Indian Ocean Tuna Commission
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Somalia National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2020

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SECURE FISHERIES
Advancing Sustainable Fisheries
a program of One Earth Future

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 2020, final data for the 2019 calendar year must be provided to the Secretariat by 30 June 2020)	NO
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 2020, preliminary data for the 2019 calendar year was provided to the IOTC Secretariat by 30 June 2020). **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 2020, final data for the 2019 calendar year must be provided to the Secretariat by 30 December 2020).	YES
If no, please indicate the reason(s) and intended actions: Somalia does not have any Purse seine or Longliners operating under its flag, and three types of fisheries exist: a) small-scale fisheries, with vessels ranging from 3–10 m made of glass reinforced plastic or wood operating in coastal waters; b) semi-industrial fisheries, with vessels ranging between 12–23 meters which mostly operate by local investors; and c) industrial fisheries, exclusively by foreign fishing vessels. In April 2019, however, a package of incentives backed by World Bank support has created the necessary enabling environment for the issuance of licenses against payment for exploiting the resource to 31 Chinese longliners targeting tuna and tuna-like species. In addition to that, Somalia has taken actions to improve the catch data collection system for domestic fisheries. The Fisheries Data Collection Working Group–a partnership between the Ministry of Fisheries and Marine Resources (MFMR), FAO, and Secure Fisheries–started as a pilot in 6 landing sites. Its objective is to strengthen the data collection, processing, and reporting system to enhance the quality of data by increasing coverage and representativeness. The catch and effort data were collected from 6 locations with 3 trained enumerators in each site, and resulted in 967 vessel-days surveyed. There were 31,923 fish identified and counted within 121 unique days during December 2019–August 2020.	

Executive Summary

The Somali EEZ is one of the most productive ecosystems in the global oceans. Because of a major upwelling created by the Southwest monsoon that supports much fish. As a result of the nutrient-rich water upwelling from the depths of the Indian Ocean, the coast of Somalia has made one of the most productive fish grounds in the world, Rashid. & Mahamudu (2014) and Glaser, et al. (2015).

Somalia was hindered by a lack of up-to-date scientific information on catch and fishing effort statistics, and other data relevant for the management and conservation of fish stock and marine mammals in Somali waters. There was no reliable and timely statistics, vital for effective policy formulation, for measuring progress, and for accurate reporting on domestic fisheries, Sheik Heile, (2013). Somalia has made important progress in the past years towards data collection that will improve our contributions to IOTC reporting. In 2019, we transitioned the collection of catch and effort data from a collection of unorganized, informal groups (universities, NGOs, ministry) to a harmonized, nationwide effort led by the MFMR. Data collection began only in Dec 2019, so the data are not reflected in the 2019 National Report. However, data collected in Jan-Aug 2020 will provide an empirical foundation for 2020 report, and in 2021 we will be able to report a full year of catch and effort data from around the country as our data collection expands. We have also made important progress in improving technical capacity for data collection. A series of workshops have improved the statistical capacity of our ministries, and the training of 18 enumerators in important landing sites has created a standardized approach to data collection throughout the country. Finally, amendment of Fisheries Law will further Somalia's commitment to IOTC CMMs and to supporting a strong national fleet.

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1. Background/General fishery information

Somalia has the longest coastline in continental Africa (3,330 km) and an Economic Exclusive Zone of 1,165,500 km^2, providing potential to sustainably increase employment, food security, nutrition and revenues from its fisheries. The fishery resources in Somali waters are said to be one of the richest in the African continent, but there is currently no active fisheries management.

The fishing season in Somali waters is governed by the monsoon winds that occur in the calendar year between May and September. In this period, high waves and strong winds compel small and medium size commercial boats not to call at Somali ports. In this period, coastal fishing by the artisanal fishery is limited but the monsoon does not have much effect on the industrial fishery as it is engaged mainly on larger fishing vessels. The fishing days of the artisanal fishery varies between 220 to 240 days per year; in order to fish offshore, the artisanal vessels must change their fishing grounds, gear or target species.

