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[KENYA] National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2017

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INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 15/02, final scientific data for the previous year was provided to the IOTC Secretariat by 30 June of the current year, **for all fleets other than longline** [e.g. for a National Report submitted to the IOTC Secretariat in 2017, final data for the 2016 calendar year must be provided to the Secretariat by 30 June 2017)	YES
In accordance with IOTC Resolution 15/02, provisional **longline data** for the previous year was provided to the IOTC Secretariat by 30 June of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2017, preliminary data for the 2016 calendar year was provided to the IOTC Secretariat by 30 June 2017). **REMINDER:** Final longline data for the previous year is due to the IOTC Secretariat by 30 Dec of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2017, final data for the 2016 calendar year must be provided to the Secretariat by 30 December 2017).	YES
If no, please indicate the reason(s) and intended actions:	

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 414 artisanal vessels are engaged in the fishing for tuna and tuna like species in 2016 within the coastal waters. The Main gears used are artisanal long line hooks, gillnets, monofilament nets and artisanal trolling lines. Catches of scombrids from artisanal fisheries were 3,431 tons, which is a decrease from 8,265 tons recorded in 2015. Other IOTC species landed during the year were sailfish (371 tons), Swordfish (200 tons), Sharks (412 tons), Rays and Skates (710 tons) and hammerhead sharks (31 tons). The main target species from the recreational fisheries are marlins and 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.

1. 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. 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. 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. The Annual production from

artisanal coastal fisheries average in 2016 was 23,4008 MT consisting of 28%, dermersal, 58% pelagic, 6% mollusc and 7% crustaceans species. Annual catches of Scombridae family were the highest of the pelagic with 3,431 tons recorded. 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 mandate include tuna species (yellowfin tuna, skipjack tuna 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 a total of fifteen pelagic species commonly landed however the mainstay of the fishery is composed of sailfish, marlins, tuna and swordfish.

2. 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 2016.

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 414 artisanal vessels are engaged in the fishing of tuna and tuna like species in 2016. 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

mean craft size for tuna fishing vessels based on the frame survey was eight meters. The main gears used are artisanal long lines (45), handlines (75), gillnets (150), trolling lines (106), monofilament nets (15) and other gears (23). Recreational fishing vessels use trolling lines.

3. CATCH AND EFFORT (BY SPECIES AND GEAR)

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-November target migratory tuna which occur in the coastal waters. The peak season for sailfish landings is during the November to March in coastal waters. Species landed are tuna yellowfin tuna, Skipjack tuna, Kawa kawa, sailfish and Spanish mackerel. The landings of marine catches in Kenya have been revised after a catch Assessment Survey Conducted from mid 2013. Table 1 summarises artisanal catch data for the year 2014- 2016. In 2016, the Scombridae family landings from artisanal fishers were 3,431 tons which was a reduction compared to 8,265 tons and 6,815 tons caught in 2014 and 2015 respectively. The landings of the catches are being disaggregated with the assistance of IOTC staff and will be reported at species level by next reporting.

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 fleet operates within the territorial waters and mainly within the 5 nm area.

Species/Year	2014	2015	2016
Istiophoridae	210.5	162.5	371.5
Scombridae	6,814.7	8,264.9	3,430.9
Xiphiidae	143.3	75.9	199.8
Carcharhinidae	354.5	218.1	411.9

Dasyatidae	571.0	400.8	596.8
Myliobatidae	52.4	236.2	112.9
Sphyrnidae	3.2	12.1	30.8
Other rays	0.2	1.0	-

4. RECREATIONAL FISHERY

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.

5. ECOSYSTEM AND BYCATCH ISSUES

5.1 Sharks

Kenyan pelagic fisheries encounter sharks in the fishing operations of 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 longline fishing tuna by licensed foreign vessels operating within the Kenya EEZ. 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. 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 is awaiting subjection to stakeholders' forums for their inputs. Key recommendations are also expected to be incorporated in the new regulations to ensure the conservation and management of sharks and their long-term sustainable use in Kenya.

5.2 Seabirds

Kenya's flagged longline vessel has been fishing in the Kenyan EEZ alone which does not fall in the bird zone. However, the captain has been instructed to report any incidences of bird viewing during the fishing expedition. The observers on board the longline vessel have also been supplied with bird identification guides in case they happen to encountering birds in their course of duty.

5.3 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 effort 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.

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. Logsheet data collection and verification (including date commenced and status of implementation)

Logbook data collection and verification started in 2007 and applied to the authorised long line vessel flying the Kenyan flag. Currently, Kenya has one longliner flagged last year and the verified logbook data will be availed to the IOTC before the end of the year. The rest of the fleet which is largely artisanal does not have a logsheet data collection system.

6.2. Vessel Monitoring System

The current fleet structure is artisanal tuna fishing vessels are small in size and cannot be fitted with the VMS equipment. The country has installed a VMS for monitoring of foreign fishing vessels in the EEZ and the Kenyan vessels. The monitoring of fishing vessels is now being undertaken.

