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ANNUAL REPORT TO THE COMMISSION
PART 1: INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

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TONGA

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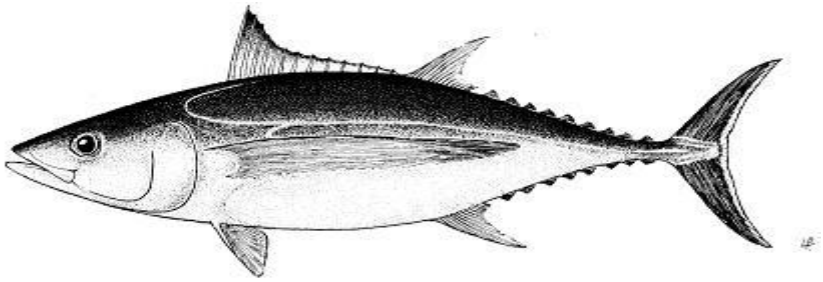
Annual Report Part 1

Information on Fisheries, Research and Statistics



Tu'ikolongahau Halafihi
Fisheries Division
Ministry of Agriculture & Foods, Forests and Fisheries

Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by 30 April 2009	**YES**
If no, please indicate the reason(s) and intended actions:	

1.0 ABSTRACT

Tongan commercial fisheries for high migratory species continued its operation with only longline fleet in 2010 in similar manner as in previous years. However, the fishery continued to be affected by various factors particularly economic problems faced by fishing companies. In 2010, only 5 fishing vessels had valid license to fish in the Tonga EEZ as compared to 7 vessels in 2009. Tonga continued to operate its tuna fishery with full domestic longline fleet since 2005 and mainly operates within Tonga's EEZ and sometimes extends to the high seas in the southern part of Tonga.

The tuna fishery total catch in quantity and value for 2010 further declined from 2009 and became the lowest in the history of this fishery in Tonga after it peaked in 2007 for the last five years. The continuous annual reduction in the tuna fishery production was due to various reasons including, considerable reduction in fishing effort (no. of hooks) by 83.8 % as compared to fishing efforts in 2007 and consistent with the decline in the number of active fishing vessels. The decline in catches is also attributed to the opening of the beche de mer fishery since 2008 in which some tuna fishing companies switched to beche de mer fishery. Furthermore, the variations in environmental and oceanographic conditions have significant impacts on the fishery too.

For the last five years, the total catch rates (CPUE) for the fishery continued increasing until 2008 and then declined in 2009 and again in 2010. It is evident that the trend for the total CPUE was attributed to the decline in the CPUEs for albacore and yellowfin for the last 3 years. Albacore maintained the highest percentage composition in the total catch of 2010 with high percentage of yellowfin and bigeye. Catch composition indicated that most longline vessels and the structure of the fleet were targeting bigeye and yellowfin tuna for fresh fish market with high proportion of albacore tuna. Dolphinfish and moon fish dominated the bycatch composition. From observer reports, Tonga tuna fishery has no impacts on species of special conservation interest (e.g. turtle, marine mammals and birds).

Tonga Fisheries Division continued to work closely with the Offshore Fisheries Program (OFP) of SPC on issues regarding the status of tuna resources in the Tonga EEZ relative to the whole stock in the Western and Central Pacific Ocean (WCPO). The total tuna harvested by Tongan fleet in 2010 was still insignificant to pose any major impact on the whole stock in the region and the WCPO. Despite the ample room for improvement and development of tuna fleet in Tonga, high operation cost had restricted the operation of fishing vessels mainly to areas near the main fishing port, Nuku'alofa.

Tonga research program for tuna such as data collection and observer deployment were continued in 2010 with great improvement. The port sampling coverage increased from 86 % in 2009 to 91 % in 2010 and the observer coverage remained at 12 % as it was in 2009. At the same time, measures and resolutions of the Commission are being implemented and monitored by Tonga Fisheries.

2.0 BACKGROUND

Tongan commercial fisheries for high migratory species started in early 1970's with second hand longliner and skipjack vessels from Japan. In early 1980's the Government put into test the commercial viability of tuna longlinig using a new longliner, M.F.V.Lofa, donated by Japan. In 1991, the Government established a semi-Government company, Sea Star, to operate M.F.V.Lofa commercially. The USAid/Tonga Fisheries project in early 1990's tested the viability of medium size vessels for longlining targeting fresh fish for sashimi. This was let to increase in number of domestic fleet targeting fresh tuna in late 1990's to peak in early 2000's.

Tonga has approximately 700,000 km2 of undeclared EEZ that extends from Latitude13 to 25 degrees offers moderate potential for exploitation. Total catches from the Tonga EEZ have displayed a similar trend to effort. The total tuna catch from the EEZ dropped down from 394.41 mt in 2009 to only 215.3 mt in 2010 and it was the lowest in the history of tuna fishery in Tonga. The 2010 catch was dominated by albacore (26.3 %), with 21.9 % for yellowfin and lesser amount for bigeye (9.5 %). Since 2003, longline vessels have shifted targeting from albacore to yellowfin and bigeye to export as fresh fish.