Large pelagic species including tuna and tuna-like species such as yellow fin, big-eye, skipjack, and mackerel are the most highly priced species, locally. Although they are highly migratory, the traditional fishing grounds for these species are found along the Indian Ocean from latitude 05 to 100 N due to upwelling that occurs twice annually in the period of southwest monsoons. It is also known that there are good fishing opportunities in the Gulf of Aden and Indian Ocean for tuna during the Southwest monsoon in the deeper waters.

2. Fleet structure

Local Boat Name	Definition
Saxiimad/Baaraforde/Faara boota	Fiberglass skiff with outboard
Volvo/Laash	Fiberglass with inboard
Houri	Wooden boat without engine
Dhow	Dhow, motorized
Sambuk	Wooden boat with inboard engine

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

2.1. Artisanal fishery

Years		2015	2016	2017	2018	2019	2020
Number of Units	Inboard engine	-	1,555	1,660	2090		
	Outboard engine	- -	1,765	1,804	2210		
Gear Type		LL, HL and GLN					

3. Catch and effort (by species and gear)

The Fisheries Data Collection Working Group (FDCWG) began a pilot national-wide catch and effort data collection project in December 2019 at six landing sites. This is the first data collection project of its kind in Somalia. Data were collected for 31 unique categories of fishes. Species-level data were collected for all IOTC-managed species. An additional seven species-level categories, three family-level categories, and three higher-taxa categories were included. To date, the database includes entries on over 30,000 fish, weight and length measurements for over 8,000 fish, and effort data for over 900 vessel-trip entries. We report here preliminary estimates of nation-wide catch composition (Figure 1a), and length-weight and length-frequency (Figures 1b-1e) for a few key IOTC-managed species.

The database is currently being validated for quality assurance, completeness, and data entry accuracy. Next steps include a validation workshop for all members of the FDCWG to achieve consensus on data collected during this phase. To date, the data are not comprehensive enough to support extrapolation to country-wide estimates. The FDCWG will continue when new funds are secured (by end of 2020) and data should be available for reporting in 2021.

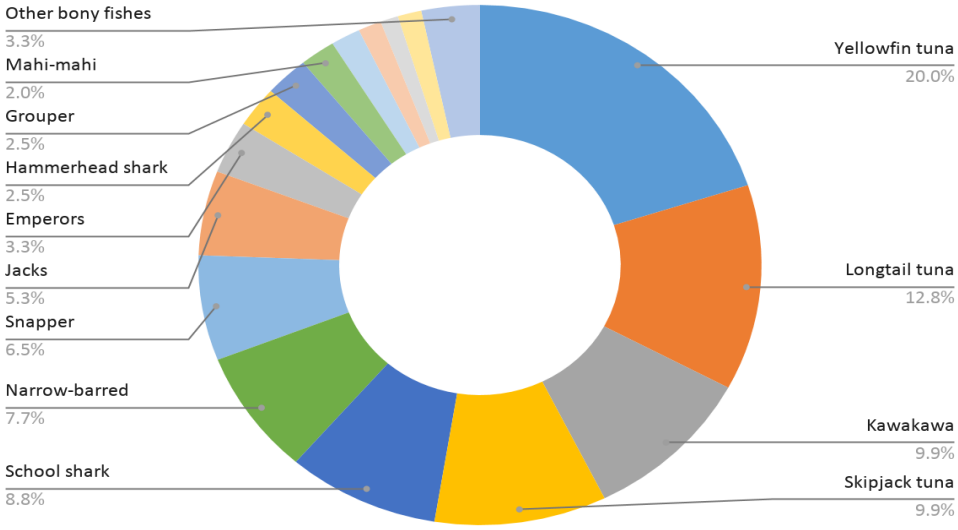
Table 2. Annual catch and effort by gear and primary species in the IOTC area of competence. Include a 'not elsewhere indicated – NEI' category for all other catches combined. [Note: Multiple tables may be required e.g. **Table 2a, 2b, 2c).**

The first year of catch and effort by gear and species from Somalia will be available in 2021.