6.3. Observer programme

Field data samplers at the fish landing ports started to collect fisheries data on the artisanal fishing boats through a catch assessment survey from the June 2013. On board observer scheme has not been introduced due to the current authorised vessels are too small to accommodate observers. The Kenyan flagged longliner has been accommodating observers since the start of its fishing. The current observer coverage is 20%, with both scientific and compliance observers boarding in turns. The observer data has also been submitted to the IOTC.

6.4. Port sampling programme

Port sampling of vessels at the port of Mombasa has been boosted following the signing into law fisheries management and development act of 2016. The new law has incorporated a lot of the port state measures agreement. Kenyan parliament also ratified the port state measures this year. The country has developed draft fisheries regulations which are awaiting stakeholders' endorsement.

6.4. Unloading/Transhipment

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

7. National research programs

Research activities covering target species:

- Oceanographic research surveys have been initiated onboard Research Vessel Mtafiti. A regional training on scientific cruise planning, oceanographic sampling, fisheries and data management was conducted in April 2016 organized by Flanders Marine Institute (VLIZ) and the Kenya Marine and Fisheries Research Institute (KMFRI). The Kenya government has also invested in fitting the vessel with equipment including an acoustic eco-sounder and gears to facilitate biomass estimates of the offshore pelagic fish stocks, oceanographic data and biodiversity
- Characterisation of the artisanal tuna fishery has been initiated by KMFRI with support from KCDP. The research focuses on collection of baseline data to on catch composition and gear use to support stock assessment and includes species composition, catch per unit effort by gear type, as well as biological data on length, weight, sex and maturity of key selected species. Preliminary findings indicate Skipjack as most common tuna species captured in the artisanal fishery. A monitoring programme has been developed to continue with data collection.
- Stock assessment of small and medium pelagic with a focus on the small scale purse seine fishery. The study supported by the Kenya Coastal Development Project (KCDP) determined the species composition of catches and seasonal variations and determined stock indicators for selected species.
- Kenya has also acquired a patrol vessel which will be also assisting in collection of scientific data and is expected to be delivered early 2017.

Table 8. Summary table of national research programs, including dates.

Project title	Period	Countries involved	Budget total	Funding source	Objectives	Short description
Stock assessment of the small and medium pelagic fishery	2013–2016	Kenya		KCDP		As detailed above
Bycatch assessment and mitigation in the Western Indian Ocean (BYCAM)	2015 - underway	Kenya, Madagascar, South Africa, Tanzania, Mozambique	US$ 654 269	WIOMSA	Bycatch assessment in coastal gillnet, longline and prawn trawl fisheries Mitigation of bycatch in coastal gillnet, longline and prawn trawl fisheries. Data mapping (spatial data management) Comprehensive Final Framework	The project aims to re invigorate initiatives to reduce bycatch in WIO fisheries, and improve the uptake of TEDs and other mitigation methods
Dugongs (Dugong dugon) of the Western Indian Ocean Region: – Identity,	2015 - underway	Comoros, Mayotte, Kenya, Seychelles, Tanzania, and	US$ 480 000	WIOMSA	Identify historical and current	

Distribution, Status, Threats and Management		Mozambique			distributions of dugongs across the Western Indian Ocean ii) Determine population structure iii) Identification anthropogenic vectors of population decline iv) Formulate and implement 'hotspot' specific dugong management and conservation protocols,	

8. 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 2016.

Res. No.	Resolution	Scientific requirement	CPC progress
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	Is on-going
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	Has been undertaken and Kenya is being assisted by IOTC on evaluation of the program
15/05	On conservation measures for striped marlin, black marlin and blue marlin	Paragraph 4	Marlins are caught by recreational fishers and all marlins caught have been released through the sports fishing organisation
13/04	On the conservation of cetaceans	Paragraphs 7– 9	They are protected in the Kenyan laws and it's illegal to exploit them
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	Are being addressed through the new fisheries ACT enacted this year
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	Are being addressed through the new fisheries ACT enacted this year
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	Are being addressed through the new fisheries ACT enacted this year
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	Kenya is not in the bird zone
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	• Updating of the National Sea Turtle Strategy which expired in 2015 in collaboration with KWS • Collation and analysis of nesting and mortality data in collaboration with WWR-Kenya • Research on bycatch • Revival of the Kenya Sea Turtle Conservation and Management (KESCOM) network and support for

Res. No.	Resolution	Scientific requirement	CPC progress
			community based turtle conservation initiatives
11/04	On a regional observer scheme	Paragraph 9	Currently Kenya is undertaking 20% observer coverage on the Kenyan flagged longline
05/05	Concerning the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 1–12	Is being addressed through the new fisheries ACT enacted this year
16/06	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraph 1	Kenya is being assisted by IOTC in fulfilling this mandate