



**SCIENTIFIC COMMITTEE
FOURTH REGULAR SESSION**

11-22 August 2008
Port Moresby, Papua New Guinea

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

WCPFC-SC4-AR PART 1/WP-25

INDEPENDENT STATE OF SAMOA

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ANNUAL REPORT TO THE COMMISSION

**PART 1: INFORMATION ON FISHERIES, RESEARCH AND
STATISTICS.**

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Ministry of Agriculture and Fisheries
Government of Samoa.
July 2008**

Abstract.

Samoa's domestic tuna fishery particularly the tuna longline fishery has shown progressive recovery in catch rates from persistent low catch rates experienced from 2003 to mid 2005. There were sixty vessels engaged in tuna longline fishing targeting Albacore tuna in 2007, landed and estimated 3755.4 tonnes of fish, an increase of over 38 percent from the catch landed in 2006. Yellowfin and Bigeye tuna are also important component of tuna longline catch landed over 400 tonnes. Troll fishery which involves small vessels landed an estimated 115.7 tonnes of fish in 2007 with skipjack constituting the bulk of the catch. FFA has facilitated the implementation of the EAFM process for Samoa's tuna fishery as well as providing assistance for the fisheries legislation review that is currently in progress. The domestic fishing fleet has been operating with extremely high operational cost and the continue increasing trend in fuel prices will impacted greatly in the viability of the tuna fishery in the medium term.

1.1 Annual Fisheries Information

Samoa's tuna fishing fleet operates within Samoa's EEZ of approximately 120,000 km². Samoa's Tuna Fishery is exclusively domestic and is principally dominated by commercial longline fishing which occurs through the year. There are however very strong seasonal variation in catch rates for the longline fleet. Troll for surface pelagic species particularly skipjack also occurs in Samoa's Exclusive Economic Zone, but to a lesser scale.

The tuna longline fishing involves fishing vessel ranging from 11m to over 20.5 m in length targeting albacore tuna. Catch rates from the longline fleet shows strong recovery in 2007 from persistent low catch rates experienced from 2003 to 2005. Sixty domestic vessels were engaged in longline fishing in Samoa's EEZ in 2007.

Troll fishing in Samoa is of a small commercial scale and target mostly skipjack tuna. The catch is sold at the main fish markets from where the catch estimates are obtained from. The troll fleet involves mostly vessels of length less than 11m or the alias. These vessels were the pioneer of Samoa's domestic tuna fishing fleet. The vessels were originally designed for bottom fishing and trolling for surface pelagic species around Fish Aggregating Devices or the open offshore waters just few miles off the reef. The design was slightly modified in the early nineties to accommodate on board the manually operated longline drum and associated longline gears. As a result, the alias could switch gears from time to time depending on the availability of the target species for each gear from time to time.

1.1.1 Annual catch by species, gear in the WCPFC Convention Area.

Total longline catch landed in 2007 is estimated at 3755.4 t of which Albacore constitute over 82 percent of the catch. This is an increase of over 38 percent from the 2006 catch. The albacore landed however increase by 47 percent in 2007 as compared to albacore landed in 2006. Yellowfin and Bigeye tuna are also important component of catch landed over 400 t. Broadbill species including Swordfish Blue and Striped marlin and other

surface pelagic species including Wahoo and Dolphinfish are combine in other species. A summary of estimated longline catches is presented in Table 1. Troll catches in 2007 was estimated at 115.7 t with Skipjack comprising over 86 percent of the total troll catch. Yellowfin landed from troll fishing is estimated at around 12 t comprising just over 12 percent. Other surface pelagic species including Wahoo, Dolphinfish and Rainbow runner are also caught from trolling. Table 2) The troll fishery is predominantly for the local market and sometimes its very important for the bottom fish fishery for the supply of skipjack as baits.

Table 1: Estimated weight (whole weight) in tonnes of tuna landed from Samoa's tuna longline fleet.

