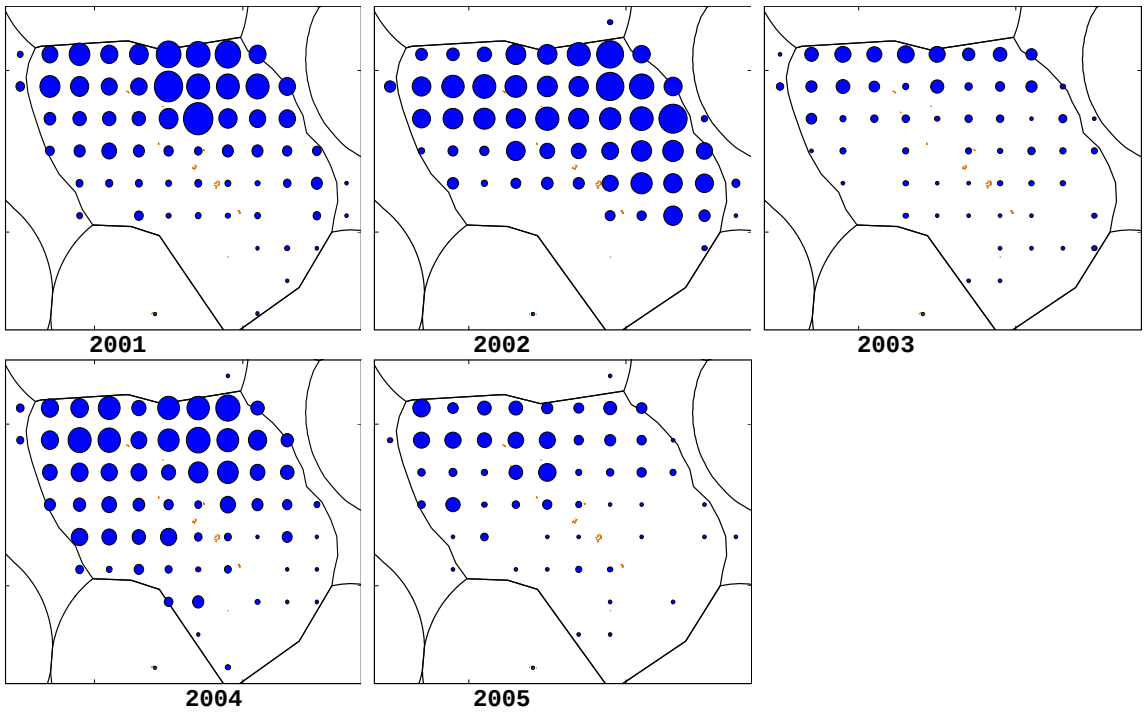


Figure 4. Annual distribution of Purse seine effort (days fishing and searching) in the Tuvalu EEZ, 2001–2005

5. DWFN Catch Trends 2001-2005

5.1 Long-line

Figure 5 shows that the catches by DWFN long-line fleets are spread throughout the Exclusive Economic Zone (EEZ). Yellowfin and bigeye tuna comprise most of the target tuna catch in the northern areas, but the species composition changes the further south fishing occurs, with albacore tuna becoming more prevalent in the catch.

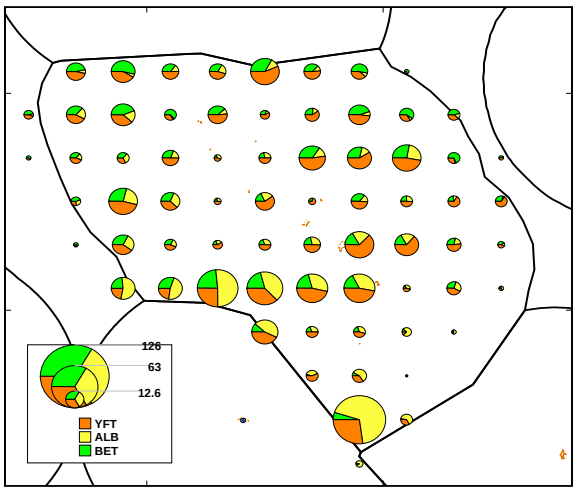


Figure 5. Annual distribution of Long line catch by species (ALB, YFT and BET) in the Tuvalu EEZ, 2001–2005.

