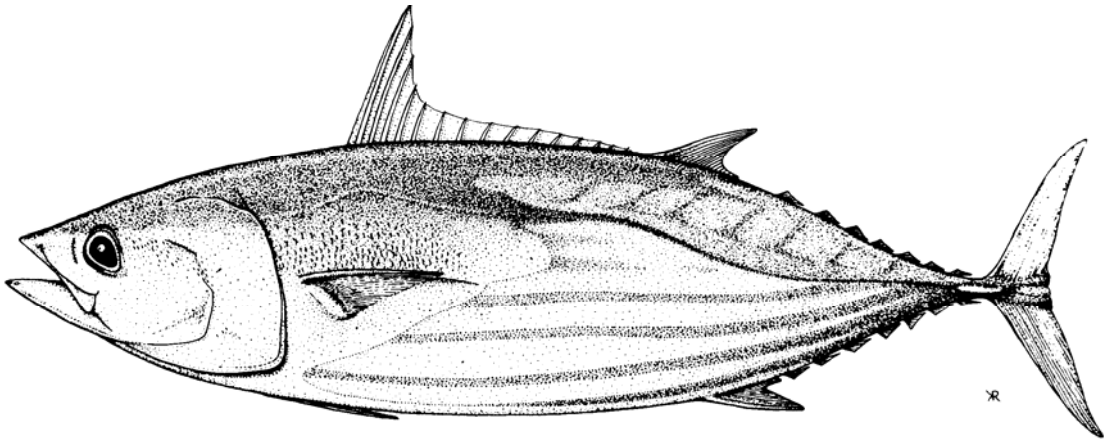


Fiji's Tuna Fisheries



Jone Amoe

Fisheries Department,
Ministry of Agriculture, Fisheries and Forests
Fiji

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1. INTRODUCTION

The Fiji fishing zone area has attracted foreign fishing activity since the early 1950s. Local participation in the commercial tuna fishing picked up in the mid 1970s, then mainly focusing on pole-and-lining. Since the setting up of the Taiwanese and Korean longline activity in the 1980s, longlining has become the predominant fishing method, while pole-and-line fishing is conducted in a very small scale with few artisanal trolling fishers targeting FAD's for the local market.

The Fisheries Department continues to execute and implement control, monitoring and surveillance regimes on its offshore fishery operating under the Fisheries Act, Marine Spaces Act and under the guidelines set forth in the National Tuna Development and Management Plan.

This paper was prepared for presentation to the WCPFC – SC 3 in Honolulu, Hawaii on August 2007. It describes the methods used by Fiji domestic fleets to catch tuna in the Fiji fishing zone, fishing fleet structure, data coverage levels, catch records for five years (2002-2006), marketing of catches, onshore monitoring and future developments.

2. TUNA FISHERIES

2.1 Fleet Structure

Table 1 shows the breakdown of domestic vessels licensed to fish in Fiji waters over the last five years.

Table 1. The list of domestic longline and licensed pole and line vessels, 2002 – 2006.

YEARS	LICENSED LONGLINE VESSELS	FIJI FLAGGED NON-LICENSED VESSELS	LICENSED POLE AND LINE VESSELS
2002	103	NA	2
2003	101	28	1
2004	84	34	14
2005	72	31	1
2006	66	14	6

The Fiji domestic longline fleet is composed of the licensed longline vessels plus other unlicensed Fiji-Flagged longline vessels operating outside Fiji waters but unload their catch in Suva and Levuka ports, and are stationed at Suva for bunkering and provisioning.

The number of licensed longline vessels has decreased from 103 in 2002 to 66 vessels in 2006 due to the implementation of a more stringent vetting process and enhanced monitoring on the conduct of fishing vessels. The number of unlicensed Fiji-flagged vessels remained at around 30 from 2003 to 2005 and then dropping to 14 in 2006.

