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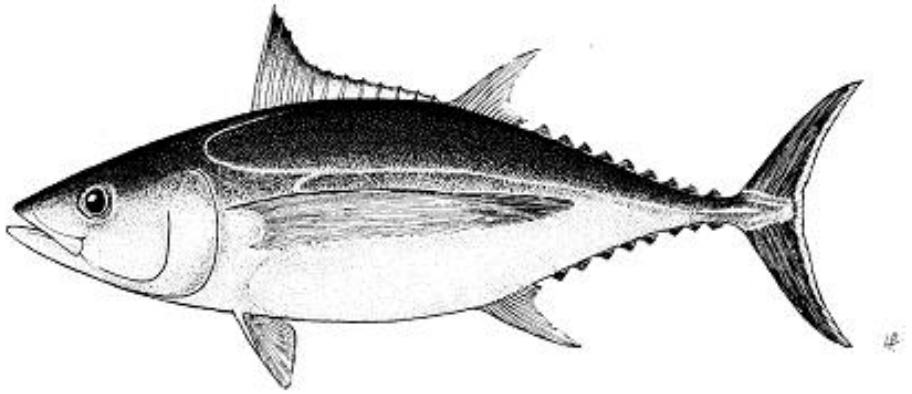
ANNUAL REPORT – PART 1
INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

WCPFC-SC3-AR PART 1/WP-29

KINGDOM OF TONGA

Tonga Tuna Fishery Annual Report to SC 3 as Part 1 of the Annual Report to WCPFC, Honolulu, Hawaii, 13 -24th August 2007.



1. Introduction:

Tuna Fishery 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 km^2 of undeclared EEZ which extends from Latitude13 to 25 degrees offers moderate potential for exploitation. Historically, the annual catches of tuna species are dominated by the deep swimming albacore species which makes up 36%, less than 25% are yellow fin and 14% are big eye. The bycatch species are dominated by dolphinfish and moonfish.

2. Status of the Fishery

2.1 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 operation cost. During the second half of 2004 and whole of 2005 about 12 and 9 of the licensed vessels were actively fishing respectively. At the end of 2004 most of the Locally Based Foreign Fishing Vessels (LBFV) relocated to other countries. In 2006 the number of licenses started with 12 but then decreased to 9 due to three vessels relocated to the Cooks. The table 1 shows the number of licensed fishing vessels to fish in Tonga waters.

Table 1. The number of longliners licensed to fish in Tongan waters, 2000 - 2006.

Year	Gear	Domestic	LBFV	Total
2000	Longline	14	2	16
2001	Longline	17	2	19
2002	Longline	18	11	29
2003	Longline	13	16	29
2004	Longline	14	14	28
2005	Longline	15	0	15
2006	Longline	12	0	12

2.2 Total Annual Catch

The Figure 1 gives the annual catch (metric tons) of the main tuna species and by-catch by both domestic and LBFFV. It shows a steady decline of the annual catch after 2001 to the lowest in 2004. This steady decline is accounted by the decline in Catch Per Unit Effort (CPUE) in Figure 2. Due to low CPUE and high operation cost only some of the licensed vessels were fishing. The others tied at wharf or go fishing once a month or two. The total catch increased in 2005 and continued to rise in 2006.