Figure 6 and 7 show the trends in nominal long-line YFT and BET CPUE, respectively for the Korean and Japanese fleets; in recent years, both yellowfin and bigeye catch rates for these fleets appear to have been relatively consistent and stable.

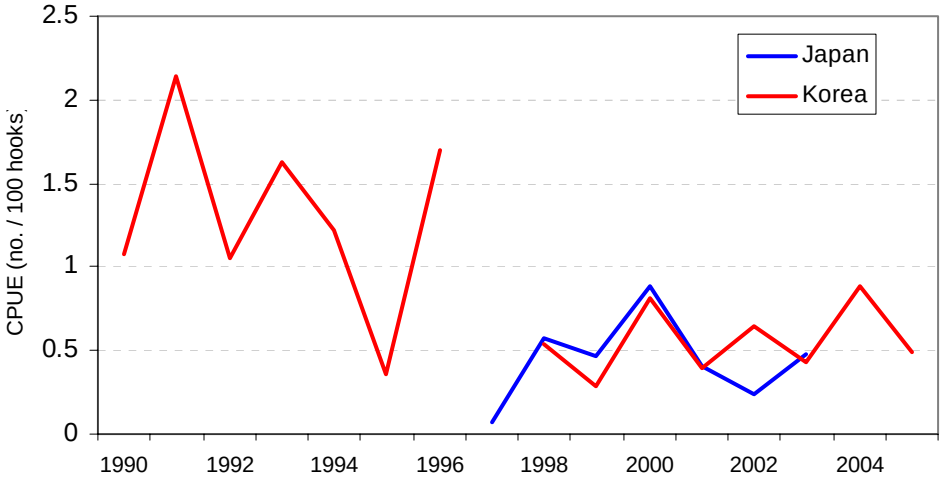


Figure 6. Annual trends in nominal Long line YFT CPUE (no./100 hooks) by fleet in the Tuvalu EEZ, 1990–2005

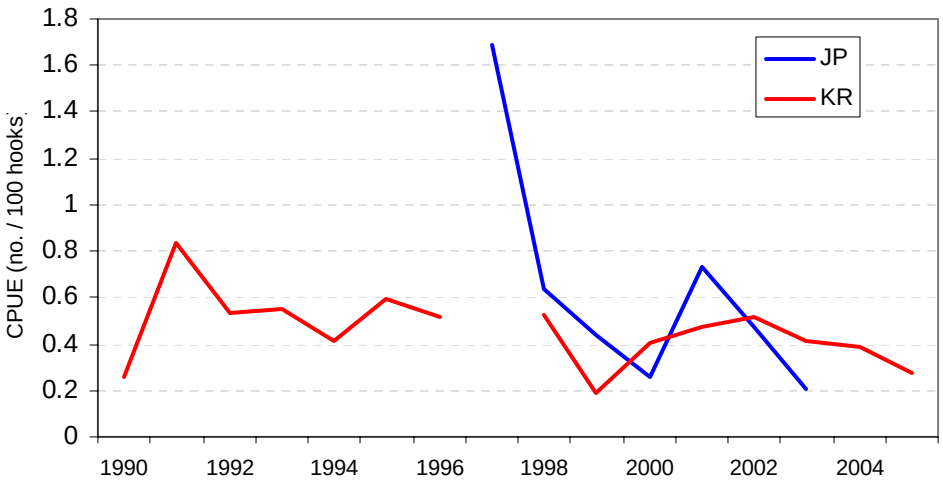


Figure 7. Annual trends in nominal Long line BET CPUE (no./100 hooks) by fleet in the Tuvalu EEZ, 1990–2005

5.2 Purse seine

Figure 8 shows that the catches by purse seine fleets tend to be restricted to the northern half of the EEZ. Skipjack is the predominant species in the catch, and there appears to be higher proportions of the yellowfin in the catch the further north fishing occurs.