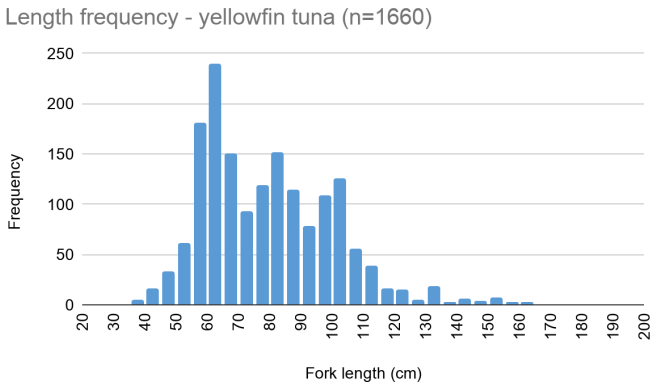
Figure 1. Historical annual catch for the national fleet, by gear and primary species, for the IOTC area of competence for the entire history of the fishery/fleet.

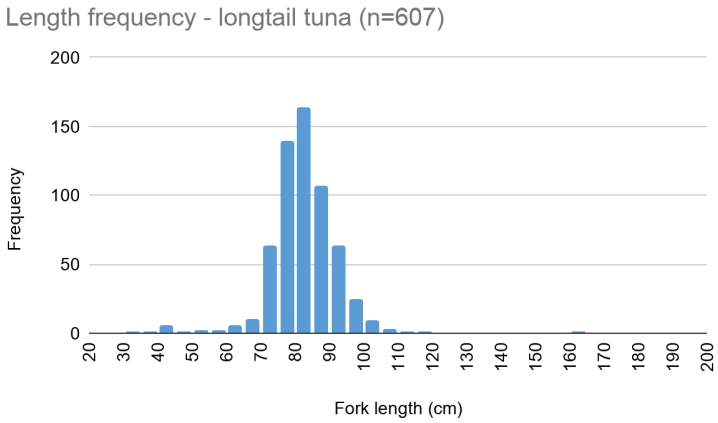
Historical catch data are not available for the Somali national fleet. Instead, we present the following.

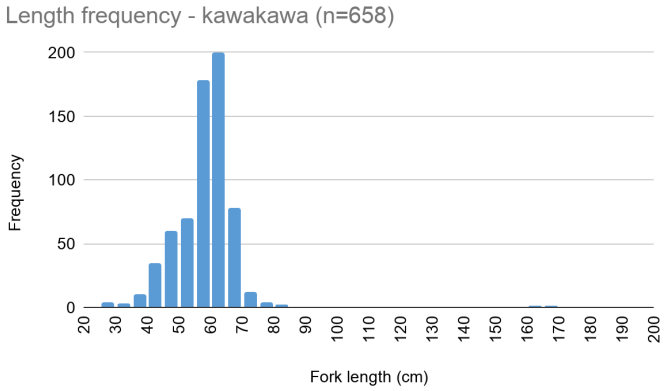
Figure 1a. Catch composition by fish type for six landing sites in Somalia, December 2019–August 2020.

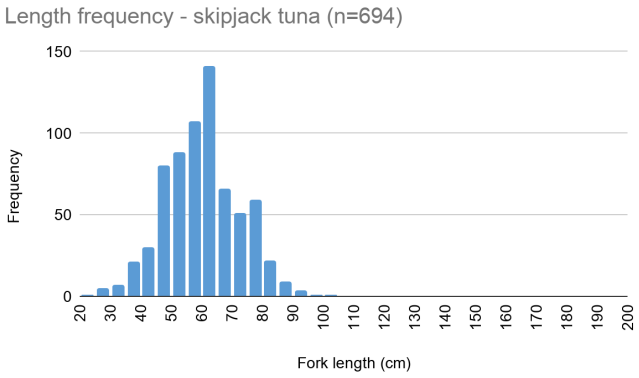


Figures 1b-1e. Length-frequency for yellowfin, longtail tuna, kawakawa, and skipjack for six landing sites in Somalia, December 2019–August 2020.









