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

WCPFC-SC6-AR/CCM-20

SAMOA

INDEPENDENT STATE OF SAMOA

ANNUAL REPORT TO THE COMMISSION

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

**FISHERIES DIVISION
Ministry of Agriculture and Fisheries
Government of Samoa.
July 2010**

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| 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 2010 | YES |
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Abstract.

Samoa tuna fisheries consist of tuna longline and troll fishing fleets. Both fleets operate exclusively in Samoa’s Exclusive Economic Zone.

Albacore tuna continue to dominate the catch from Samoa’s tuna longline fishing fleet. It landed an estimated 2,816 MT of albacore tuna in 2009, an increase of 474 MT or 20% from albacore landed in 2008. Albacore constitutes over 78% of the total longline catch for 2009 followed by Yellowfin tuna constituting of just over 11% of the total catch. An estimated 412 MT of Yellowfin tuna was landed in 2009, about 30% increase from the 2008 Yellowfin catch and the highest recorded over the last five years. Bigeye catches also increases in 2009 by over 10% at 117 MT. An estimated 85 MT of skipjack tuna was caught from the troll fleet in 2009, comprising over 88 percent of the total troll catch. This is a decline of over 39 percent from the skipjack amount landed in 2008. Most of the skipjack catch was taken from free swimming schools. Skipjack catches is observed to be steadily increasing from 2006 to 2008 before it falls in 2009 and was recorded as the lowest catch for the past 4 years (2006-2009).

A drop in the number of fishing vessel actively fishing for Albacore tuna was observed in 2009 compared to 2008 from 44 to 42, the lowest recorded since the recovery of the fishery in 2006. The number of fishing vessels engaged in trolling on the other hand is observed to be steadily increasing.

A new Tuna Management and Development Plan is currently been developed for the Samoa tuna fishery which saws the reduction in the number of fishing licenses available for Samoa’s tuna fishery.

1.1 Background

Samoa’s tuna fishery comprised of the troll fishery and the tuna longline fishery. Both fisheries operate within Samoa’s Exclusive Economic Zone (EEZ) of approximately 120,000 km² involving vessels raging from nine meters to over 20 meters in length. Participation in the Samoa commercial tuna fishery is exclusively domestic with the fishing fleet all based locally.

Troll fishing in Samoa occurs all through out the year targeting mainly schools of skipjack tuna in the open sea and around fish aggregating devices (FAD). Other tuna and pelagic species are also caught including yellowfin tuna and dolphin fish. The troll fishing fleet comprised of alia fishing vessels (catamaran style) of nine to eleven meters in length. The catch is mainly sold at the main fish markets in both Upolu and Savaii, where the catch estimates are obtained from. In some cases, the catch is completely sold

out at the port of landing which is usually in the rural areas. This fishery is mainly for the domestic/local market.

The tuna longline fishery in Samoa is much more industrialized and the bulk of the catch is exported. The fishery targets South Pacific Albacore tuna (albacore) and all the catch landed is caught in Samoa's EEZ. Matured yellowfin and bigeye tuna of over 30 kilograms are also important component of the tuna longline catch as to the high market prices it attracts from fresh chilled markets in New Zealand and main land United States of America. The fishery involves alia vessels and some bigger vessels of 12.5 to over 20.5 meters in length. The tuna longline fishing fleet is based in Samoa and the participation is domestic. The tuna longline fishing fleet operates all year around however, fishing effort intensify during the albacore season which is usually occurs from May until October and in some years, November. Both the troll and the longline fishery operate only in the EEZ of Samoa.

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

The tuna longline fishing fleet ventured out further exploiting the full range of Samoa's EEZ compared to the troll fleet which operates with in the vicinity of around ten miles from shore. The tuna longline fleet operates throughout the year and landed all its catch in Samoa. Albacore is the targeted species and occurs throughout the year however, strong seasonal variation in albacore catches occurs from May to October/November.