A significant game-fishing sector exists in Tonga. However, interactions with the commercial longline fleet are likely to be relatively minor as the longline fleet has significantly declined since 2003.

3.0 FLAG STATE REPORTING

3.1 Status of the Fishery

3.1.1 Total annual catch, by primary species

The annual catch and effort estimate, by primary species for the Tongan longliners in the WCPF Convention Area for the years 2006 to 2010 are summarized in Table 1 and also given in Figure 1. The annual catch for the tuna primary species continued to increase from 2005 until 2007 and sharply declined in 2008 to the lowest in 2010. In details, the total catches by weight for the primary species dropped down by 31.2 % in 2008, 66.8 % in 2009 and 82.5 % in 2010 as compared to the total catch landed in 2007. This considerable decline is a result of rapid reduction in fishing efforts (number of hook) by 35.8 % in 2008, 68.8 % in 2009 and 83.8 % in 2010 as compared to the fishing effort in 2007. In reference to the history of this fishery in Tonga waters; longline effort rapidly increased from the mid 1990s to peak at more than 10 million hooks set during 2002 before a rapid decline in booth hooks and vessels in recent years. The huge reduction in fishing effort is attributed to the decline in catch rates and other various factors including economic issues and the diversion of fishing effort from tuna to beche-de- mer fishery that was opened in 2008.

The main target species for the Tonga longline fishery are bigeye, yellowfin and albacore and catches for those species were all declined since 2008 due to reasons mentioned above. Albacore continued to dominate the catches for 2010. The annual CPUE estimate by primary species for the Tongan Longliners for the year 2006 to 2010 is given in Figure 2. It shows that the total CPUE continued to increase up until 2008 and then declined in 2009 and continued in 2010. The decline in the total CPUE seems to be controlled by the CPUEs for yellowfin and albacore.

Table 1. Annual Catch and Effort Estimate, by primary species, for the Tongan longliners were active in the WCPFC Convention Area for the years 2006 to 2010.

Year	Effort Average no. of hooks	Primary species catch (mt)						
		Albacore	Bigeye	Yellowfin	Skip jack	Swordfish	Marlins	**TOTAL**
2006	3388600	380	101	183	0.5	34	41	**739.5**
2007	3285600	390	129	341	0.8	31	49	**940.8**
2008	2109300	220.2	81	290.8	0.3	29	28.6	**649.9**
2009	1023900	124.3	37.6	109.4	0	22	19	**312.3**
2010	531090	56.6	23.5	47.2	0.1	25.5	12	**164.9**