	2003	2004	2005	2006	2007
Albacore <i>Thunnus alalunga</i>	2,253	1,232.5	1,262.7	2,112.7	3113.3
Yellowfin <i>Thunnus albacares</i>	292.6	444.2	198.8	263.8	305.0
Bigeye <i>Thunnus obesus</i>	110.0	103.5	64.2	128.0	100.9
Other species	190.3	154.6	138.5	209.6	236.2
Est. total catch	2845.9	1934.8	1664.2	2714.1	3755.4

Table 2: Troll catches from 2006 to 2007

	2006	2007
Skipjack tuna (<i>Katsuwonus pelamis</i>)	94.22	100.64
Yellowfin tuna (<i>Thunnus albacares</i>)	25.87	12.03
Dolphin fish (<i>Coryphaena hippurs</i>)	4.11	0.99
Barracuda	0.41	0.09
Wahoo (<i>Acanthocybium solandri</i>)	0.31	0.07
Kavalau	0.49	1.57
Bigeye tuna (<i>Thunnus obesus</i>)	0.14	0.02
Rainbow runner (<i>Elagatis bipinnulata</i>)	0.14	0.32
Total	125.69	115.70

1.1.2 Number of vessels by gear type, size (fleet structure)

Fishing vessels comprising up the Samoa's commercial fishing fleet are all locally based and all their catches are landed in Samoa ports. Commercial fishing vessels are licensed according to length under the 2005-2009 Samoa Tuna Management and Development Plan. This has seen fishing vessels categorised under five classes - Class A (≤ 11 m) Class B (> 11 m - ≤ 12.5 m) Class C (> 12.5 - ≤ 15 m) Class D (> 15 m - ≤ 20.5 m) and Class E (> 15 m).

Table 3: Number of longline vessels fishing for albacore tuna in Samoa's EEZ

	Class A (alia)	Class B	Class C	Class D&E ¹	Total
2003	6	4	5	9	24
2004	2	1	5	9	17
2005	17	3	3	9	32
2006	37	2	2	13	54
2007	43	2	2	13	60

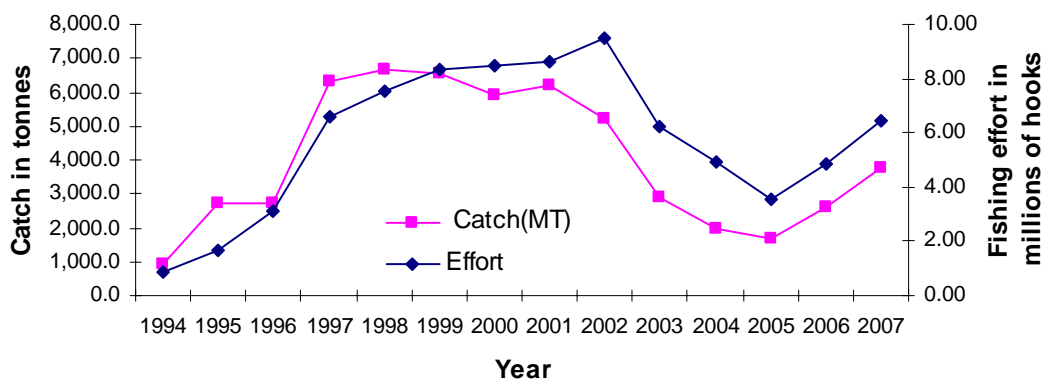
Table 4: Number of Troll and Longline vessels in the Alia category in 2006 and 2007

Class A (Alia) (≤11m)	2006	2007
Troll vessels	15	24
Tuna longline vessels	37	43

The versatility of the Alia design enables its type to switch between trolling, longlining and bottom fishing. Bigger vessels of Class B, C, D and E were purposely built and brought in Samoa for tuna longline fishing. A fleet of 60 vessels across all classes engaged in tuna longline fishing in 2007. Except for the increasing number of alias rejoining the tuna longline fishery, there were no variations in the number of bigger vessels in 2007 engaged in tuna longline fishing.