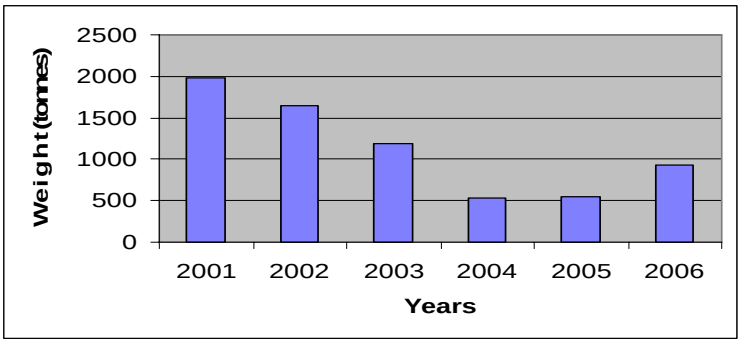


Figure 1: The Annual Catch of Tuna and Bycatch, 2001 - 2006

2.3 Catch by Species

Figure 3 shows the annual catch by species. The annual catch is dominated by albacore. It accounted for 32 – 40% of the total catch followed by yellowfin at 20 – 31% and bigeye at 8 – 20%. The by-catch composition is very significant at 26 – 32%. The dolphin (Mahimahi) and moonfish accounted for more than 50% of the by-catch.

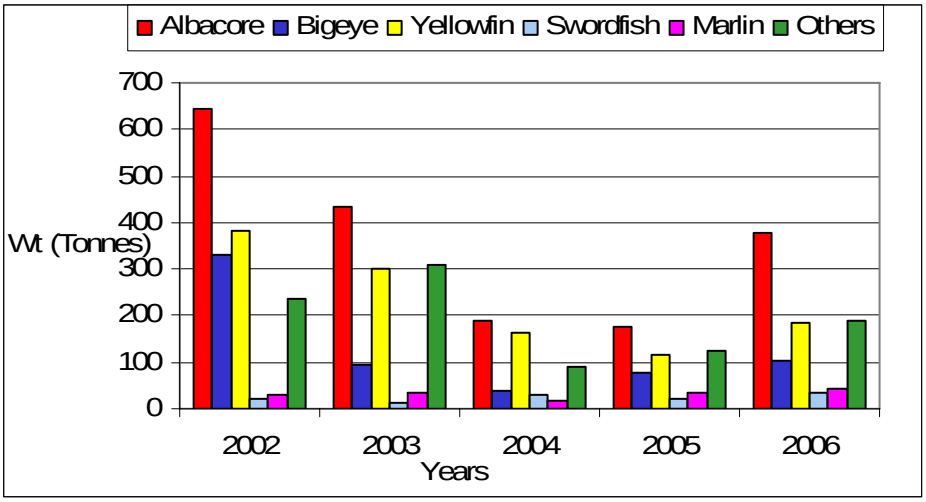


Figure 2: Annual Catch by Major Species

2.4 Catch per Unit Effort (CPUE)

Figure 3 below gives the quarterly Catch per Unit Effort (CPUE) for tuna and by-catch. The fluctuations in the tuna CPUE in Tonga EEZ is mainly driven by oceanographic effects. The CPUE for albacore is highest in the 3rd quarter and lowest in the 1st quarter. The bigeye CPUE is highest in the 2d quarter and lowest in the first quarter. On the other hand the yellowfin is highest in the 1st quarter.

