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# KENYA National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2014

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**INFORMATION ON FISHERIES, RESEARCH AND STATISTICS**

| | |
|---|---|
| In accordance with IOTC Resolution 10/02, final scientific data for the previous year was provided to the Secretariat by 30 June of the current year, **for all fleets other than longline** [e.g. for a National report submitted to the Secretariat in 2014, final data for the 2013 calendar year must be provided to the Secretariat by 30 June 2014) | YES |
| In accordance with IOTC Resolution 10/02, provisional **longline data** for the previous year was provided to the Secretariat by 30 June of the current year [e.g. for a National report submitted to the Secretariat in 2014, preliminary data for the 2013 calendar year was provided to the Secretariat by 30 June 2014).<br><br>**REMINDER:** Final longline data for the previous year is due to the Secretariat by 30 Dec of the current year [e.g. for a National report submitted to the Secretariat in 2014, final data for the 2013 calendar year must be provided to the Secretariat by 30 December 2014). | NO |
| If no, please indicate the reason(s) and intended actions:<br>***Kenya does not have a long line vessel on its fishing vessel register* | |

**Contents**

**Executive Summary**

The Kenyan tuna fishing fleet structure consists of an artisanal commercial segment and recreational fleets which all combined target and impact species under the IOTC mandate. The commercial artisanal fishing fleet is composed of a multi-gear and multi-species fleet operating in the territorial waters. The local boats are broadly categorized as outrigger boats or dhows which come with variants depending on the construction designs. It is estimated that 850 artisanal vessels are engaged in the fishing for tuna and tuna like species in 2013 within the coastal waters. The Main gears used are artisanal long line hooks, gillnets, monofilament nets and artisanal trolling lines. . Catches from artisanl tuna fisheries increased from 201 to 314 tons. Other important species landed were sailfish 140 tons, and Spanish mackerel 168 tons respectively .Catches for tuna are not distinguished to distinct species groups because of identification problems with the data collectors. Recreational fisheries are an important component of the Kenyan fishing fleet landing about 138 tons in 2014. The main target species being marlins, sailfish (Istiophiridae), swordfish (Xiiphidae) and tuna (Scombridae).Other species caught include small pelagic species such as barracuda, Spanish mackerel, Wahoo and sharks are landed. The artisanal fisheries and recreational fishing fleets have interactions with sharks where sharks are caught and the carcass is retained and fully utilised in artisanal fisheries and recreational trolling line fisheries have a voluntary shark release policy for sharks.

### Background/General fishery information

Kenya's straight coastline measures 640km long and 880Km including bays and inlets. Situated in the Western Indian Ocean, it borders Somalia to the north and Tanzania to the south. The declared Exclusive Economic Zone (EEZ) extends 200 nautical miles from the Kenya coastal baselines measuring 142,400Km$^{2.}$ The most distinctive feature of the Kenyan coastline is its almost continuous fringing coral reef that runs parallel to the coast. The continental shelf is narrow (3-5 km) in most parts except in Ungwana bay, the shelf area measures 6500 km$^2$.

The coastal and marine environment supports inshore marine fishing grounds located in and around Lamu Archipelago, Ungwana Bay, North Kenya Bank, and Malindi Bank. The areas where the two major Kenyan rivers (Tana and Sabaki) empty into the sea are also very productive. The extensive fringing reef system supports vibrant artisanal fisheries for dermersal, crustacean and molluscs fisheries vital for the livelihoods of the dependant coastal communities. Annual production from artisanal coastal fisheries average 9,134MT consisting of 49%, dermersal, 27% pelagic, 13% crustaceans and 11% mollusc species. Annual catches of the pelagic species are estimated at 2,362. Several of the pelagic species caught are under the IOTC mandate and occur in the Kenyan territorial waters and the Exclusive economic Zone.

Kenya's entire artisanal fishing fleet consists of 3,500 small scale mostly wooden crafts usually for single day fishing trips. Fishing is heavily influenced by the monsoon season cycles, the most important fishing season is during the calm north east Monsoon from September to March. Landings of species under the IOTC manadate include tuna species (yellowfin, skipjack and Kawakawa) not always distinguished to species level in catches and kingfish. Billfish catches in the artisanal fishermen landings are represented mainly by Sailfish (Istiophoridae).