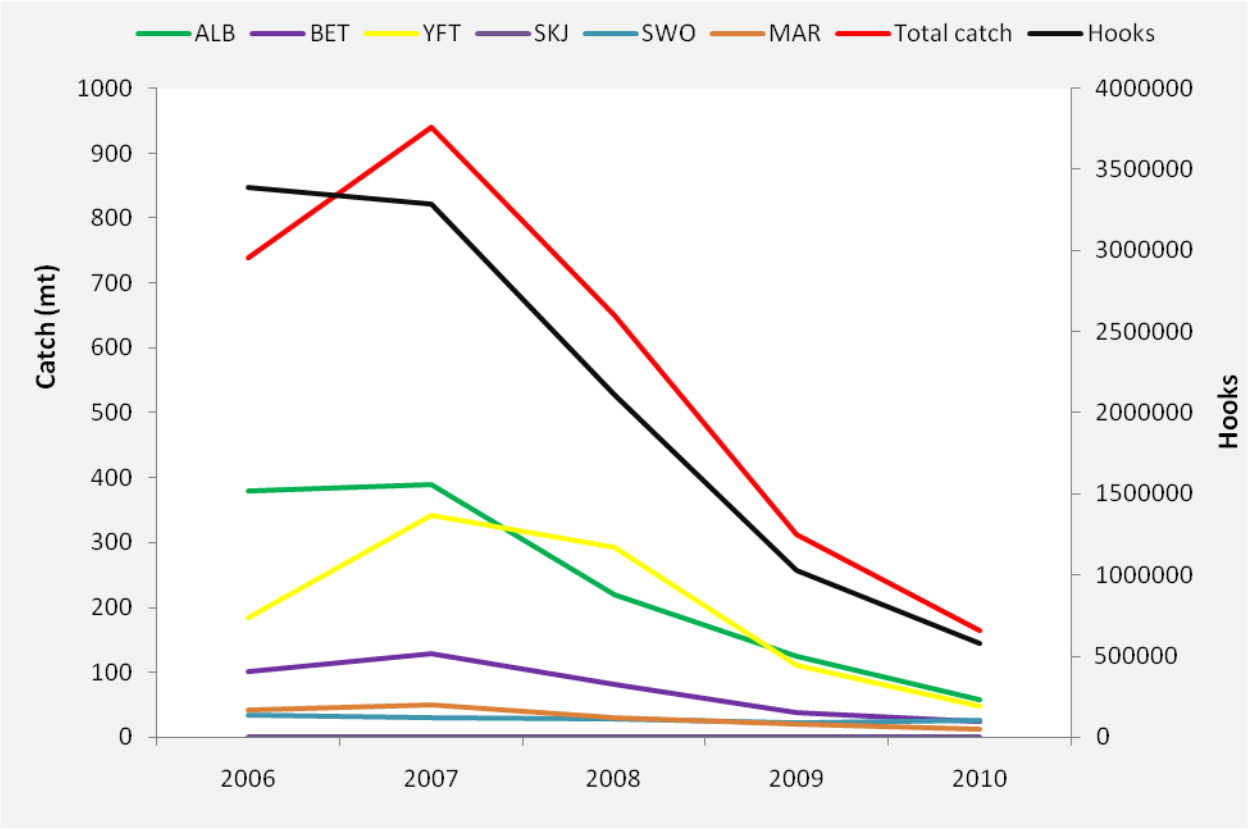


Figure 1. Historical annual Catch (mt) and Effort (no. of hooks), by primary species, for the Tongan longliners were active in the WCPFC Convention Area for the years 2006 to 2010

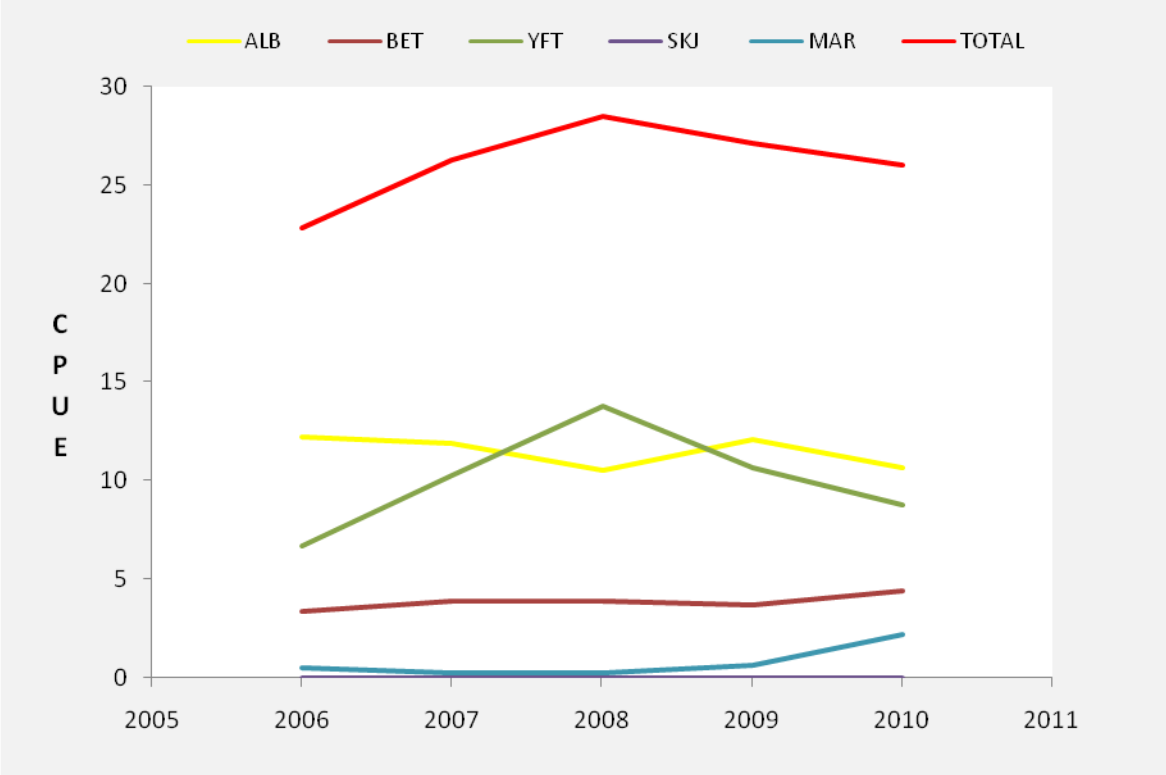


Figure 2. Historical annual CPUE, by primary species, for the Tongan longliners were active in the WCPFC Convention Area for the years 2006 to 2010

3.1.2 Annual catch estimates of non-target, associated and dependent species

The annual estimated catches of non-target, associated and dependent species, by the Tongan Longliners, in the WCPFC Convention Area, for the years 2006 to 2010 are given in Table 2. Dolphin fish is the most common bycatch species followed by moonfish and yahoo. The major bycatch species in the longline fishery are significant components of annual exports. The large reductions in longline effort have resulted in reductions in landings of the major bycatch species.

By-catches are obtained from logsheets and are also obtained from observer records. Observer records are important for estimating catches of the less valuable species that are less likely to be retained or recorded; it is difficult to obtain reliable estimates from species rarely caught in longline fisheries

Observers have reported high retention rates of target tunas, with most discards being due to fish being shark damaged. Wahoo, dolphinfish, moonfish and billfishes also had high retention rates as these are also valuable components for the fishery. In contrast, lancetfish, escolar, oilfish and certain shark species are rarely retained, although almost all sharks (greater than 90 %) are finned before being discarded. A single turtle (unidentified) was captured by the domestic longline fishery in the Tonga EEZ, and was released alive. No other interactions with species of special conservation interest (e.g. turtles, marine mammals, birds) were reported by observers since the program started in 1995.