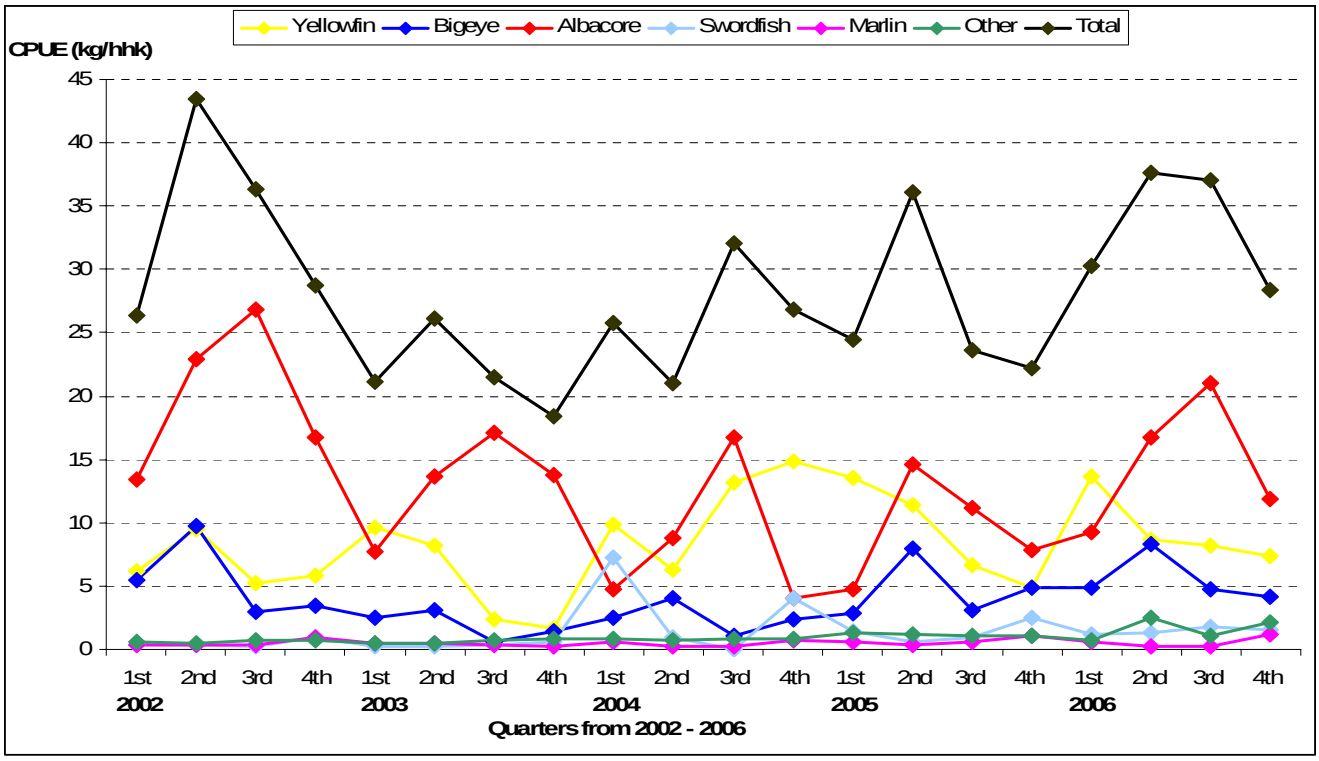


Figure 3: Quarterly CPUE for 2002 - 2006

2.5 Catch Distribution

Figure 4 gives the catch distribution of tuna and by-catch over the Tongan EEZ. It was prepared by the Oceanic Fisheries Program (OFP) of SPC from logsheets collected by Fisheries. The sizes of the circles represent the volume of catch per unit grid area which are subject to relative abundance and effort.

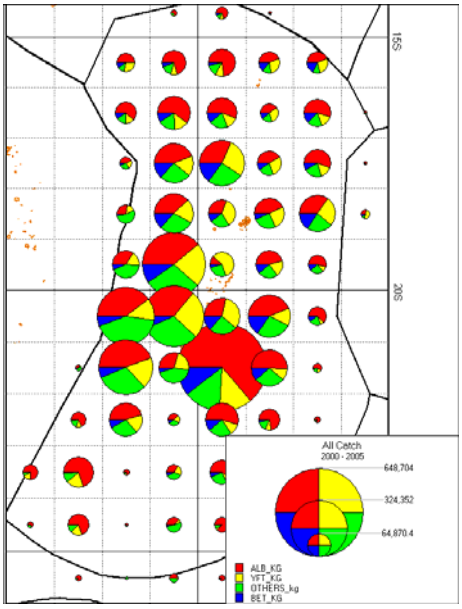


Figure 4: Catch Distribution over the Tongan EEZ

2.6 Bycatch

All the by-catches from tuna longlining were retained and sell locally or export. The by-catches were mainly dolphin fish, moon fish, marlin and sailfish.