The pole and line vessels in 2004 and 2006 comprised of 13 and 5 Japan vessels respectively and a single Fiji vessel. No Japan pole and line vessels were licensed in 2005.

2.1.1 Data Coverage

Unfortunately, logsheets do not provide full coverage of activities at this stage and it has been necessary to adjust the logsheet catch totals to account for missing data. Estimates of the target

species for 2006 were determined by raising the available logsheet data to account for **months** where vessels were known to be active, but did not provide logsheets. (The Fisheries Department maintains a table showing months where licensed vessels were active/inactive and where logsheets have been submitted). The 2006 logsheets coverage for the Fiji domestic fleet was maintained at almost 100% levels.

The non-target species were assumed to have been under-reported in logsheets and with more observer data now being collected, estimates of the non-target species were determined using the proportion of observers' non-target species composition to the target species percentage composition (as done for the 2002, 2004 - 2006 non-target species estimates). **Except for the Marlins and Swordfish, the 2003 non-target species estimates were not raised using observer data.**

Unlike most distant-water longline fisheries, the Fiji domestic fishery lands and markets a number of non-tuna species, although shark and other species are not commercially viable (e.g. lancet fish) are typically discarded. It should be noted that the estimation of total catch at this stage does not take into account the non-target species (e.g. shark) discarded at sea.

2.1.2 Domestic longline

Figure 1 shows the distribution of tuna catch by the Fiji domestic fleet. Majority of the catch was within the Fiji waters with some activity in the high seas and in the neighbouring EEZs where several vessels are licensed to fish. Records show that the catch of the Fiji fleet in waters outside the EEZ has increased considerably for the years 2001 – 2004 from 10% to 55%. Contrasting patterns were observed in 2005 and 2006 where the catch of the domestic fleet from waters outside the EEZ was reduced to 30% – 40% levels.