Albacore tuna continue to dominate the catch from Samoa's tuna longline fishing fleet operating in Samoa's Exclusive Economic zone (EEZ). It landed an estimated 2816 MT of albacore tuna in 2009, an increase of 474 MT or 20% from albacore landed in 2008. Albacore constitutes over 78% of the total longline catch for 2009 followed by yellowfin tuna constituting of just over 11% of the total catch. An estimated 412 MT of Yellowfin tuna was landed in 2009, about 30% increase from the 2008 Yellowfin catch and the highest recorded over the last five years. Bigeye catches also increases in 2009 by over 10% at 117 MT. Combined bill fish catches is estimated at 60 MT constituting only about 1.6% of the total catch. The total catch landed from the Samoa tuna longline fisheries for 2009 is estimated at 3680 MT, the second highest recorded for the past five years (2005 – 2009) with just few tones lower the highest which was in 2007 at around 3755 MT

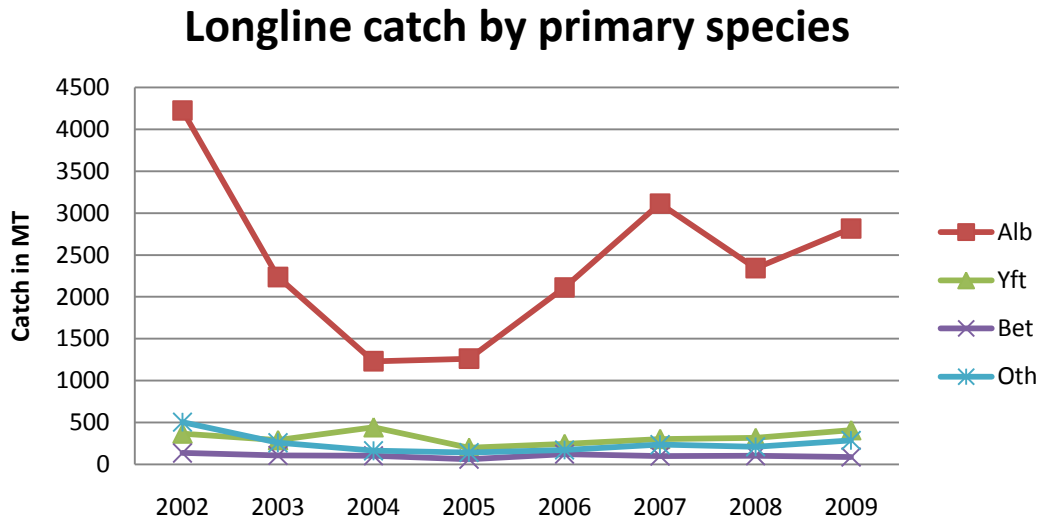
Table 1. Annual catch estimates for the Samoa's Tuna Fishery by gear and primary species, for the WCPFC Convention Area.

| LONGLINE | | | | | |
|-----------------|------|-------|--------|-------------|-------|
| Species | 2005 | 2006 | 2007 | 2008 | 2009 |
| YELLOWFIN | 199 | 264 | 305 | 317 | 412 |
| BIGEYE | 64 | 128 | 101 | 106 | 117 |
| BLUE MARLIN | 15 | 20 | 21 | 16 | 9 |
| BLACK MARLIN | 9 | 3 | 13 | 15 | 13 |
| SKIPJACK | 100 | 59 | 40 | 20 | 77 |
| ALBACORE | 1263 | 2113 | 3113 | 2342 | 2816 |
| PACIFIC BLUEFIN | 0 | 0 | 0 | 0 | 0 |
| STRIPED MARLIN | 4 | 7 | 21 | 21 | 7 |
| SWORDFISH | 1 | 3 | 5 | 6 | 5 |
| TROLL | | | | | |
| Species | 2005 | 2006 | 2007 | 2008 | 2009 |
| SKIPJACK | | 94.22 | 100.64 | 140.51 | 85.52 |
| YELLOWFIN | | 25.87 | 12.03 | 6.35 | 9.33 |
| DOLPHIN FISH | | 4.11 | 0.99 | 4.11 | .33 |
| BARACUDA | | 0.41 | 0.09 | 0.09 | .14 |
| WHAOO | | 0.31 | 0.07 | | .04 |
| KAWAKAWA | | 0.49 | 1.57 | 3.39 | 2.97 |
| BIGEYE | | 0.14 | 0.02 | | |
| RAINBOW RUNNER | | 0.14 | 0.32 | 0.04 | .16 |