2.7 Marketing

The percentages of export from the annual catch were varied from 44% in 2006 to 61% in 2001. Figure 5 shows the percentages of the catch by species were exported from 2002 to 2006. It indicates the low percentage of albacore compare to yellowfin and bigeye and surprisingly lower than the 'other species' category.

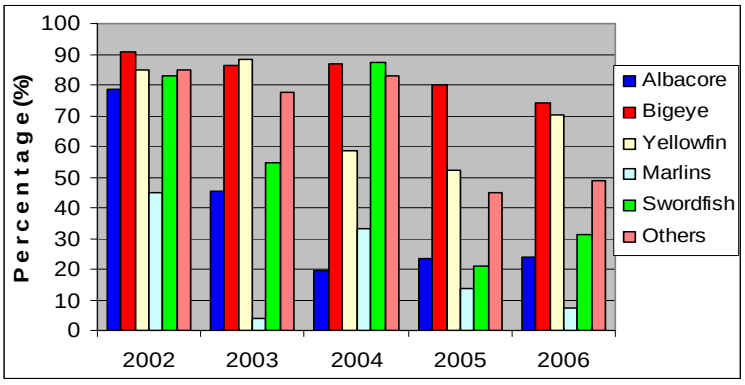


Figure 5: Percentage of the catch by species were exported

The Figure 6 shows the export destination for all tuna and by-catch. The major export destination for fresh fish is Hawaii at 41.3% followed by Japan and Los Angeles at 26.4 and 25.3% respectively. All frozen albacore and skipjack were exported to Pagopago, American Samoa.

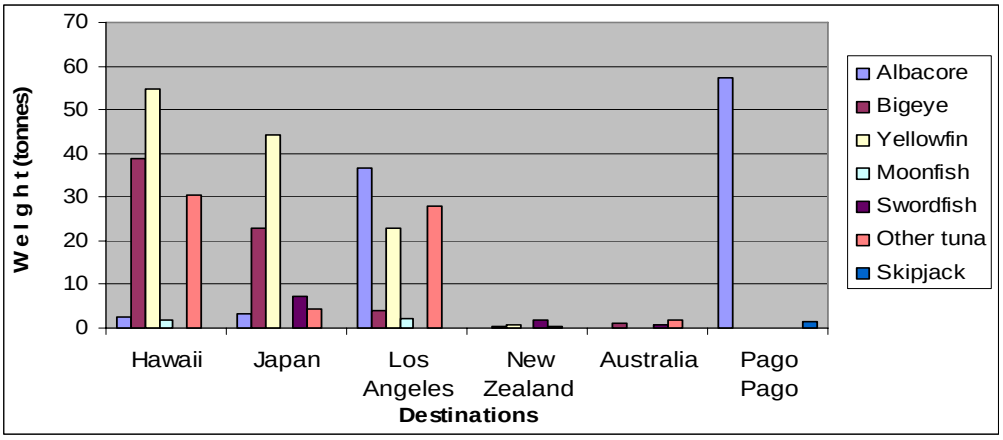


Figure 6: Export Species by Destination

2.7 Export Value

The total value is calculated based on the current domestic market value. These are T$7.00/kg for three main tuna species and swordfish and T$5.00/kg for all species under the 'other tuna' category. The table 2 gives the total volume of export by company. The quantity exported and value as shown in Figure 7 was highest in 2003.

Table 2: The Annual Export (kg) by Species

	2002	2003	2004	2005	2006
Albacore	459,133	647,524	127,093	42616	90281
Bigeye	93,423	44,037	25,376	62351	74574
Yellowfin	138,247	120,860	43,543	60968	130149
Moonfish	15,445	4,278	434	22909	19416
Swordfish	7,022	3,413	4,961	10646	6522
Others	62,816	65,443	36,416	39214	82588
Total	**776,086**	**985,555**	**257,823**	**238704**	**403530**