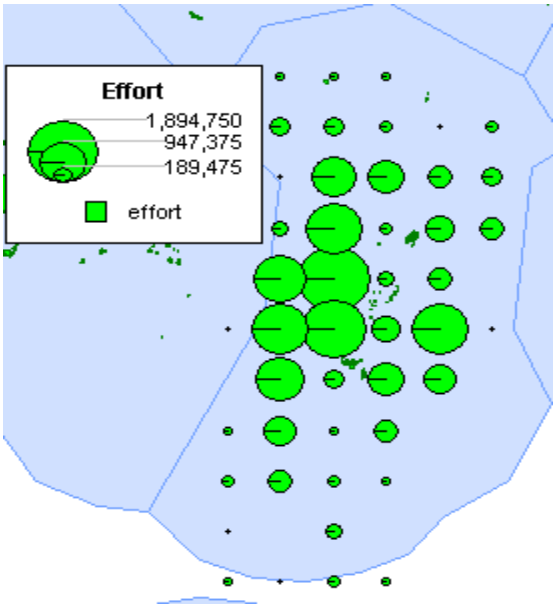
Table 2. Annual estimated catches (mt) of no-target, associated and dependent species, including sharks, by the Tongan Longliners, in the WCPFC Covention Area, for years 2006 to 2010.

Non Target Species	2006	2007	2008	2009	2010
Wahoo	32.5	45.11	29.1	10	7.0
Short-Billed Spearfish	5.21	5.23	2.17	2	1.3
Sharks (Unidentified)	33.3	38.4	21.9	10	2.1
Sailfish (Indo Pacific)	1.13	3.54	1.76	2	0.8
Pacific Blue Tuna	0	0.15	0	0	0.0
Dolphin fish	71.9	85.0	42.9	45	27.1
Oilfish	0	0	0	0	0.0
Opah/Moonfish	10.9	18.0	16.4	13	11.8
Rainbow	0	0.01	0	0	0.0
Others	37.3	5.1	0.69	0.1	0.0
TOTAL	**192.2**	**201**	**115**	**82.1**	**50.1**

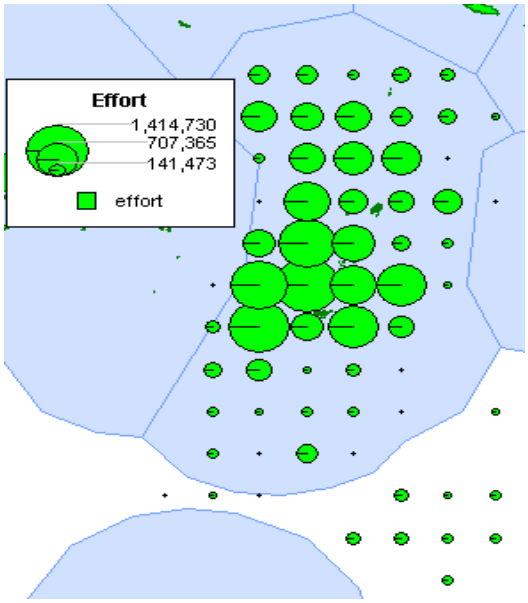
3.2 Fishing Patterns

The annual distribution of effort and catch for the target species by the Tongan longliners active in the WCPFC Convention Area, for years 2006 to 2010 are given in Figure 3a-e and Figure 4a-e respectively. Most longline efforts by the Tonga fleet are reported within the Tonga EEZ. However, there have been minor levels of effort reported in high seas areas immediately to the south of the Tonga EEZ. Total catches by Tonga vessels outside of the Tonga EEZ are minor as most vessels were not capable of operating long distances from Nuku'alofa. In recent years most efforts were focused in the central area of the EEZ due to high costs of operations including high prices of fuel. Since 2000, the highest levels of effort have been reported during the second and third quarters of the year. The area of operation of the fleet has been similar since 2005, with the exception of a reducing range of fishing operations and reducing distances between sets. Due to less vessels operated in 2010, no fishing effort was reported from the northern and the southern EEZ of Tonga.

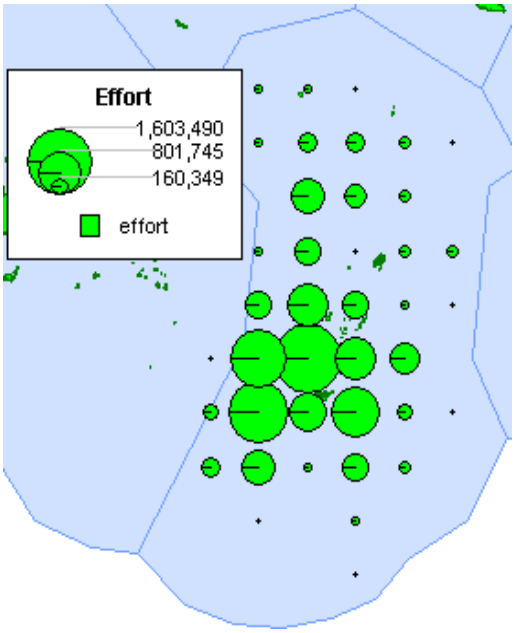
The highest albacore catch rates from the Tonga EEZ are generally reported during the middle of the year, with a smaller peak at the end of the year. Albacore catch rates are relatively high in the central and the south of the EEZ during the second and the last quarter of the year. Highest catch rates of yellowfin and bigeye are reported from the western EEZ and northern parts, especially during the first and the second quarters of recent years.