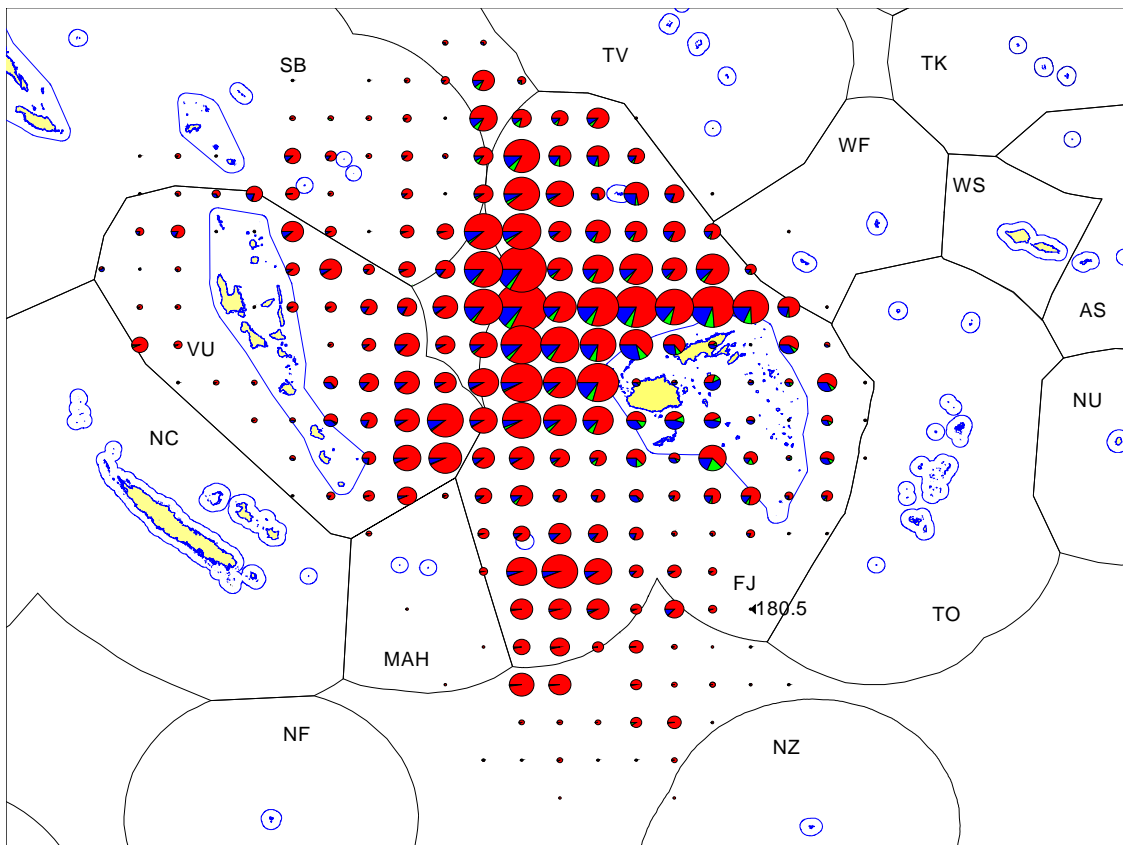


Figure 1. Distribution of the Fiji domestic longline fleet tuna catch for 2006.

For the last decade, longlining has been the preferred method of tuna fishing in Fiji. Catch logsheets are completed by vessels and provided to the Fiji Fisheries Department as a condition of fishing license.

Table 2 shows the breakdown of the total catch for each of the past five years, noting that discarded non-target species have not been accounted for.

Table 2: Estimates of the catch by species for the domestic longline fleet.

Species	Total Catch (mt)				
	2002	2003*	2004	2005	2006
Albacore	8,026	6,881	11,290	8,901	11,802
Bigeye	853	889	1,254	423	771
Yellowfin	2,027	2,482	4,164	1,989	2,231
Swordfish	170	160	261	177	223
Blue Marlin	192	181	295	199	217
Black Marlin	66	62	102	69	16
Striped Marlin	120	112	183	124	123
Mahimahi	354	254	213	266	561
Wahoo	486	268	447	588	694
Shark	1,277	453	2,411	1,443	1,601
Other	1,894	572	1,667	1,316	2,468
Total	15,465	12,314	22,287	15,495	20,707

*Except for Marlins and Swordfish, all other non-target species are **not** raised to observer percentage species composition (2003).

The highest recorded total catch in the 5 year period was in 2004 (22,287mt) due to the large catches of Albacore and Yellowfin. The total catch by the domestic longline fleet (catches inside and outside the EEZ) during 2006 was 18,949mt (13,439mt for the tuna species).

In the early 1990s, when fishing activity was relatively low, albacore accounted for about 50% of the tuna catch but then increased to around 70% - 80% from 1995 onwards. Trends of yellowfin catch throughout the years have remained at 15-25% of total tuna catch with the highest recorded in 2004. The percentage composition of bigeye from 2002 – 2004 has been at the 8% level before decreasing to 4% in 2005.