Year	Industrial	Artisanal	Subsistence	Discards	Total catch
FAO reported catch (46% of UBC estimate) 29,800					
UBC/ Sea Around Us estimate	14,540	32,730	8,120	9,530	64,900
% (UBC)	22%	50%	13%	15%	100%

Source: Persson et al. (2014). nei: not elsewhere included

Table 2. Composition of estimated annual catch in Somali waters (averages 1997-2006)

Species	Annual landings (tons)	% by value
Yellowfin Tuna	2,168	12%
Bigeye	1,485	11%
Skipjack	1,417	3%
Albacore	90	1%
Spiny lobster	453	10%
Swordfish	393	3%
Species nei	26,413	61%
Total	32,419	100%

Source: Persson et al. (2014). nei: not elsewhere included

Figure 2a. Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence (most recent year e.g. 2019).

Spatially-explicit fishing effort data are not available for Somalia for 2019.

Figure 2b. Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence (average of the 5 previous years e.g. 2015–2019).

Spatially-explicit fishing effort data are not available for Somalia for 2015–2019.

Figure 3a. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence (most recent year e.g. 2019).

Spatially-explicit fishing catch data are not available for Somalia for 2019.

Figure 3b. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence (average of the 5 previous years e.g. 2015–2019).

Spatially-explicit fishing catch data are not available for Somalia for 2015–2019.

4. Recreational fishery

There is no recreational or sport fishery that exists in Somalia.

5. Ecosystem and bycatch issues

Somalia has taken actions to diminish the impact of fishing activities on marine ecosystem by including the use of eco-friendly fishing gears as well as introducing new components to an update (currently in draft form) to the federal fisheries law of 2014 that include:

1. Management of bycatch
2. Management of genetic resources
3. Marking of gear
4. Fish aggregating devices
5. Prohibited to fish on data buoys
6. Prohibition on commercial whaling and conservation of cetaceans, etc.
7. Prohibitions in relation to marine turtles
8. Prohibitions on removal of shark fins and sale, etc of illegally removed shark fins
9. Prohibited fishing methods – explosives, etc. and sale, etc of fish caught using such methods
10. Prohibited fishing methods – trawling
11. Prohibited fishing methods – minimum gear size
12. Prohibited fishing methods – large-scale driftnets
13. Prohibited to use aircraft and unmanned aerial vehicles
14. Prohibited to use artificial lights to attract fish in purse seine, longline fisheries
15. Prohibited to tamper with or destroy property of another in Somali waters
16. Prohibited to use, possess on a vessel, import, purchase, sell prohibited gear
17. Prohibition on abandoning or discarding gear, fish or fish product
18. Prohibition of interference with inspected fish and fish products
19. Prohibition of possession, trade, export etc. of fish, fish products taken or obtained in contravention of Act or international conservation and management measure
20. Prohibition of trade, etc. in fish and fish products taken or obtained in contravention of the laws of another State
21. Prohibitions in relation to vessels on a list of illegal, unreported and unregulated vessels maintained by a regional fisheries management organization
22. Prohibitions in relation to vessels without nationality

5.1. Sharks

The FDCWG includes in its catch and effort data collection the categories of blue shark, mako shark, hammerhead shark, school shark, other sharks, and skates and rays. These data will be available for reporting in 2021.

5.1.1. NPOA sharks

Somalia has completed the final consultative meeting toward developing the National Plan of Action (NPOA) for the Conservation and Management of Sharks (SOM-NPOA-Sharks the final documents to be published in 2021. The Plan will be the first of its kind to protect and manage sharks in Somalia.