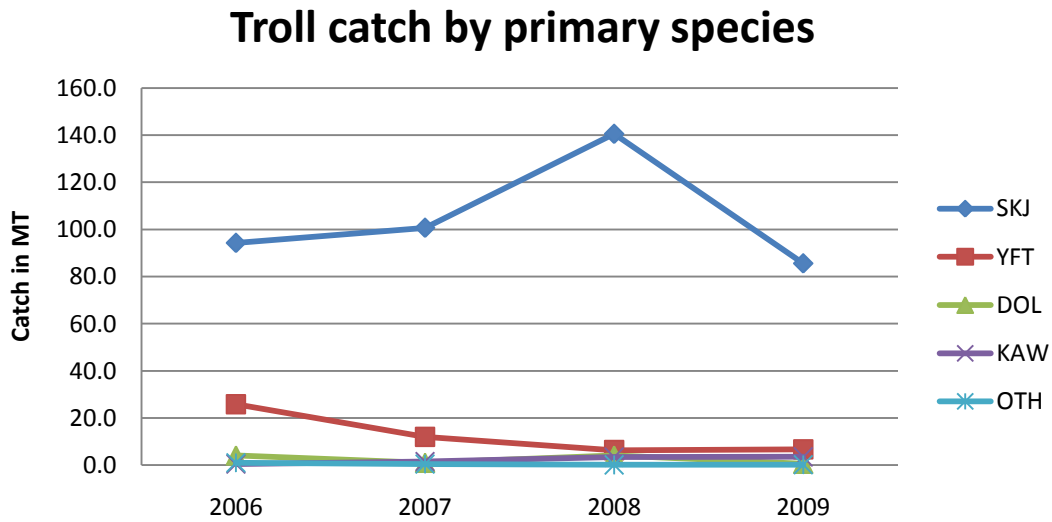
The troll fishery involves only alia fishing vessels of 11 meters and below in length operating exclusively in Samoas EEZ. Troll fishing occurs through out the year however participation varies from time to time depending on the seasonality of other fisheries.

An estimated 85 MT of skipjack tuna was caught from the troll fleet in 2009, comprising over 88 percent of the total troll catch. This is a decline of over 39 percent from the skipjack amount landed in 2008. Most of the skipjack catch was taken from free swimming schools. Skipjack catches is observed to be steadily increasing from 2006 to 2008 before it falls in 2009 and was recorded as the lowest catch for the past 4 years (2006-2009). Yellowfin tuna is the second most caught fish from the troll fishery comprising up just over 9 percent of the total catch in 2009. Unlike skipjack tuna, a decreasing trend is observed for annual catches of yellowfin tuna since 2006 before it slightly increase again in 2009 but still below 2006 and 2007 levels. Other species that were often caught including Dolphin fish and Kawakawa comprising up the rest of the total troll catch in 2009. Other pelagic species that were caught in minor amounts from the troll fishery were rainbow runner and barracuda.

Figure 1 Historical annual catch for the Samoa's Tuna fisheries by gear and primary species, for the WCPFC Convention Area.



While Yellowfin, Bigeye and other species shows less variation on catch landed over the years,(figure 1) Albacore catches shows a great degree of variation over the years with the highest ever Albacore catch recorded in 2002 for the past eight years.



Similar to the catch trends for the longline fishery, the troll fishery shows less variation over time for catches of Yellowfin, Dolphin fish, Kavalau and others while Skipjack tuna shows a steady increase in catch landed from 2006 before it drops in 2009.

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 catch 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 ($\leq 11\text{m}$) Class B ($>11\text{m} - \leq 12.5\text{m}$) Class C ($>12.5 - \leq 15\text{m}$) Class D ($>15\text{m} - \leq 20.5\text{m}$) and Class E ($>20.5\text{m}$).