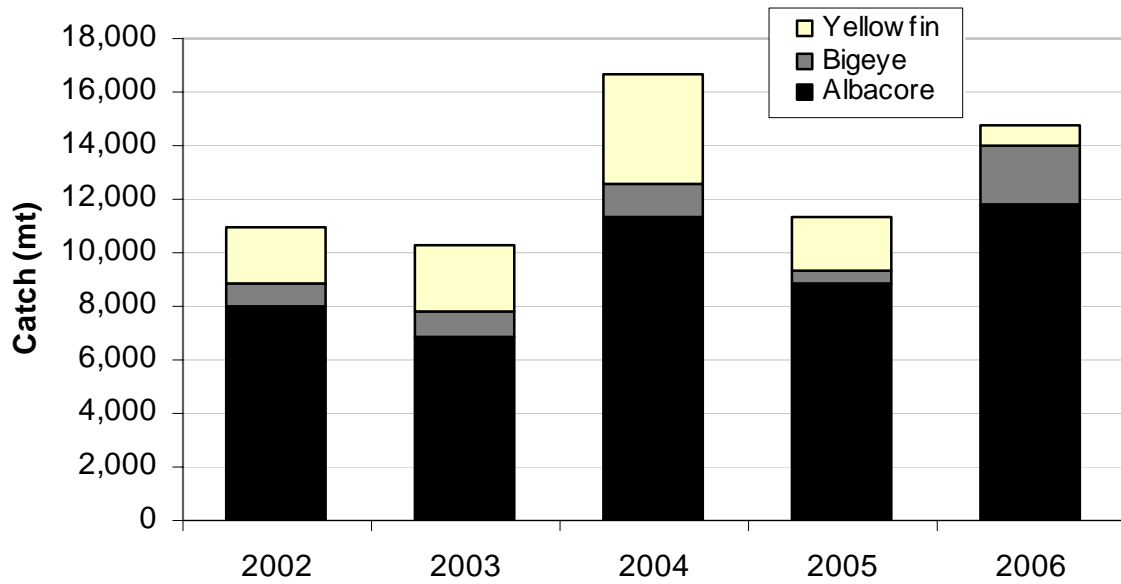


Figure 2. Annual Catch (metric tonnes) trends for albacore, bigeye, and yellowfin tuna.

The second and third quarters (April–September) account for the highest catches of tuna by the Fijian longline fleet. The seasonal catch for albacore was highest in the third quarter and lowest in the first, whereas the highest yellowfin and bigeye catches are typically during the second quarter (corresponding to the period with the highest sea surface temperature) and lowest during the fourth.

The catches of the non-target species was observed to be low in previous years suggesting a degree of under-reporting. This has prompted the Department to target observer coverage levels in order to use observer data to best estimate the non-target species catch. Figure 3 below shows the disparity between logsheets data raised and not raised to observer species percentage composition.

Note that only the 2003 non-target species catch raised using observer data was low as only the Marlin species and Swordfish catch were raised using observer species percentage composition.

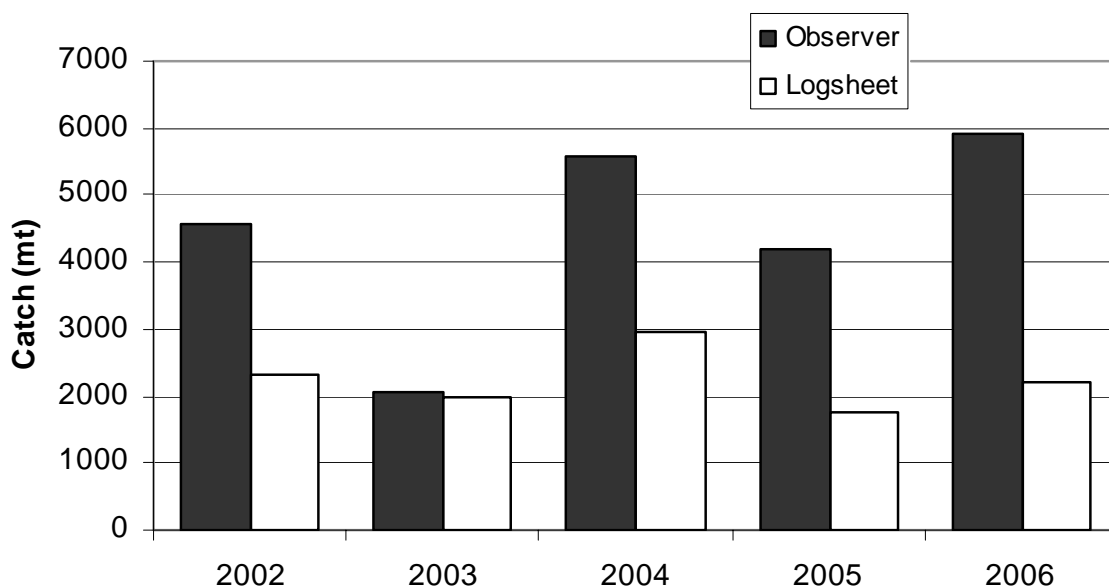


Figure 3. Annual non-target species catch as reported on logsheets compared to logsheet data raised to observer species percentage composition, 2002 - 2006.