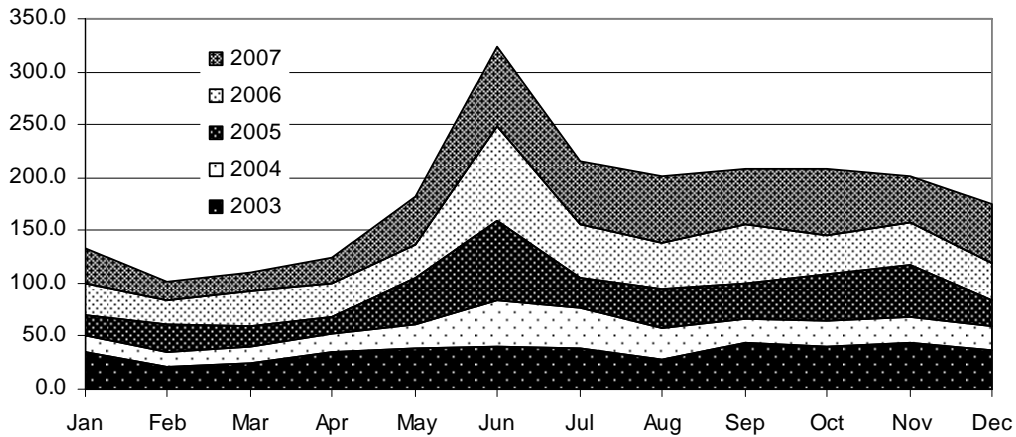
1.1.3 Fishing patterns (catch by time/area)

Figure 1: A plot of total catch and effort trends 1994 to 2007 for Samoa's domestic tuna longline fleet.



¹ The two Classes combined given that there were less than 4 vessels in Class E and all poses the same fishing capacity as with vessels in Class D.

Figure 2: Nominal CPUE (kg/100hooks) trends for albacore tuna caught from the tuna longline fishing fleet in Samoa's EEZ.



Increasing in longline fishing effort occurs in 2006 after a substantial decline since 2003 and correspondingly an observed increase in total catch as in Figure 1. Variation in monthly catches of albacore tuna has become more apparent since 2005. With 2002 consider as an anomaly, 2003 and 2004 also shows correspondingly variation but to a lesser extent as compared to 2005, 2006 and 2007.

1.1.4 Estimated catches on non target species.

Table 5 shows non-target species caught from Samoa's Tuna longline fishery. Like yellowfin and bigeye tuna, some of the non target species including dolphinfish (*Coryphaena hippurus*), wahoo (*Acanthocybium solandri*), swordfish (*Xiphias gladius*), moonfish (*Lampris guttatus*) and striped marlin (*Tetrapturus audax*) caught from the fishery made up an important component of the fresh chilled fish export for recent years.

Table 5: Non target species caught from Samoa's tuna longline fishing fleet targeting albacore. The fleet operates inside Samoa's EEZ, lies within the WCPFC statistical area south of the equator.

Non Target Species	2003	2004	2005	2006	2007
BIGEYE THRESHER SHARK (<i>Alopias superciliosus</i>)	0.00				0.05
BLACK MARLIN (<i>Makira indica</i>)	2.61	2.25	6.81	3.25	13.19
BLACKTIP REEF SHARK (<i>Carcharhinus melanopterus</i>)		0.02			
BLUE MARLIN (<i>Makaira nigricans</i>)	18.90	8.98	14.68	19.65	20.67
BLUE SHARK					1.03
BROADBILL SWORDFISH (<i>Xiphias gladius</i>)	12.23	3.73	1.30	3.00	4.68
DOGTOOTH TUNA (<i>Gymnosarda unicolor</i>)				0.37	
DOLPHINFISH (<i>Coryphaena hippurs</i>)	43.78	28.99	26.50	64.97	51.20
ESCOLAR (<i>Lepidocybium flavobrunneum</i>)		0.07	0.13	0.09	0.23
GALAPAGOS SHARK (<i>Carcharhinus galapagensis</i>)					0.11
GREAT BARRACUDA (<i>Sphyrnaea barracuda</i>)	1222	9.76	3.78	5.75	10.79
LONGNOSE LANCET FISH (<i>Alepisaurus ferox</i>)		0.10		0.11	0.04