A recreational trolling line fishery is also important in Kenya Kenya's pelagic fisheries. The total catch is considered significant especially when compared to the artisanal commercial fisheries. The catch composition is varied with at total of fifteen pelagic species commonly landed however the mainstay of the fishery is composed of marlins, Tuna, sailfish, and swordfish.

### Fleet structure

The national tuna fishing fleet structure consists of an artisanal commercial segment and to a lesser extent recreational fleet which all combined target and impact species under the IOTC mandate. An estimate of the total fishing fleet for the entire artisanal sector is obtained from biennial frame surveys conducted regularly for the entire artisanal fishery since 2004. The fishing fleet estimates provided in this report are based on the frame survey estimates of February 2014 which provide the best approximation of the operating fishing fleet for the year 2013.

The commercial artisanal fishing fleet is composed of a multi-gear and multi- species fleet operating in the territorial waters. The local boats are broadly categorized as outrigger boats or dhows which come with variants depending on the construction designs. It is estimated that 850 artisanal vessels are engaged in the fishing of tuna and tuna like species in 2013. A majority of the vessels are wooden planked propelled by sails and increasingly being motorised. These boats operate day fishing trips within the territorial waters. The number and mean craft sizes for each fishing craft types are shown in figure 1. The Main gears used are artisanal long lines, gillnets and monofilament nets. The most important gears are artisanal gillnets, long line hooks artisanal trolling lines and handlines. Recreational fishing vessels use trolling lines. The number of vessels targeting tuna and tuna like species and the gear type is summarised in the table1.

**Table 1: Number of Kenyan vessels operating in the IOTC area of competence, by gear type**

| Vessels & Gears/Year | 2004 | 2006 | 2008 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|
| Dhows | 383 | 470 | 629 | 854 | 721 | 736 |
| Outrigger boats | 136 | 154 | 195 | 157 | 110 | 114 |
| Gillnets | 3,917 | 3,336 | 2,150 | 4,168 | 4,984 | 3,325 |
| Longline hooks | 10,908 | 8,224 | 9,009 | 16,476 | 16,879 | 13,930 |
| Trolling line | 608 | 500 | 625 | 741 | 604 | 803 |
| Monofilament nets | 902 | 1,050 | 1,472 | 3,239 | 2,851 | 2,692 |