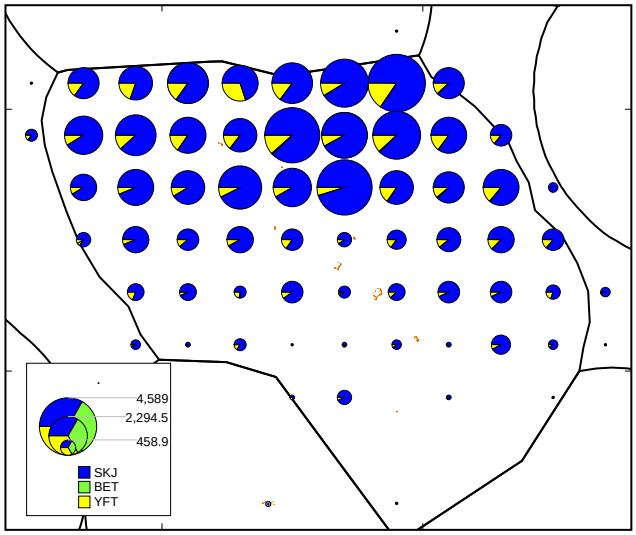


Figure 8. Annual distribution of Purse seine catch by species (SKJ, YFT and BET) in the Tuvalu EEZ, 2001–2005.

Figure 9 and 10 show the trends in nominal purse seine skipjack and yellowfin CPUE, respectively, by fleet; in recent years, both skipjack and yellowfin catch rates appear to have been relatively consistent and stable.

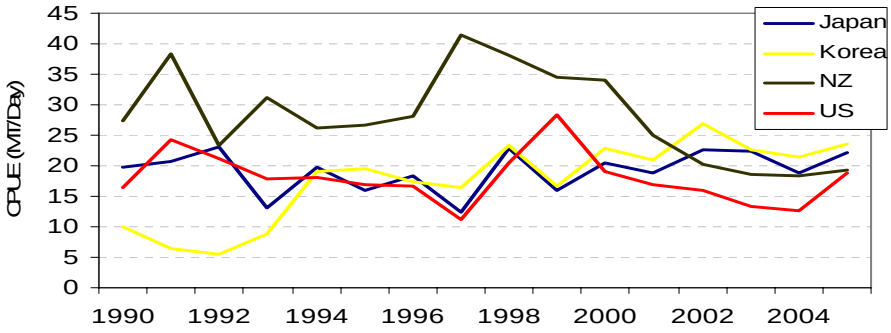


Figure 9. Annual trends in nominal Purse seine SKJ CPUE (mt/day) by fleet in the Tuvalu EEZ, 1990–2005

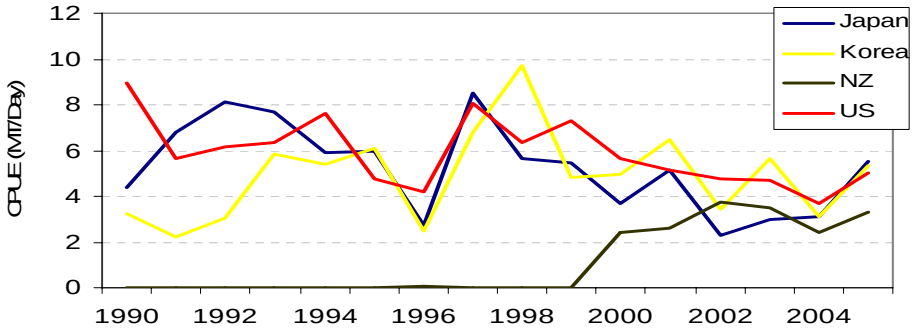


Figure 10. Annual trends in nominal Purse seine YFT CPUE (mt/day) by fleet in the Tuvalu EEZ, 1990–2005

6. Annual Domestic/Artisanal Tuna Catches.

6.1 Manual Trolling Fleet 2001-2005

The domestic fleet consisting of plywood boats for manual trolling was active throughout the period; however there is no proper data collection on the fleet due to limited resources in the Fisheries department to execute the task.

The number of full time trollers varies on each island with Funafuti Island having the most of approximately 10 full time fishermen. Therefore, note the actual catch may have been larger but that these estimates are based on fishermen daily sales of landings and may not reflect 100% coverage.

Table 20 shows only an estimation of the landed catch by the fleet during the period. The estimation was extracted from their daily sales records.