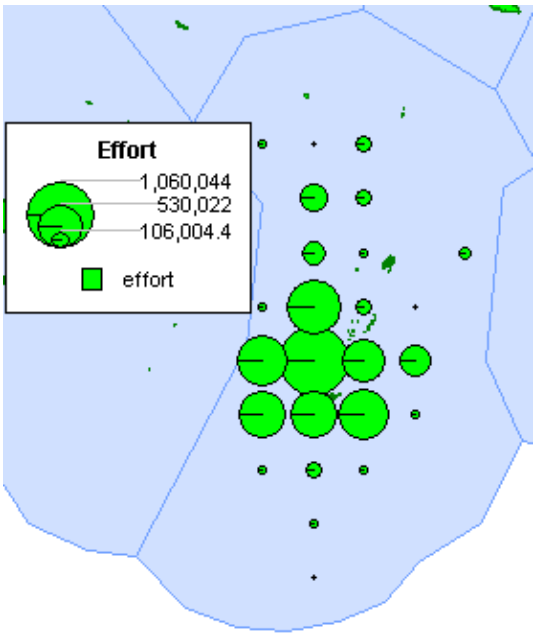
(a) 2006



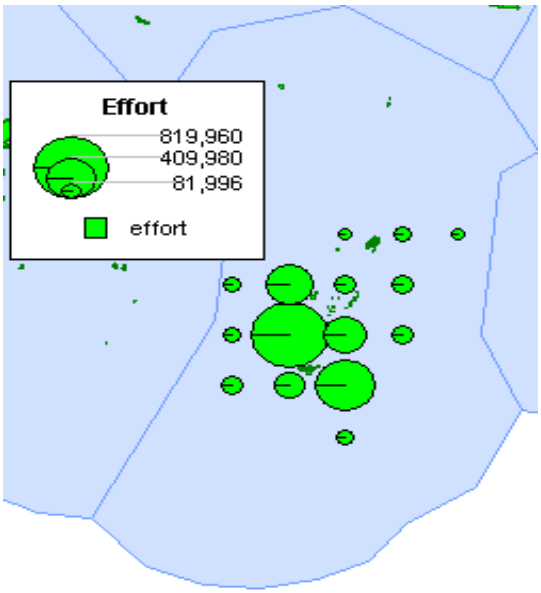
(b) 2007



(c) 2008

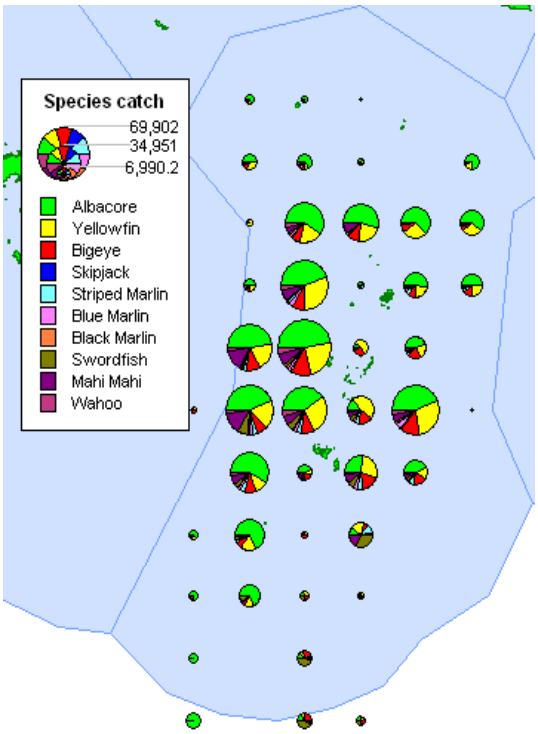


(d) 2009

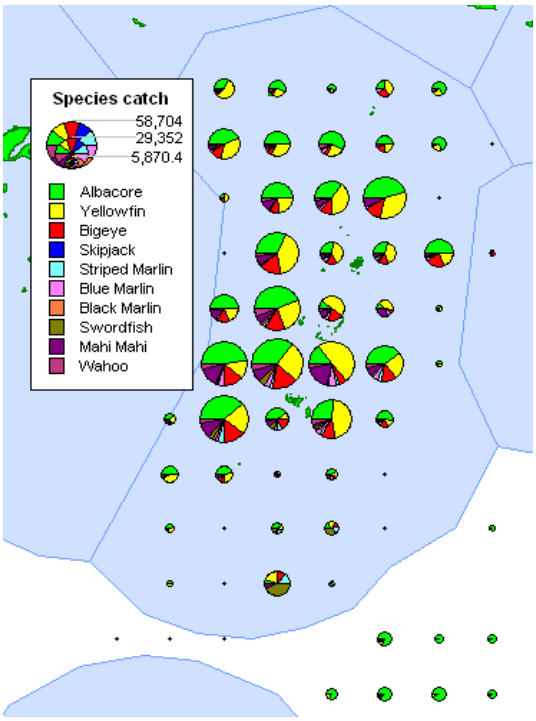


(e) 2010

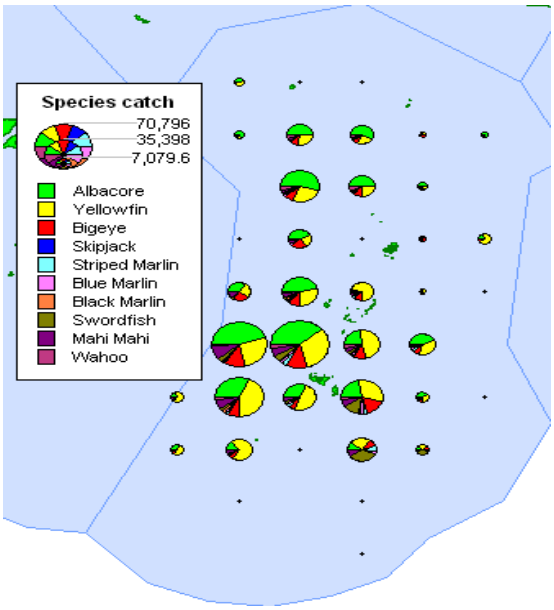
Figure 3a-e. Annual Distribution of target species effort by the Tongan Longliners active in the WCPFC Convention Area, for the year 2006 to 2010.



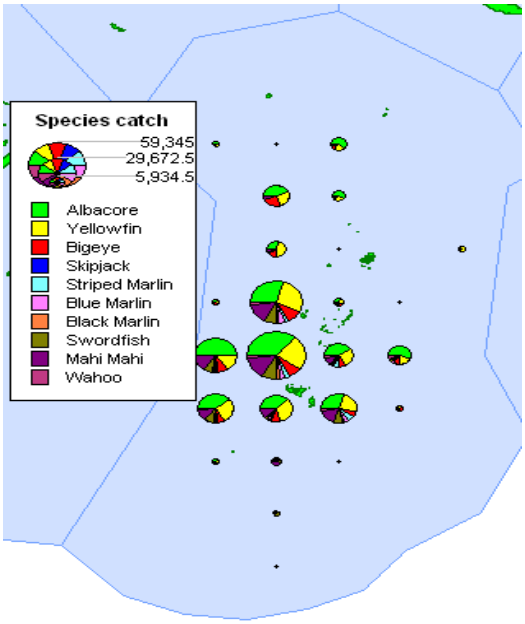
(a) 2006



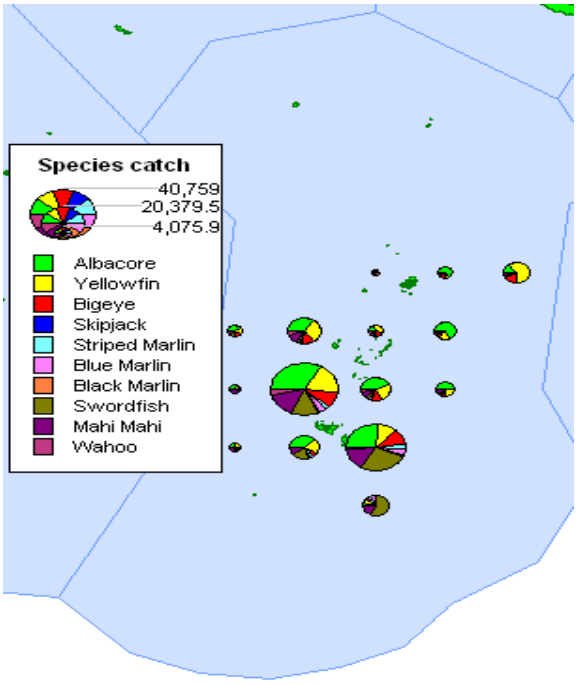
(b) 2007



(c) 2008



(d) 2009



(e) 2010

Figure 4a-e. Annual Distribution of target species catches by the Tongan Longliners active in the WCPFC Convention Area, for the year 2006 to 2010.

3.3 Fleet Structure

Following the development of the domestic longlining and the opening of the fishery for the chartering vessels, Locally Based Foreign Fishing Vessel (LBFFV) in late 1990s the tuna fleet increased to peak in 2002 and 2003 but has subsequently declined due to poor catch rate and high operational costs. At the end of 2004, all of the Locally Based Foreign Fishing Vessels (LBFV) relocated to other countries and some are sitting in port. Domestic longliner vessels are mostly 20m-30m. Table 3 shows the number of licensed fishing vessels registered to fish in Tonga waters for the last 5 years and were all domestic fishing vessels. The number of licensed vessels used in this report was obtained from TUFMAN database and slightly different from the number used in previous reports. This is because the TUFMAN database only gives active vessels.

In 2010, a total of five (5) local longline fishing vessels were licensed to fish within the Tonga's fisheries waters, noting a moratorium is still in place since 2004, for licensing locally based foreign fishing vessels to fish within Tonga's EEZ. Out of the five licensed vessels in 2010, two had only one trip each and then rested for the rest of the year due to various technical and economic problems while the other 3 vessels were actively fishing throughout the year.