Trends in nominal CPUE are sometimes used as an indicator of abundance, but must be considered in association with other direct (e.g. targeting strategy, patterns of effort, size composition of the catch, recruitment, etc.) and indirect (e.g. environmental) factors affecting the fishery.

Figure 4 shows the trends in tuna nominal CPUE for the Fiji longline fleet. The CPUE for albacore increased steadily from 1.03 in 2003 to 1.93 in 2006. The peak in the yellowfin CPUE for 2004 may be due to there being more yellowfin available compared to previous years, otherwise yellowfin CPUE appears relatively stable over the time series. Bigeye CPUE appears to have remained consistent at and around the 0.2 levels.

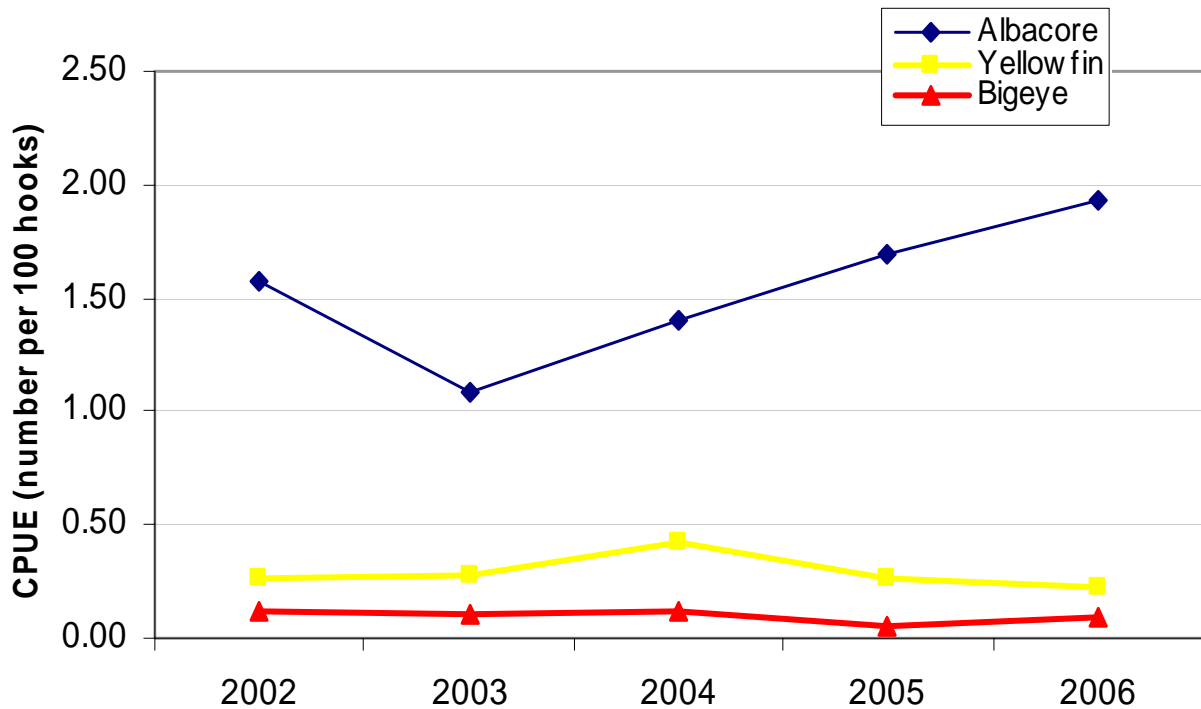


Figure 4. Annual trends in albacore, bigeye and yellowfin nominal CPUE (number per 100 hooks) for the Fijian longline fleet, 2002 – 2006.