Table 20: Annual Catch by the Artisanal Fleet

Year	SKJ	YFT	OTH	TOTAL
2001	2.64	2.11	0.96	5.71
2002	3.18	3.84	1.16	8.18
2003	2.98	2.97	1.27	7.22
2004	3.44	2.48	0.81	6.73
2005	3.66	2.09	1.06	6.81

(Source: Fisherman Sales Record)

7. Management and Compliance 2006

7.1 Implementation of Conservation and Management Measures

The new marine resources bill when enacted later this year, will definitely allow the fisheries department to implement and apply conservation, management and sustainable use measures of the tuna resources.

7.2 Compliance Activity

The patrol boat executed several surface patrol trips in the Tuvalu EEZ in 2005 to search for any illegal fishing vessel. However, should they encounter a licensed FFV in the EEZ, there would be boarding and inspection of the licensed FFV to ensure the vessel is in full compliance with Tuvalu's laws and to the access agreements signed by the fishing company and by Tuvalu.

7.3 Surveillance Activity

The French Navy, the Royal Australian Navy and the Royal New Zealand air force had executed 3 aerial surveillance and 4 surface patrols in the Tuvalu EEZ in 2006. Unfortunately no illegal fishing vessel was sighted by these patrols. The Tuvalu patrol boat has yet to execute a patrol trip this year.

7.4 Other Activity

The Tuvalu will continue to be involved in regional surveillance cooperation activities with other regional countries. The patrol boat was involved in 'Operation Kurukuru 2005' and again will involve in 'Operation Kurukuru 2006'.

8. Tuna Research and Development

8.1 National Fisheries Observer Program

The Secretariat of the Pacific Community (SPC) and the Forum Fisheries Agency (FFA) conducted an in-country fisheries observer course in Feb 2004 in Funafuti, Tuvalu. After the 2 weeks extensive course, a total of 17 participants passed the course.

The objective of the course was to prepare and train a few locals to establish the national observer program. However, with qualified fisheries observers to date, Tuvalu has not implemented its national observer placement due to limited budget.

The fisheries department will continue submitting budget applications for financial support for the national fisheries observer program.

8.2 Data Collection System

Over the period, there has been no domestic data collection system for the domestic fleet due to budget constraints and limited resources. Tuvalu continues to look ahead and abroad for regional and international institutions to provide any support in the issue.
However, FFVs catch logs returned by the fishing companies under the access fishing agreements would be forwarded to Secretariat of the Pacific Community (SPC).

A new database system software TUFMAN was introduced by SPC in May 2006 to the fisheries department which allows input of data from licensing of foreign fishing vessels consequently allowing and improve the management of an integrated tuna fishery data collection system in Tuvalu. TUFMAN will also be able to help identify by tracking various gaps in the return of data from foreign fleets in the future.

SPC under GEF funding has also indicated employing a National Tuna Data Coordinator in Tuvalu. All details of the position will be finalized after an SPC project officer visits Tuvalu in October 2006.

9. Onshore Developments

9.1 Infrastructure

There has been no major development in the infrastructure since 2001 except to the additional installation of new ice making machines and storage freezers in 2004 at the current site of the NAFICOT. This new installation will continue provision of ice and storage to the local fleet.

The current infrastructure may only cater the regular big inflow of catches from the Community Fishing Centers (CFCs) and the local fishers to Funafuti. The facility will

never be able to cater for any large scale commercial vessels from the DWFNs, therefore may encourage further infrastructure development.

10. Future Prospects for Developments

The Tuna Management Plan in its draft version requires imminent approval and endorsement of the cabinet soon. The plan will certainly be implementing to achieve the goals.

Foreign fishing vessels (FFVs) under fishing license fee are dominating the tuna fishery in Tuvalu. The fishing license access arrangement requires revision as soon as possible. The template has various gaps which allow FFVs to enjoy the benefits. Therefore it is understood that the commercial DWFN fleets benefits will continue to flourish from the tuna fishery but returning minimal benefits to the people of Tuvalu.

The new marine resource bill will be soon in its final reading in parliament later in the year. After the final reading, the act will certainly progress the fisheries department further into better management of its tuna resource.

11. Acknowledgments.

I wish to express my sincere gratitude to the SPC OFP statistic section, especially Mr. Peter Williams, Mr. Colin Millar and Mr. Emmanuel Schneiter for their invaluable assistance during the course of the attachment at the SPC HQ in May 2006. The aim of the attachment was definitely achieved. In that regard, this report was compiled with great assistance of Mr. Peter Williams.

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