Table 2. Number of Samoan vessels, by gear and size category, active in the WCPFC Convention Area, for years 2005 - 2010

| | |
|-------|---------------------|
| Gear | LONGLINE |
| Fleet | Locally-based fleet |

| Size class (GRT) | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------------------|------|------|------|------|------|------|
| 0-10 | 3 | 20 | 37 | 43 | 28 | 28 |
| 10-50 | 9 | 7 | 11 | 11 | 11 | 8 |
| 50-200 | 5 | 5 | 6 | 6 | 5 | 6 |
| 200-500 | | | | | | |
| 500+ | | | | | | |

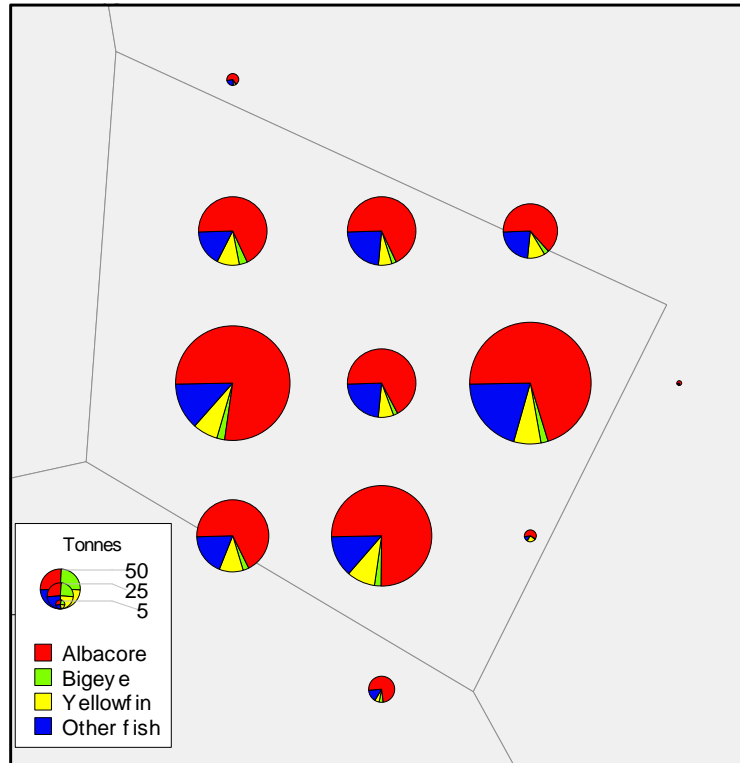
| | |
|-------|---------------------|
| Gear | TROLL |
| Fleet | Locally-based fleet |

| Size class (GRT) | 2006 | 2007 | 2008 | 2009 |
|------------------|------|------|------|------|
| 0-10 | 15 | 24 | 25 | 30 |
| 10-50 | | | | |
| 50-200 | | | | |
| 200-500 | | | | |
| 500+ | | | | |

A drop in the number of fishing vessel actively fishing for Albacore tuna was observed in 2009 compared to 2008 from 44 to 42, the lowest recorded since the recovery of the fishery in 2006. The number of fishing vessels engaged in trolling on the other hand is observed to be steadily increasing.

1.1.3 Fishing patterns (catch by time/area.

Figure 2 Annual distribution of target species catch by the Samoa longline fleet active in the WCPFC Convention Area, for 2009



Samoas tuna longline catch is distributed approximately within a 5 by 5 grid. As shown in Figure 2, the bulk of the catch is Albacore tuna, Yellowfin and Bigeye tuna are also important component of the tuna longline catch.

The presentation of information shown in Figure 2 is not available for the troll fishery and some work has been done on this matter.

1.1.4 Estimated catches on non target species.

Table 3. Annual estimated catches of non-target, associated and dependent species, including sharks, by the Samoa tuna longline fleet, in the WCPFC Convention Area, for years 2005 – 2009