Table 3. The number of Tongan longliners licensed to fish in Tongan waters from 2006 to 2010.

Year	Gear	No. of Domestic Longline vessels
2006	Longline	14
2007	Longline	13
2008	Longline	9
2009	Longline	7
2010	Longline	5

4.0 SOCIO-ECONOMIC FACTOR

Exportation of Tuna from Tonga continued in 2010 but both quantity and revenue continued declining in response to the considerable decline in catches and fishing efforts. As in previous years, majority of the catches for 2010 were exported and the rest were sold at local markets. The total estimated FOB revenue collected from export in 2010 was TOP$ 133,626.50 as compared to TOP$290,124 collected in 2009 which is a considerable reduction by 54 %.

The monthly exports in terms of quantity and revenue for 2010 were highest in January followed by December. The highest portion of the export was from yellowfin with high percentage of bigeye and albacore as given in Figure 5. Some bi-catch species were also exported and it was dominated by moonfish and mahimahi. In general, the export revenue for 2010 dropped by 98 % as compared to the revenue collected from the exportation of tuna in 2001; the year with the highest catch and export in the history of tuna fishery in Tonga.

The exportation of tuna depends only on the capability of exporters to meet their operating costs including opportunities to transport export to overseas markets. Employment in this fishery also drops as a result of financial constraints faced by the tuna fishing companies. Hence, it is approximately less than 100 people are still employed in the industry. The tuna operators continue to benefit from duty free fuel, a subsidy provided by government to assist fishing.

5.0 DISPOSAL OF CATCH

5.1 Marketing

Figure 5 below presents the main markets with respect to weight for the tuna export for Tonga in 2010. The biggest portion; 35.7 % of the total export volume was exported to Los Angeles followed by 33 % to Honolulu, and then 31.1 % to Japan. Other important markets are New Zealand and Korea but no export to these countries in 2010. Fish were mostly exported "fresh" to markets except, in previous years most albacore and skipjack were frozen before exporting to Pagopago, American Samoa, but there was no export to Pagopago since 2009. Hence, most portions of albacore catch were sold locally.

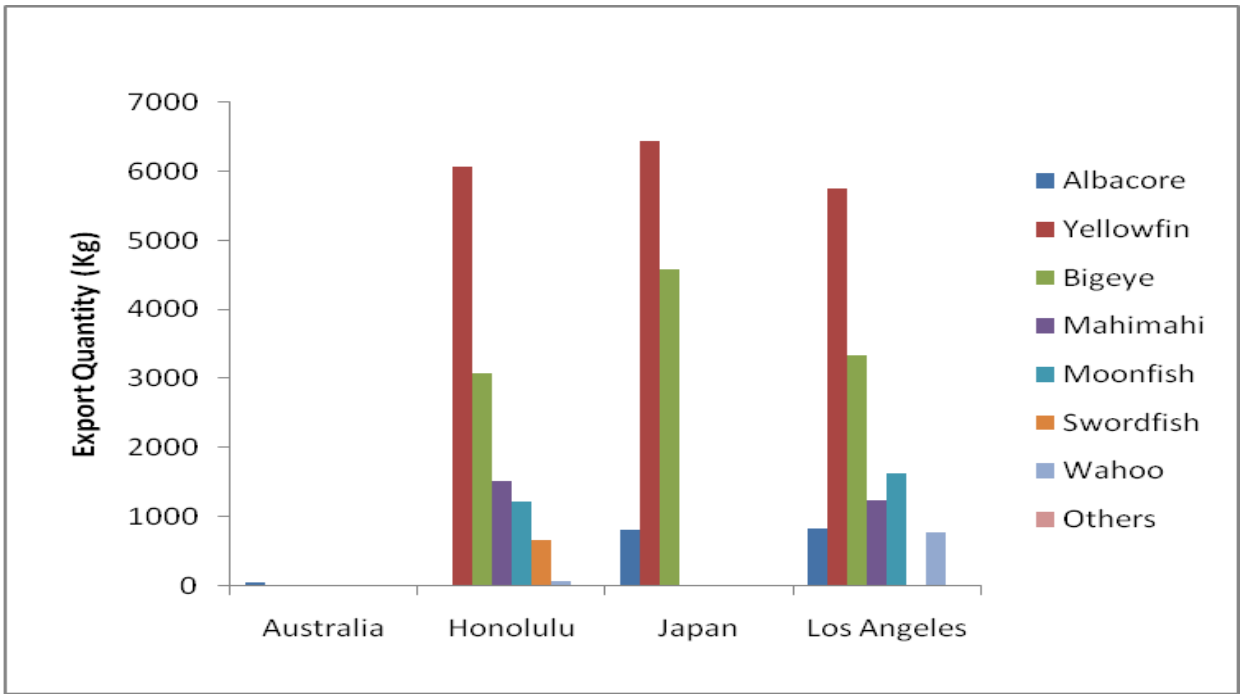


Figure 5. Tuna Export and Destinations for Tonga, 2010

6.0 ONSHORE DEVELOPMENT AND FUTURE PROSPECTS OF FISHERY

For the year 2010, there was no major development in the Tonga tuna fishery in terms of fleets and infrastructure but the big reduction in the tuna fishery production revealed a decline in the industry. The decline in investments on fishing was highly influenced by declining catches, rising fuel prices and other operating cost. Marketing issues affecting industry growth and inhibiting activities during the year included inadequate value adding opportunities, limited product diversification and high transportation costs in addition to limited cargo space. Climatic conditions also played a significant role in fisheries production as most of fisheries scientists believed that weather patterns to some extent, had a bearing on the industry's performance and migration pattern of the tuna fish stock.