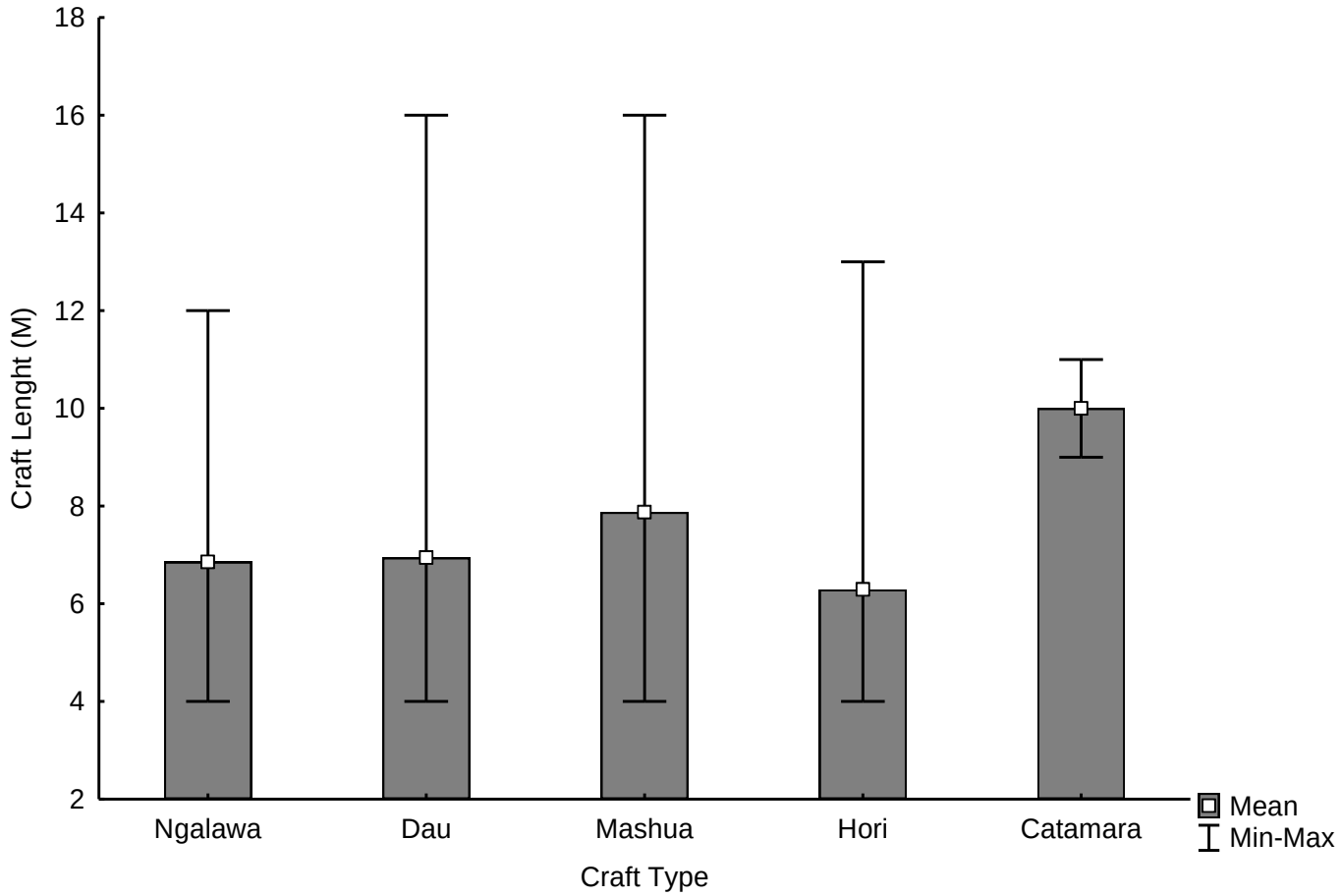


**Figure 1: Artisanal mean fishing craft sizes per craft type**

### Catch and effort

Artisanal commercial fishing for tuna and tuna-like species in the territorial waters use artisanal long line hooks, gillnets, monofilament nets and artisanal trolling lines. Generally fishing for tuna species is highly seasonal activity where artisanal vessels in July-October target migratory tuna which occur in the coastal waters. Sailfish is fishing is during the November to March in coastal waters. Species landed are tuna Yellowfin, Skipjack and Kawa kawa, sailfish, and Spanish mackerel. Table 2 summarises artisanal catch data for the year 2005- 2013. Tuna catches increased from 201 to 314 tons. Catches for tuna are not distinguished to species level because of identification problems with the data collectors. Other important species landed were sailfish 140 tons, and Spanish mackerel 168 tons respectively. The Figure 2 shows the artisanal catch trends from 2000.

**Table 2. Annual catch by the commercial artisanal fleet for the primary species in the IOTC area of competence**

| Species/Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|
| **Sailfish** | 111 | 148 | 84 | 105 | 160 | 165 | 145 | 142 | 140 |
| **Spanish mackerel** | 110 | 82 | 117 | 77 | 75 | 119 | 179 | 121 | 168 |
| **Tuna** | 336 | 233 | 204 | 319 | 295 | 180 | 302 | 201 | 292 |
| **Sharks & Rays** | 253 | 189 | 174 | 183 | 232 | 274 | 306 | 373 | 314 |