- The Steering committee of SOM-NPOA Sharks is formed.
- A plan of action is prepared to further improve the conservation and management of Sharks.
- Banning of the intentional target of endangered sharks by artisanal fishery is to be regulated;
- SOM-NPOA-Sharks will be published in www.mfmr.gov.so

5.1.2. Sharks finning regulation

Shark fishing is a traditional activity and has been undertaken in Somali waters for centuries. Various species of sharks are targeted by artisanal fishers for both fins and meat. Fishing methods include gillnets and longlines. Sharks are targeted by the Somali artisanal fleet and shark and shark products are fully utilized in Somalia and are landed whole with fins attached. Landed sharks is processed - finned, beheaded, and gutted and the meat is then incised, washed with seawater, salted, and dried.

Additionally, Somalis export shark meat to Kenya and Tanzania where it is generally a cheap source of animal protein for human consumption. Nonetheless, Somalis have fished for sharkes for a long time and currently Somalia is in the final consultative meeting toward developing the National Plan of Action (NPOA) for sharks to preserve the long-term health of marine ecosystems and protect fishing livelihoods by concentrating fishing efforts on other species. Education initiatives and investments around sustainable fishing practices have helped redirect fishing efforts to other desirable but fast-spawning fishes like sardines, anchovies, herrings, and sustainably fished tuna.

5.1.3. Prohibitions on removal of shark fins and sale, etc of illegally removed shark fins

According to the draft updated federal fisheries legislation on the management, development and sustainable use of fisheries and aquaculture (2020 July) developed by the Federal Republic of Somalia the following related to prohibitions on shark finning and sale.

(1) The operator of any vessel used for fishing in Somali waters or of any Somali vessel fishing in areas beyond national jurisdiction:

(a) shall ensure that all sharks caught are fully utilised, through retention on the vessel of all parts of the shark excepting head, guts and skins, to the point of first landing;

(b) shall not:
  (i) remove shark fins on board the vessels; and
  (ii) land, retain on-board, tranship or carry shark fins that are not naturally attached to the carcass at the first point of landing;

(c) in respect of sharks landed frozen, shall not:
  (i) have on board fins that total more than 5% of the weight of sharks, up to the first point of landing where the requirements in paragraph (b) are not applied by the operator;
  (ii) offload fins and carcasses separately at the point of first landing, unless there is compliance with the 5% ratio through certification, monitoring by an observer, or other appropriate measures approved by the Director General.

(2) In order to facilitate on-board storage under section 1(c), shark fins may be partially sliced through and folded against the shark carcass but shall not be removed from the carcass until the first point of landing.
(3) The operator of a vessel shall release or cause to be released any species of shark that is caught, for which fishing is not permitted, as soon as possible after the shark is brought alongside the vessel, and to do so in a manner that results in as little harm to the shark as possible.
(4) No person shall buy or sell or buy shark fins which have been removed on-board, retained on-board, transhipped or landed in contravention of this Act.
(5) Any person who contravenes subsection (1)(a), (b) or (c), (2), (3) or (4) commits an offence and on conviction is liable to a fine not exceeding the maximum amount described in the First Schedule or to a term of imprisonment not exceeding two years, or to both, and in addition any fish or fish products that do not comply with the requirements in sub-section (1) shall be forfeited to the State.

5.1.4. Blue shark

The FDCWG included in its efforts collection of data specific to blue sharks.

Table 3: Total number and weight of sharks, by species, retained by the national fleet in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2015–2019).

Total catch data are not available for the Somali national fleet. Preliminary data show school sharks are the most commonly landed species of shark by the domestic fleet.

Table 4: Total number of sharks, by species, released/discarded by the national fleet in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2015–2019). Where available, include life status upon released/discard.

Data not available.

5.2. Seabirds

Somalia does not have longline vessels fishing in IOTC competence areas. At present, there are 41 Chinese longliners fishing in Somali EEZ targeting tuna and tuna-like species. However, the flag state has been reminded about their responsibility on seabird conservation practice stated in the IOTC resolution. To date, Somalia has not developed NPOA on Seabird.