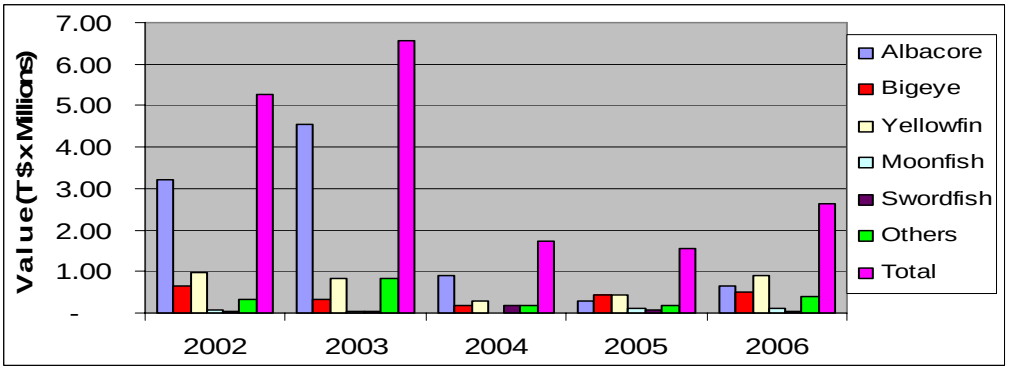


Figure 7: Total Annual Export Value by Species

3. Stock Assessment program with SPC.

The fluctuations of tuna abundance in the Tonga EEZ were mainly driven by oceanographic and climatic phenomena including El Nino and La Nina. This is similar to other EEZs in the sub-region where Tonga Fishery operates. It is very clear from the assessment that the largest impacts on main tuna species, especially yellowfin and bigeye are in the equatorial regions, especially in the west. On the other hand, the impact of the sub-regional where the Tonga Fishery operates on the overall tuna stock is very low (see Figure 8, 9 & 10). Simlarly, the impact of the Tonga Longline Fishery the in the sub-regional where the Tonga Fishery operates is very low (see Figure 11, 12 & 13).

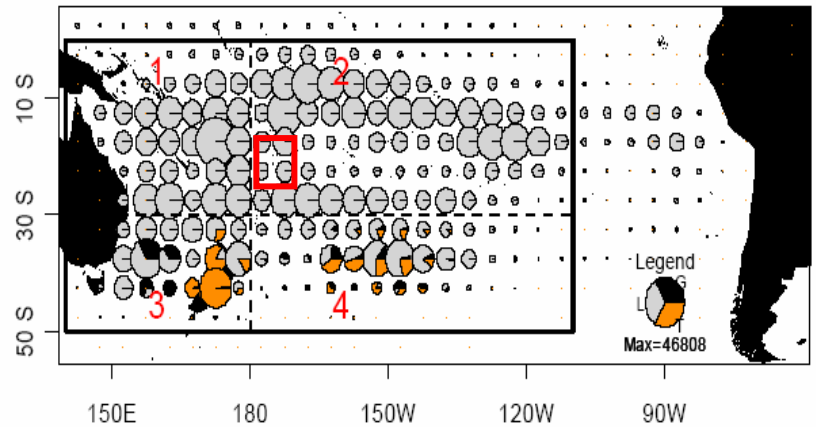


Figure 8: Albacore Catch Distribution by Sub-region (Brett Malony report to EAFM Workshop in Tonga, July 2007)

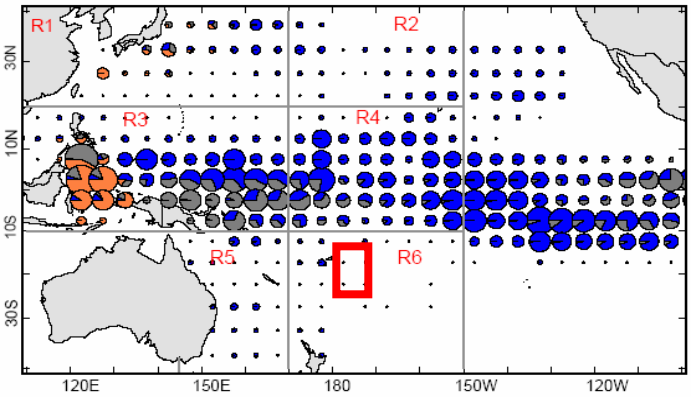


Figure 9: Bigeye Catch Distribution by Sub-region (Brett Malony report to EAFM Workshop in Tonga, July 2007)