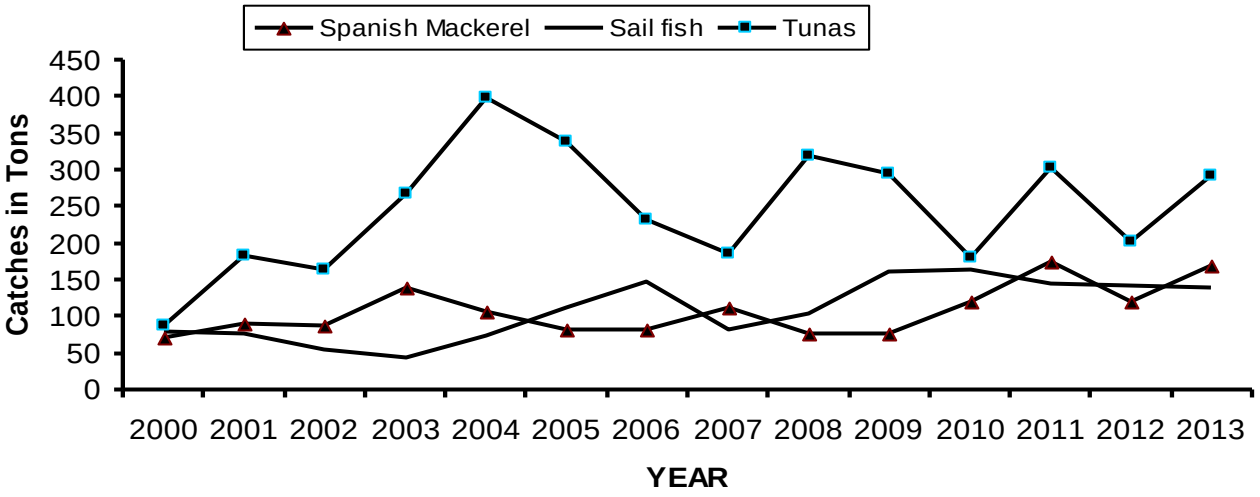


**Figure 2. Historical annual catch for the artisanal fleet, by primary species, for the IOTC area of competence from 2000- 2013. [Mandatory]**

The spatial representation of the catch by species and the fishing fleet dynamics is not possible primarily because the entire catch is caught by artisanal operators who do not have GPs devices equipped on their vessels. All the catch and the fleet is caught within the territorial waters**.**

### Recreational

Recreational trolling line fisheries in Kenya dates back to the 50 years historically restricted to more affluent individuals and tourists. The main target species being marlins, sailfish (Istiophiridae), swordfish (Xiiphidae) and tuna (Scombridae).Other species caught include small pelagic species such as barracuda, spanish mackerel, Wahoo and sharks. They are caught by trolling line with baits and artificial lures by sport- fishing enthusiasts using chartered boats

The common fishing locations are banks and reef drop offs, the Pemba Channel and sea mounts. Fishing has distinct high and low seasons occurring during the calm North east monsoon and from October to March and also fishing intensity heavily depended on the tourist arrivals. There are 87 chartered boats used in the recreational fisheries in Kenya and the trolling lines as the main gear. Anglers enforce a voluntary tag and release policy for marlins and sharks. About 138 tons of fish were landed from recreational fisheries in the year 2013. Details of the catch composition are indicated in table 3 below.

**Table 3: Landings from recreational fisheries in 2013**

| | **No.** | **No. tagged and released** | **Weight (Kg)** |
|---|---|---|---|
| Barracuda | 165 | 0 | 952 |
| Cobia | 6 | 0 | 29 |
| Dolphin fish Dorado | 1,420 | 0 | 5,766 |
| Spanish Mackerel | 275 | 0 | 1,500 |
| Black Marlin | 130 | 106 | 8,689 |
| Pacific Blue Marlin | 69 | 51 | 6,905 |
| Striped Marlin | 193 | 175 | 9,705 |
| Pacific Sailfish | 2,390 | 1,848 | 54,918 |
| Hammerhead Shark | 3 | 0 | 80 |
| Mako Shark | 3 | 3 | 100 |
| Tiger Shark | 9 | 9 | 2,394 |
| Other Sharks | 34 | 11 | 1,537 |
| Swordfish | 13 | 4 | 42 |
| Giant Trevally | 125 | 78 | 1,997 |
| YellowfinTuna | 1,636 | 0 | 35,772 |
| Wahoo | 997 | 0 | 7,685 |
| **TOTAL** | **7,468** | **2,285** | **138,071** |

## Ecosystem and bycatch issues

### Sharks

Kenyan pelagic fisheries encounter sharks in the fishing operations of the the artisanal longline, trolling line, handline and gillnet fisheries in territorial waters. Sharks are caught and the carcass is retained and fully utilised. Recreational trolling line fisheries encounter sharks as by catch but have a voluntary shark release policy for sharks caught. Sharks are also caught in industrial purse seine and longline fishing tuna by licensed foreign vessels operating within the Kenya EEZ. Table 4 provides a summary of the number and weight of sharks per species group caught by the pelagic fisheries from 2009-2013. The artisanal catches have not been distinguished to the species level nonetheless recent studies indicate that the following species are commonly landed in artisanal catches; *Sphyrna lewini*, *Carcharhinus melanopterus* and *Carcharhinus amblyrhynchos* (Kiilu B. K and Ndegwa S. 2013).