MARLIN ²		1.62	17.77	2.58	7.54
MOONFISH (<i>Lampris guttatus</i>)	3.81	0.32	2.71	1.92	2.29
OCEANIC WHITETIP					0.36
OILFISH (<i>Ruvettus pretiosus</i>)	2.08	0.50		0.04	1.93
POMFRET ³	4.24	6.52	2.78	3.21	2.80
RAINBOW RUNNER (<i>Elagatis bipinnulata</i>)	0.09	0.05	0.02		0.06
SAILFISH (<i>Istiophorus platypterus</i>)	6.78	2.06	2.79	2.32	3.13
SHARK ⁴	1.57	1.88	2.38	3.45	4.77
SHORTBILL SPEARFISH (<i>Tetrapturus angustirostris</i>)	1.42	3.38	1.53	4.21	6.58
SILKY SHARK (<i>Carcharhinus falciformis</i>)					0.07
SKIPJACK TUNA (<i>Katsuwonus pelamis</i>)	57.51	37.20	14.87	31.50	20.19
SOUTHERN BLUEFIN TUNA (<i>Thunnus maccoyii</i>)			0.23	0.03	
STRIPED MARLIN (<i>Tetrapturus audax</i>)	24.32	5.25	4.41	7.48	21.11
SUNFISH (<i>Ranzania laevis</i>)	0.51	0.11	0.10		0.38
TUNA ⁵		0.46	0.51	0.71	0.91
WAHOO (<i>Acanthocybium solandri</i>)	60.60	48.43	35.30	54.99	62.14
Total	252.67	161.66	138.57	209.62	236.22

1.1.5 Useful Information

The Ecosystem Approach to Fisheries Management (EAFM) process is currently underway in Samoa. The review of Samoa's fisheries legislation is also in progress. FFA played a critical role in both of these activities.

Increasing trend in fuel prices has become very important for the medium term sustainability of Samoa's domestic commercial fishing fleet. This has impacted heavily across the whole fleet and has masked some economic encouragement from recovered catch rate levels in 2006 and 2007.

Over hundred percent increases in the volume of fish exports were observed in 2007 from levels export in 2006. Over 86 percent were exported frozen gilled and gutted while large Yellowfin and Bigeye tuna are the main component of air freighted fish exports.

Table 6: Volume in (MT) of Samoa's frozen and fresh chilled fish exports from 2002 to 2006

Year	Frozen	Fresh chilled	Total Exports
2003	1580	474	2054
2004	1339	534	1837
2005	1101	230	1331
2006	1436	139	1575
2007	2737	437	3174

² This could be a combination of Blue, Black or Striped Marlin as it was difficult to identified during port sampling due to 1) it was already processed on board (sliced into pieces), 2) came out frozen and discolored.

³ This includes *Brama brama*, *Eumegistus illustris*, *Taractichthys steindachneri* and all other pomfrets coded BRZ

⁴ Sharks unloaded from longline vessels without fins and tails.

⁵ Tuna unloaded from longline vessels covered with sheets to be exported fresh chilled

1.2 Research and Statistics

Port sampling activities continues to provide the main data for the estimation of annual catch and effort levels for the domestic longline fleet. The lengths data for all species landed however are sent to SPC for research purposes. Market landings survey provides catch estimates for troll catches. It is conducted a similar way with the port sampling activity however only a portion of the whole catch from a troll vessel is sampled. Samoa Fisheries is currently looking at strategies to strengthen tuna fisheries data collected from troll vessels.

Samoa has an observer programme but was not active in 2007 as some of the issues with the placement of an observer on vessels were attended to. Recommencement of the programme is schedule in the late 2008 with a target five percent coverage for 2008 – 2009 period. The programme however was able to provide OFP-SPC with some stomach samples for ecological research purposes.