5.3. Marine Turtles

Somalia's Fisheries Act of 1985 provides legal mechanism to protect marine turtle and marine mammals from any type of fishing. However, the Federal government has developed a new draft bill at the national level that covers marine turtles as stated in the Federal Constitution. Up to now, a high number of interactions were documented between turtles and artisanal fishermen.

According to the draft bill on the management, development and sustainable use of fisheries and aquaculture (2020 July) developed by Federal Republic of Somalia, prohibitions in relation to marine turtles includes the following.

1. No person shall engage in fishing for, harm, kill or trade in marine turtles.
2. The operator of a vessel in Somali waters shall ensure that in all fishing and related activities, gear is used and disposed of in a manner that avoids entanglement or any other adverse or harmful impact on marine turtles.
3. The operator of any vessel in Somali waters or any Somali vessel in the area of any relevant regional fisheries management organization shall not intentionally cause or allow any net to be set around any marine turtle.
4. Where marine turtle is unintentionally trapped in fishing nets or equipment, the operator referred to in subsection (3) shall release it immediately and return it to the sea and take such other actions as may be provided pursuant to an international conservation and management measure.
5. No person shall, for any purpose related to the commercial development of any coastal area, without an authorization from the Minister issued under section 74, undertake construction, operate or conduct research in the breeding zones for marine turtles.
6. Any person who does not comply with any requirement in subsection (1), (2), (3) (4) or (5) commits an offence and upon conviction shall be liable to the fine described in the First Schedule to the Act or to a term of imprisonment not exceeding three years or to both.

5.4. Other ecologically related species (e.g. marine mammals, whale sharks)

According to the draft bill on the management, development and sustainable use of fisheries and aquaculture (2020 July) developed by Federal Republic of Somalia, prohibitions in relation to other ecologically sensitive marine creatures include the following.

5.4.1. Prohibition on commercial whaling and conservation of cetaceans, etc.

1. No person shall engage, support or assist in commercial whaling for any species or population of whales in Somali waters or in areas beyond national jurisdiction being a Somali citizen or using a Somali vessel.
2. No person shall engage in fishing for, harm, kill or trade in cetaceans.
3. The operator of a vessel in Somali waters shall ensure that in all fishing and related activities, gear is used and disposed of in a manner that avoids entanglement or any other adverse or harmful impact on cetaceans.
4. The operator of any vessel in Somali waters or any Somali vessel in the area of any relevant regional fisheries management organization shall not intentionally cause or allow a purse seine net to be set around any cetacean or whale shark.
5. Where any cetacean or whale shark is unintentionally trapped in fishing nets or equipment, the operator referred to in subsection (4) shall release it immediately and return it to the sea, and take such other actions as may be provided pursuant to an international conservation and management measure.
6. No person shall settle or conduct fishing operations in such zones as may be proclaimed under this Act as breeding zones for cetaceans.
7. Where any cetacean is trapped in the coastal areas, coastal communities have a duty to release it and return it to Somali waters.
8. Any person who does not comply with any requirement in subsection (1), (2), (3) (4) (5) or (6) commits an offence and upon conviction shall be liable to the fine described in the First Schedule to the Act or to a term of imprisonment not exceeding three years or to both.

Table 5. Observed annual catches of species of special interest by species (seabirds, marine turtles and marine mammals) by gear for the national fleet, in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2015–2019 or to the extent available).

Data not available.

6. National data collection and processing systems

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

Fisheries management cannot be undertaken efficiently unless quality data are available. However, Somalia was hindered by a lack of up-to-date scientific information on catch and fishing effort statistics, and other data relevant for the management and conservation of fish stock and marine mammals in Somali territorial waters. There iareno reliable and timely statistics, vital for effective policy formulation, for measuring progress, and for accurate reporting on artisanal fisheries.