Generally there have been declines in shark catches in the recreational trolling fisheries over the years. Presently there are no specific management measures directed to the management and conservation of shark fisheries. A National Plan of Action for sharks is being developed and may be in place by the end of 2015 and shall put in place a framework to ensure the conservation and management of sharks and their long-term sustainable use in Kenya

**Table 4: Total number and weight of sharks, by species, retained by the national fleet in the IOTC area of competence 2009–2013**.

| **1 Recreational trolling line sharks Species** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2009** | | **2010** | | **2011** | | **2012** | | **2013** | |
| **Shark Species Group** | **No.** | **Kgs.** | **No.** | **Kgs.** | **No.** | **Kgs.** | **No.** | **Kgs.** | **No.** | **Kgs.** |
| Hammerhead Shark, | 3 | 83 | 4 | 139 | 0 | 0 | 1 | 200 | 3 | 80 |
| Mako Shark, | 3 | 200 | 2 | 142 | 1 | 90 | 0 | 0 | 3 | 100 |
| Tiger Shark, | 2 | 350 | 2 | 305 | 4 | 660 | 0 | 0 | 9 | 2394 |
| Shark, Other | 55 | 2,886 | 38 | 1894 | 55 | 1,809 | 0 | 0 | 34 | 1537 |
| **Total** | **63** | **3,519** | **46** | **2480** | **60** | **2,559** | **1** | **200** | **49** | **4,111** |
| **2. Industrial Longliner** | | | | | | | | | | |
| Mako sharks | | **6,093** | | **327** | | | | | | |
| Blue sharks | | **3,514** | | **695** | | | | | | |
| Other sharks | | **34,393** | | **0** | | | | | | |
| **Total** | | **44,000** | | **1,022** | | | | | | |
| **3. Artisanal fishing fleet** | | | | | | | | | | |
| | **No.** | **Tons** | **No.** | **Tons** | **No.** | **Tons** | **No.** | **Tons** | **No.** | **Tons** |
| Sharks all species combined | | 232 | | 274 | | 306 | | 373 | | 314 |

**Table 5: Total number of sharks, by species, released/discarded by the Kenyan recreational trolling fishing vessels 2009-2013**

| | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Shark species group** | **No. Caught** | **Number Released** | **No. Caught** | **Number Released** | **No. Caught** | **Number Released** | **No. Caught** | **Number Released** | **No. Caught** | **Number Released** |
| Hammerhead Shark | 3 | 2 | 1 | 1 | 0 | 0 | 5 | 3 | 3 | 0 |
| Mako Shark | 3 | 1 | 3 | 2 | 1 | 0 | 4 | 1 | 3 | 3 |
| Tiger Shark | 2 | 0 | 3 | 1 | 4 | 0 | 4 | 3 | 9 | 9 |
| Other Sharks | 55 | 18 | 45 | 16 | 55 | 0 | 60 | 13 | 34 | 11 |

### Seabirds

Kenyan fishing fleet does not include long line fishing vessels and such interactions with sea birds with the current fleet are not known. The development of a National Plan of action for sea birds is not considered as necessary in the interim.

### Marine Turtles

The government completed the development of the national conservation strategy and action plan for sea turtles 2010-2014. The implementation involves multiple agencies. The strategy is very comprehensive with the aim of reducing and mitigating threats reverse declining sea turtle populations and enhance ecological, social, and cultural benefits of sea turtles.

The Fisheries Act Cap 378 revised 2012 prohibits retention and landing of turtles and all turtles caught incidentally in fishing operations must be released. The existing mitigation measures in the national legislation are targeted at the prawn trawl fishery where mandatory turtle reduction devices must be used in trawl fishing operations. There is generally efforts dedicated at raising awareness among the artisanal fisherfolk on the importance of sea turtle conservation. Data on the incidental capture and gear -sea turtles interactions for the artisanal tuna fishing fleet is limited due to the artisanal nature of the fishing operations.