| Non Target Species | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---------------|---------------|---------------|---------------|--------------|
| BIGEYE THRESHER SHARK (<i>Alopias superciliosus</i>) | | | 0.05 | | |
| BLACKTIP REEF SHARK (<i>Carcharhinus melanopterus</i>) | | | | | |
| BLUE SHARK | | | 1.03 | | |
| DOGTUOTH TUNA (<i>Gymnosarda unicolor</i>) | | 0.37 | | | 0.3 |
| DOLPHINFISH (<i>Coryphaena hippurs</i>) | 26.50 | 64.97 | 51.20 | 39.19 | 81.6 |
| ESCOLAR (<i>Lepidocybium flavobrunneum</i>) | 0.13 | 0.09 | 0.23 | | |
| GALAPAGOS SHARK (<i>Carcharhinus galapagensis</i>) | | | 0.11 | | |
| GREAT BARRACUDA (<i>Sphyraena barracuda</i>) | 3.78 | 5.75 | 10.79 | 8.18 | 11.0 |
| LONGNOSE LANCET FISH (<i>Alepisaurus ferox</i>) | | 0.11 | 0.04 | 0.02 | |
| MARLIN ¹ | 17.77 | 2.58 | 7.54 | 15.71 | 9.8 |
| MOONFISH (<i>Lampris guttatus</i>) | 2.71 | 1.92 | 2.29 | 10.67 | 9.5 |
| OCEANIC WHITETIP | | | 0.36 | | |
| OILFISH (<i>Ruvettus pretiosus</i>) | | 0.04 | 1.93 | 1.04 | 0.2 |
| POMFRET ² | 2.78 | 3.21 | 2.80 | 3.1 | 4.8 |
| RAINBOW RUNNER (<i>Elagatis bipinnulata</i>) | 0.02 | | 0.06 | | |
| SAILFISH (<i>Istiophorus platypterus</i>) | 2.79 | 2.32 | 3.13 | 7.21 | 13.3 |
| SHARK ³ | 2.38 | 3.45 | 4.77 | 1.69 | 1.6 |
| SHORTBILL SPEARFISH (<i>Tetrapturus angustirostris</i>) | 1.53 | 4.21 | 6.58 | 1.21 | 2.6 |
| SILKY SHARK (<i>Carcharhinus falciformis</i>) | | | 0.07 | | |
| SOUTHERN BLUEFIN TUNA (<i>Thunnus maccoyii</i>) | | 0.23 | 0.03 | | |
| SUNFISH (<i>Ranzania laevis</i>) | 0.11 | 0.10 | | 0.38 | |
| TUNA ⁴ | 0.46 | 0.51 | 0.71 | 0.91 | |
| WAHOO (<i>Acanthocybium solandri</i>) | 48.43 | 35.30 | 54.99 | 62.14 | 88.4 |
| Total | 109.39 | 125.16 | 148.71 | 151.45 | 223.1 |

Dolphin fish and Wahoo are important component of the tuna longline catch as it is utilized locally and occasionally for export even though its not considered as a target species. A number of other pelagic species are also caught including sharks constituting up the rest of the tuna longline catch.

Logsheets collected from the longline fishing fleet together with port sampling data and very minimum observer data for 2008 all shows no reports of sea turtles catches.

¹ 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.

² This includes *Brama brama*, *Eumegistus illustris*, *Taractichthys steindachneri* and all other pomfrets coded BRZ

³ Sharks unloaded from longline vessels without fins and tails.

⁴ Tuna unloaded from longline vessels covered with sheets to be exported fresh chilled

1.1.5 Useful Information

A new Tuna Management and Development Plan is currently being developed for the Samoa tuna fishery which sees the reduction in the number of fishing licenses available. In the development of this new TMDP, technical support was provided by the Secretariat for the Pacific Community and the Forum Fisheries Agency.

An increase in both frozen and fresh chilled exports was observed in 2009 compared to 2008. This could be directly resulted from the increase in total catch from the tuna longline fishing fleet in 2009 compared to 2008. All the tuna exports are from the tuna longline catches.

Table 4: Volume in (MT) of Samoa's frozen and fresh chilled fish exports from 2005 to 2009

| Year | Frozen | Fresh chilled | Total Exports |
|-------------|---------------|----------------------|----------------------|
| 2005 | 1101 | 230 | 1331 |
| 2006 | 1436 | 139 | 1575 |
| 2007 | 2737 | 437 | 3174 |
| 2008 | 2083 | 125 | 2208 |
| 2009 | 2412 | 149 | 2561 |

1.2 Research and Statistics

Port sampling activities and logsheet data 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.