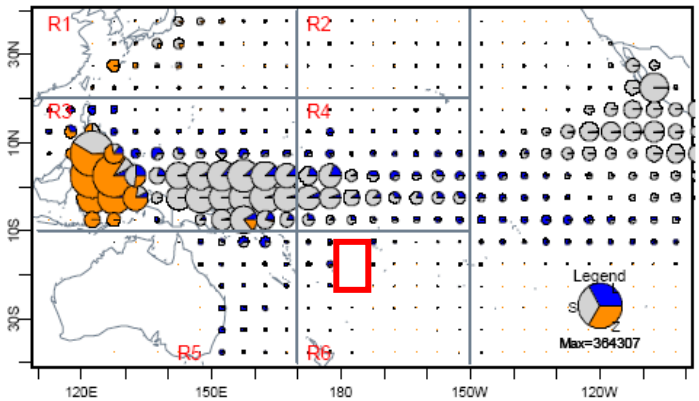


Figure 10: Yellowfin Catch Distribution by Sub-region (SPC Stock Assessment Report, 2006)

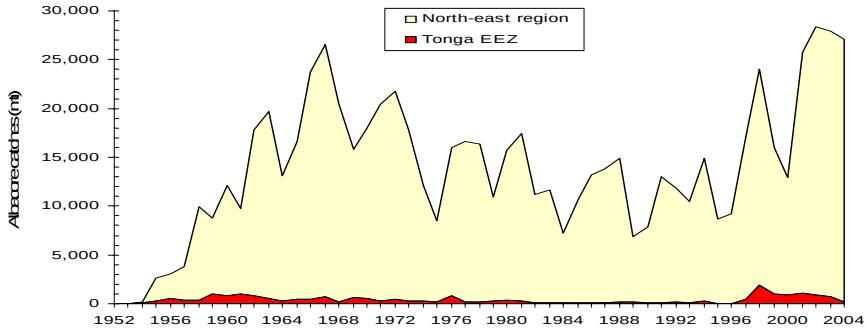


Figure 11: Tonga longline fishery relatively regionally (Brett Malony report to EAFM

Workshop in Tonga, July 2007)

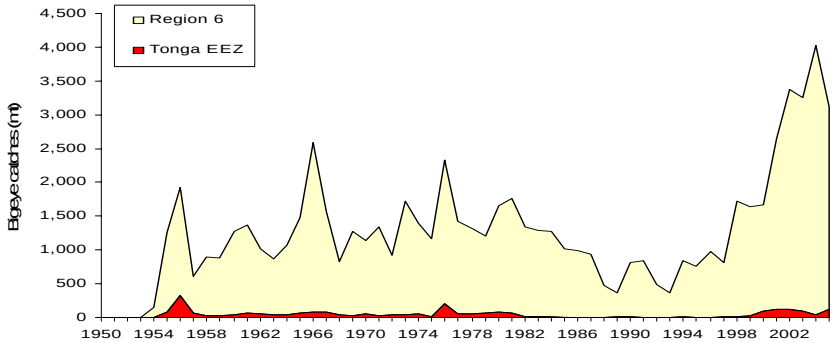


Figure 12: Bigeye catch by Tonga longline fishery relatively regionally(Brett Malony report to EAFM Workshop in Tonga, July 2007)