2.1.2 Pole and Line

The Fiji domestic pole and line began in 1976. Averaging around 4,000mt, the domestic fleet had continually supplied PAFCO with mainly skipjack and yellowfin tuna. Unlike the longline fleet, the number of pole and line vessels has decreased over the years with quite a few converting into longliners. No data was provided for the pole-and-line activity.

2.2 F.A.D – Trolling

The department engaged itself in the deployment of FADs in 1998. They had deployed and maintained FADs around the country to assist the industrial sector (pole-and-line and purse seine) when they were operational, as well as assisting the small-scale sector. The catches from the small-scale tuna fishing for the years 2002 – 2005 is represented in the table 3 below. No data was available in 2006.

Table 3. Estimates of total catch from the small scale artisanal trolling fishery.

Year	Number of Fishers	Total Catch (mt)
2002	4	2.6
2003	11	91.7
2004	4	27.7
2005	4	41.1

3 MARKETING OF CATCHES AND BYCATCHES

In 2006, Fiji exported 51% of sashimi grade tuna to Japan and America. The remaining 34% was exported. The remaining 49% was exported to other countries, namely China, Australia, New Zealand, Germany, Reunion Island, Canada and Taiwan. Fiji's billfish are also exported mainly to the US, buying close to 43% of the total billfish exports. Besides the US, the non-target species are also exported to China, Thailand, New Zealand and Japan.

Albacore and skipjack are either processed at the local cannery (PAFCO) or exported to Pago Pago. The Pacific Fishing Company (PAFCO) receives its raw materials directly from the domestic and foreign vessels unloading at the Levuka port or indirectly through Freezer Containers from the local fishing companies. The raw fish material supplied to PAFCO is exported as three products i.e. as canned fish, packed tuna loins, and as fishmeal. The canned tuna is mainly exported to the American, Canadian and Japanese markets. The tuna loins are exported to America for further processing whereas the fishmeal is shipped out mainly to the Philippines and Japan.

The remainder of the bycatch and other damaged fish are sold locally at supermarkets, restaurants or directly to consumers.

4 ONSHORE AND MONITORING DEVELOPMENTS

Fiji is still serious in the monitoring of its offshore fisheries resources. Since its inception in July 2002, the Fisheries department still maintains its observer programme headed by a national observer coordinator. The team comprises of 11 fully-fledged observers who are continually placed on Fiji licensed longline vessels and US-Treaty purse seine vessels. Table 4 below shows the number of observer trips (and sea days) covered annually from 2002 – 2006 on Fiji licensed longline vessels.

Table 4. Annual observer trip coverage on licensed vessels, 2002 – 2006.

Year	Observer Trips	Sea Days
2002	14	117
2003	21	353
2004	23	405
2005	42	748
2006	38	681

The programme also encompasses port sampling during unloadings and transshipments. The monitoring of vessels unloading their catch at the Levuka port has increased with an enforcement officer carrying out port sampling duties (and complimenting SPC port samplers) as well as carrying out dockside boarding on vessels.

The Enforcement Section is also responsible for carrying out surveillance activities in harbor and at sea in collaboration with the Fiji Navy. This is done by accompanying naval patrol vessels and EEZ surveillance flights during their quarterly surface and aerial patrols.

5. FUTURE DEVELOPMENTS

The Department, in collaboration with the fishing industry, are looking at avenues to strengthen the industry in terms of increased processing and value adding, efficient vessel servicing, and the provision of support and welfare services for crew members. Plans are under way to develop a new multi-purpose fisheries port in the head of Suva bay to cater for increasing trade volumes as the present wharf is limited by the lack of room to expand. This port will offer greater bunkering and provisioning services, encouraging the unloading of fish and in turn help reduce the number of transshipments done out at the high-seas.