The logsheets are collected from the captains of each fishing vessel, and then it is registered and entered into the offshore database for processing. The same is done for port sampling data. Boat census data is also collected and entered in the offshore database. This is to verify the number of boats going out fishing and the number of fishing days for each vessel category against logsheets information of fishing days. This data is critical in the estimation of Samoa's catch and effort data from its tuna longline fishing fleet.

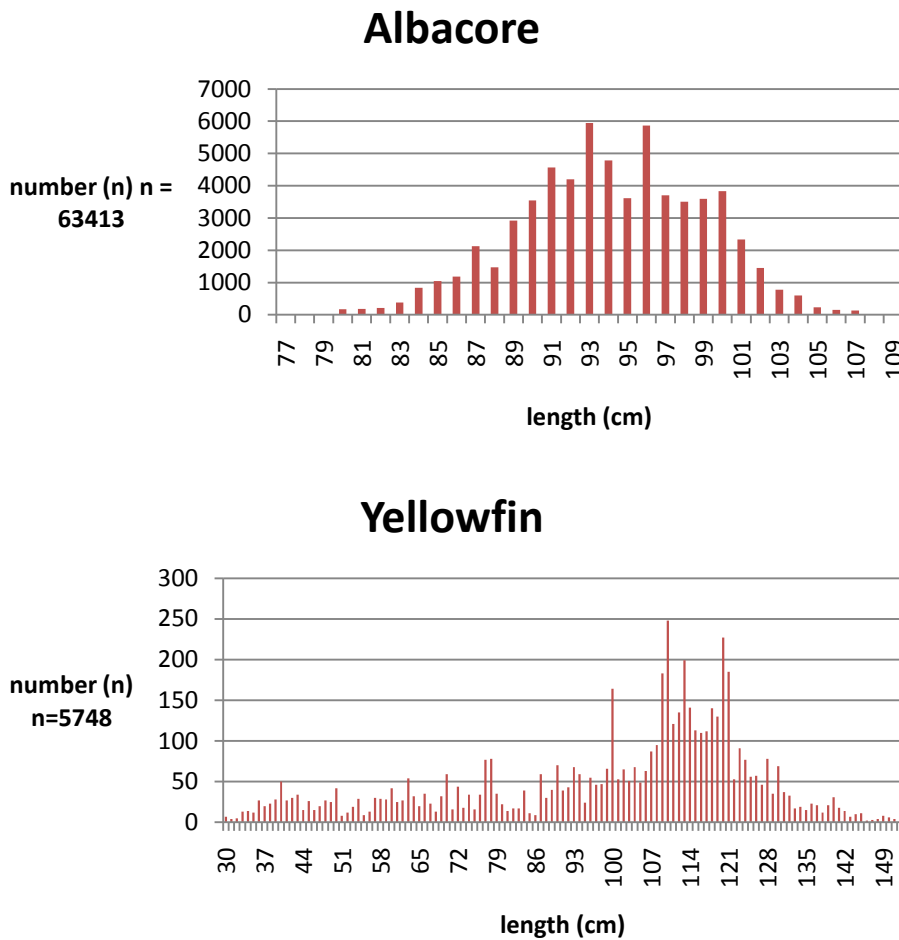
Samoa observer programme managed to have a very minimum coverage of the longline activities.

Table 5. Estimated annual coverage of operational catch/ effort, port sampling and observer data for the Samoa's tuna longline fishing fleet for 2009

| | | Logsheet coverage | Port Sampling Coverage | Observer coverage |
|---------------------------------|-------------|--------------------------|-------------------------------|--------------------------|
| Number of unloads/fishing trips | 523 | 523 (100%) | 423(80%) | 3 (0.6%) |
| Number of fishing days | 3154 | 3154 (100%) | 2182/ 70% | 35 (0.1%) |

Placement of observer on board Samoa's longline fleet has been very challenging mostly due to the space and safety issues associated with the small size of the fleet.

Figure 3: Length frequency plot for Albacore, Yellowfin and Bigeye tuna caught in Samoa's EEZ from the tuna longline fleet in 2009



Bigeye