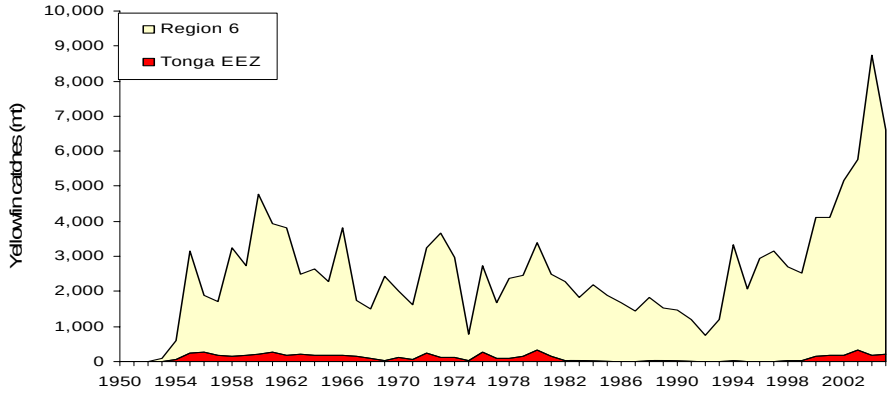


Figure 13: Yellowfin catch by Tonga longline fishery relatively regionally (Brett Malony report to EAFM Workshop in Tonga, July 2007)

Tonga catches of albacore regionally is very small. It is about 0.5% of the annual WCP-CA catches. The current catches of bigeye by Tongas longline is insignificant which is about less than 250 mt annually. This is about less than 0.2% of the WCP-CA catches. Yellowfin catches from Tonga regionally small (< 500 mt) which is about 0.15% of the WCP-CA catches. Therefore the status of bigeye and yellowfin should not be seen as a limit to increasing longline effort targeting albacore in Tonga EEZ.

4. Management

The Tuna Management Plan set a maximum of 50 vessels based on estimation using data compiled by SPC and the annual catch rate at that time. However, the National Tuna Management Committee set a new cap of 30 vessels in 2004 due to low catch rate, insufficient shore facilities and infrastructure coupling with lacking of cargo space, especially for fresh fish. For the same reason a moratorium on issuing of Locally Based Foreign Fishing Vessels came into effect in May 2004.

For monitoring purposes, the Cabinet has approved to use VMS to track fishing vessel activities. Therefore, all tuna fishing vessels, both domestic and Foreign locally based, must have a VMS as part of the conditions of it license. In addition a national observer program was implemented to monitor fishing effort and catches.

Last but not least Tonga Fisheries has imposed a catch limit for shark which is not more than 10% of the total catch.

Summary for Tonga Report to SC3 of WCPFC

The operation of tuna longline fleet in Tonga continued in 2006 in similar manner as in 2005, but with fewer number of fishing vessels than those reported to Scientific Committee 2nd Meeting in 2006. As in 2005, Tonga continued to operate its tuna fishery with full domestic longline fleet only and mainly operate within Tonga's EEZ.

Tuna fishery catch rate (CPUE), total catch in quantity and value for 2006 continued to improve from the status of the fishery in 2004 and 2005 but still much lower than the highest level of catch reached in 2001, a total catch of almost 2000 mt. Albacore tuna remain the highest percentage of tuna composition in the total catch during 2006 with increasing percentages of bigeye and yellowfin tuna. Catch composition of tuna indicated that most of the longline vessels and the structure of the fleet are targeting bigeye and yellowfin tuna for fresh fish market with high proportion of albacore tuna.

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 Tongan fleet in 2006 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 fuel cost had restricted the operation of fishing vessels mainly to areas near the main fishing port, Nuku'alofa.

Tonga Fisheries continue improving the tuna data collection established few years ago with assistance of SPC and FFA, and recently by the Commission. This includes the increasing of port sampling and observer coverage on domestic vessels using regional observer program with same standard data collection and compulsory domestic VMS program. At the same time, measures and resolutions of the Commission are being implemented and monitored by Tonga Fisheries.