The statistical capacity-building activities in the fisheries sector have, until recently, remained uncoordinated, incoherent, and incomplete. The physical infrastructure and equipment to facilitate production and dissemination of data by the federal Ministry of Fisheries remains inadequate. There are no statistical databases, sampling frames or statistical classification, rendering challenging survey undertakings in Somalia's fisheries. The capacity of statistical staff to collect and analyse data, develop manuals, design and conduct surveys and censuses is limited. However, the development of central database for artisanal fisheries in Somalia would have not been addressed in a comprehensive manner to take care of most aspects of Somali fisheries sector.

Therefore, the Ministry of Fisheries and Marine Resources in collaboration with local FAO and Secure Fisheries has been engaged in the development of a centralized and common fisheries database with data from all regions in Somalia. Development and establishment of a robust fisheries information system is essential to Somalia for sustainable management of the fishery sector. The project was carried out to implement and improved fisheries data collection sampling system that is feasible for fisheries in Somalia along with an improved fisheries database and database management system. To date, Somalia has not implemented the use of logbooks as there are still improvements to be made. Therefore in 2019, the FDCWG began collecting data with government-trained officers through survey methods.

6.2. **Vessel Monitoring System** (including date commenced and status of implementation)

Vessel Monitoring System (VMS) was implemented in Somalia in 2014. The intention of VMS deployment was exploratory. Right now, a major challenge is the ability to get VMS data in real time. The data received by the department is delayed by six hours. Currently, there is no vessel of or above 24m or less than 24m fishing outside of the Somali EEZ flagged by Somali. There are 41 Chinese longliners licensed by the ministry to fish highly migratory species inside the Somali EEZ targeting tuna and tuna-like species. All these vessels have deployed VMS on board since January 2019.

6.3. Observer scheme (including date commenced and status; number of observer, include percentage coverage by gear type)

There are no Somali-flagged vessels of or above 24m, or less than 24m fishing outside of the Somali EEZ,. Consequently, there is no observer program implemented for the Somali artisanal fleet. However, with the support of FAO, Somali observers have been trained since 2015 for deployment on-board the current licensed longliners. To advance improve quality of tuna catch data, Ministry of Fisheries Somalia plans to implement observer onboard (OBB) for licensed longline fishing vessels fishing in Somali waters. Because of the lack of financial resources, human capacity, and communications, the OBB planning still under consideration. The Federal Ministry of Fisheries and Marine Resources has introduced an observer scheme to monitor the landings through this program. Somalia has taken actions to improve the observer scheme for artisanal fisheries. Through Project Kalluun, a university-based data collection project and the FDCWG, efforts have been made to improve sampling area selection, train data collectors on sampling and species identification, and revise data forms. Special attention was paid to identification and documentation of species managed by the IOTC.

6.4. Port sampling program

In 2018, a pilot project for improving Somali artisanal fisheries data collection and community engagement. Its objective was to strengthen the data collection, processing, and reporting system to enhance the quality of fisheries data. Efforts have been made to improve sampling area selection, train data collectors on sampling and species identification, and revise data forms. During 2017, two students from City University visited fish markets at Liido and Hamarweyne in Mogadishu every month. They identified, counted, and recorded the fish they found for sale at the market. In some cases, fish were identified to species, but in some cases, fish were identified at higher taxonomic levels (species were aggregated). This project provided some of the first quantitative data about fish catch from waters near Mogadishu in decades. While market data cannot help measure catch per unit effort, it is a first step toward understanding relative abundance of fish in Somali waters, identification of species targeted by the Somali artisanal fleet and estimates of monthly variability in fish availability.

Catch data collection was expanded in 2018 through Project Kalluun, a student-led effort based at four universities in the region. Finally, in 2019, port-based sampling coordinated by the MFMR began. This project, the FDCWG, is based on sampling and community participation in data collection, appears likely to generate more benefits than costs. This reduced the workload of data enumerators and data entry personnel. Ultimately, the data were collected from 6 locations with 3 trained enumerators, and resulted in 967 vessel-days surveyed. There were 31,923 fish identified and counted within 121 unique days during December 2019–August 2020. Efforts to expand this project to improve coverage and validate data collected in 2020 are underway.