## National data collection and processing systems

**Logsheet data collection and verification**

Logbook data collection and verification started in 2007 and applied to the authorised long line vessel flying the Kenyan flag. Currently there are no authorised vessels using the logsheet data collection system as the entire authorised fishing fleet for tuna fisheries is artisanal.

**Vessel Monitoring System**

The current fleet structure is artisanal tuna fishing vessels are small in size and cannot be fitted with the VMS equipment.

**Observer programme**

Field data samplers at the fish landing ports started to collect fisheries data on the operating tuna fishing fleet from the June 2013. On board observer scheme has not been introduced due to the current authorised vessels are small to accommodated observers.

### 6.4. Unloading/Transhipment

Data is collected for unloading and transhipment and submitted to the secretariat in the prescribed format

**Implementation of Scientific Committee Recommendations and Resolutions of the IOTC relevant to the SC**

**Table 9**. Scientific requirements contained in Resolutions of the Commission, adopted between 2005 and 2014.

| Res. No. | Resolution | Scientific requirement | CPC progress |
|---|---|---|---|
| 13/03 | On the recording of catch and effort by fishing vessels in the IOTC area of competence | Paragraphs 1–11 | The current fishing fleet is wholly artisanal consisting vessels of length less than 15 meters LOA and fishing within the Kenyan EEZ. There is no possibility of implementing a logbook system for this kind of artisanal fleet. Nonetheless Kenyan has introduced a catch/effort sampling program for the various fishing effort units and working progressively to meet the requirements of this resolution. |
| 13/04 | On the conservation of cetaceans | Paragraphs 7– 9 | Kenya does not have any purse seine vessel on its registry; the entire fishing fleet is exclusively artisanal and thus exempt from the requirements of this resolution. The fisheries act prohibits the capture of marine mammals and thus provides the necessary protection for cetaceans. |
| 13/05 | On the conservation of whale sharks (*Rhincodon typus*) | Paragraphs 7– 9 | Kenya does not have any purse seine vessel on its registry; the entire fishing fleet is exclusively artisanal and thus exempt from the requirements of this resolution.. |
| 13/06 | On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries | Paragraph 5–6 | The resolution shall not apply to Kenya as its fleet is artisanal and fishing entirely within the EEZ. However, considering that Kenya's fleet catch and retain species of sharks especially from its line and gillnet fisheries, it is the intention of Kenya to address the conservation requirements of this resolution through a comprehensive National Plan of Action (NPOA) on sharks, a process that is ongoing and shall therefore accord the conservation of oceanic white tip sharks protection in the national laws in the coming days. |
| 12/09 | On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence | Paragraphs 4–8 | There is a voluntary release policy for sharks caught in recreational fisheries. Data on number of sharks caught and released is kept and reported. |
| 12/06 | On reducing the incidental bycatch of seabirds in longline fisheries. | Paragraphs 3–7 | Not applicable to Kenya due the current operating fleet structure. |
| 12/04 | On the conservation of marine turtles | Paragraphs 3, 4, 6–10 | Not applicable |
| 11/04 | On a regional observer scheme | Paragraph 9 | The observer scheme has not been developed because the fishing fleet is artisanal of length overall less than 24 meters. Filed observation of artisanal catches commenced in 2013 covering about 20 small fish landing sites across the entire shorelines with sufficient sampling frequency |
| 10/02 | Mandatory statistical requirements for IOTC members and cooperating non contracting parties | Paragraphs 1–7 | Kenya Provides to the Secretariat the available data from the recreational and artisanal fisheries |
| 05/05 | Concerning the conservation of sharks caught in association with fisheries managed by IOTC | Paragraphs 1–12 | a comprehensive National Plan of Action (NPOA) on sharks, is being developed and shall provide a framework that shall ensure the conservation of sharks |

**Literature cited**

Ministry of Agriculture Livestock and Fisheries, National Fisheries statistical bulletin Report 2013

Kiilu B. K and Ndegwa S. 2013. Shark bycatch in small scale tuna fishery interactions along the Kenyan coast IOTC–2013–WPEB09–13