As in previous years, three tuna packing facilities owned by different companies are operating under HACCP certified conditions. One fishing company does not have backing facility but utilizes facilities belong to others. Recently, the Government's local fish market was renovated which has a good packing facility, and it is intended to facilitate exports for companies who do not have facilities. Currently, two companies are exporting loins, fresh cut packed sashimi packets mainly to Japan. The tuna resources still offer opportunity for growth of the domestic industry. Any major growth would be from a combination of factors such as the fishing component which is able to fish beyond the Tonga's waters and a processing that is able to add value to the product. These will raise significant economic contributions. While the industry remains uncertain due to economic difficulties, it must remain flexible and implement good management measures so as to minimize unnecessary costs. More importantly are the subsidies that government has enabled to provide for this fishery and as such has given these companies opportunity to continue fishing in the face of uncertainties.

Tonga Government is making every change possible in its reform process to form conducive policies which will encourage foreign investments and local fishers to assure profitability in this fishery. As part of the future development, Tonga is indented to have a bareboat charter arrangement to increase its tuna fishery production. With the assistance from the FFA Secretariat, Tonga is planning to prepare a bareboat framework to allow local fishing companies and entities to charter, if appropriate, foreign flag vessels to fish in its waters, high seas and other zones.

A new Tonga National Tuna Fisheries Management and Development Plan (2010 -2014) was prepared in line with the Tonga's Fisheries Management Act and National Strategic Development Plan Eight. This plan is a high level policy document that provides guidance to the management and development of tuna fisheries in the period 2010-2014. The Plan was prepared using the process of Ecosystem Approach to Fisheries Management (EAFM) which has been adopted by Tonga.

7.0 RESEARCH ACTIVITIES AND STATUS OF TUNA FISHERY DATA COLLECTION

7.1 Observer

The Tonga National Observer Programme is under the Monitoring & Surveillance Section of the Fisheries Division. The staffs at this program are responsible, for the activities of the Observer

Programme in close collaboration with relevant SPC-OFP staffs for deployment on vessels fishing within Tonga waters, and with FFA, when an observer is requested to be deployed under the Multilateral Treaty arrangement.

In 2010, the number of observers was available for deployment at the Tonga EEZ on Tonga domestic fleet remained at 5 as it was in the last two years. Overall, the observer coverage for the year 2010 maintained the12 % achieved in 2009. Under the Multilateral treaty, observers from Tonga's national observer programme can be deployed on the US fishing vessels, upon request from the administrator, (FFA). In 2010, 15 observer deployments were made by the Tongan observers on US vessels.

The major constraint faced by the programme was lack of longline fishing vessels for observer to deploy. A maximum of five (5) local longline fishing vessels were licensed to fish within Tonga's fisheries waters in 2010, however, throughout the year only 2 vessels were actively fishing. Most of the vessels switched to harvest bech-de-mer and the rest were sitting on port due to high costs of operations. Availability and enthusiasm of observers are sometimes affected by poor conditions (cleanliness and size of vessels) of fishing vessels.

7.2 Port sampling

The tuna fishery port sampling program for Tonga is under the Offshore Section of the Fisheries Division and is funded by the Secretariat for the Pacific Community (SPC) since the program was started in 80s. Sampling typically occurs at one port at Nuku'alofa and it occurs throughout the year. The port sampling activities include recording of lengths and weights for every species during unloading of fishing vessels, collecting of logsheets from captains of each fishing vessel and also collecting of unloading forms from fishing companies. All data and information from logsheet, port sampling and unloading are entered to the local TUFMAN database. Port sampling reports, logsheet data and unloading information are regularly provided to SPC through monthly submission and report.

There was a great improvement in port sampling coverage for the last 5 years as it was increased from 56 % in 2006 to 70 % in 2007; 76 % in 2008, 87 % in 2009 and 91 % in 2010. Coverage rates for logsheet data and unloading data continued to be 100 % in 2010. The Tonga Fisheries Division is obliged to maintain this high percentage coverage of port sampling to ensure the fulfillment of its obligation to the commission.

Offshore Fisheries Program (OFP) of SPC continued to provide assistance in providing Tonga Fisheries with relevant information about tuna stock in Tongan water relative to the whole stock in the Western and Central Pacific Ocean. The total tuna catch by Tonga fleet in 2010 still remain insignificant to have any major impact on the whole stock in the region and WCPO. Despite the ample room for improvement and development of tuna fleet in Tonga, high operational costs such as fuel have restricted the operation of fishing vessels mainly to areas near the main fishing port, Nuku'alofa.