Table 7. Number of vessel trips or vessels active monitored, by species and gear]

Data are not available for 2019. Somalia has taken actions to report the number of vessel trips or vessels actively monitored, by species and gear, during 2020. These will be available by next year's national SC report.

Table 8. Number of individuals measured, by species and gear]

Data are not available for 2019. Somalia has taken actions to report the number of individual fishes measured by species and gear during 2020. These will be available by next year's national SC report.

6.5. Unloading/Transhipment of flag vessels [including date commenced and status of implementation]

Transshipment is prohibited at sea in accordance with Somali fisheries law. The licensed foreign fishing vessels operating within IOTC convention area are monitored in conformity with the IOTC regulations.

6.6. Actions taken to monitor catches & manage fisheries for Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish

Data not available for 2019. In 2020, a regional project funded by the Western Indian Ocean Marine Science Association will bring together catch and effort data for all billfish species in the WIO. Somalia is contributing to this project and will have results from socio-economic studies of billfishes in Mogadishu, plus disaggregated data on billfish catch to inform the larger study.

6.7. Gillnet observer coverage and monitoring

Somalia does not have a gillnet fishery. Therefore, this resolution is not applicable to Somalia.

6.8 Sampling plans for mobulid rays

In Somalia, mobulid rays are directly targeted or valuable by-catch species in small-scale fisheries and accidentally caught as by-catch in industrial fisheries. Preliminary estimates suggest Mobulid rays targeted by Somalia small-scale fisheries are significant, and there is evidence of exceptional decreases in landings of Mobulid rays in Somali waters.

There is no special sampling plan for mobulid rays at the moment, and the current efforts for fisheries data collection working group is not yet incorporated in the survey method sampling forms. However, MFMR-Somalia is implementing precautionary management for Mobulid rays. All fishing vessels, other than for subsistence fishing, should be prohibited to catch these species and live release of unharmed specimens. Hence, the new data forms of sampling survey method will be revised to separate and identify mobulid rays.

7. National research programs

Data are not available for 2019. In 2020, a regional project funded by the Western Indian Ocean Marine Science Association (Billfish-WIO) will bring together catch and effort data for all billfish species in the WIO. Somalia is contributing to this project and will have results from socio-economic studies of billfishes in Mogadishu, plus disaggregated data on billfish catch to inform the larger study. Due to limited funds for research and development in the fisheries and marine resources sectors, there has been very little research carried out since the fall of Somalia's central government in 1991. However, Somalia is moving towards engaging national and regional research projects on conservation and management measures, and will cooperate to its maximum capacity with such initiative.

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

Respond with progress made to recommendations of the SC and specific Resolutions relevant to the work of the Scientific Committee [to be updated annually to include most recent Conservation and Management Measures adopted by the Commission].

Table 9. Scientific requirements contained in Resolutions of the Commission, adopted between 2012 and 2019.

Res. No.	Resolution	Scientific requirement	CPC progress
11/04	On a regional observer scheme	Paragraph 9	Somalia has initiated an observer scheme to monitor the landings through FAO supported program by artisanal fisheries. However, the objective of the Ministry to make a special focus on the industrial fleet (licensed foreign vessels) and especially onboard the vessels targeting tuna species within the IOTC convention area. To date, there are no onboard observer scheme executed in Somali waters. However, a port sampling has been established.
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	New draft is amended fisheries law on the management, development and sustainable use of fisheries and aquaculture (2020 July). Fisheries Law regulations are also in place for conservation of marine turtle as explain above at relevant paragraph.
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	There is no longline fishery in Somalia, therefore, this Resolution did not applicable
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	New draft bill is amended and fisheries regulations are in place for conservation of marine turtle as explain above at relevant paragraph.
13/04	On the conservation of cetaceans	Paragraphs 7– 9	Marine mammals (cetaceans) and turtles are protected under the amendment of new Fisheries bill and fisheries regulations are also in place for conservation of marine turtle as explain above at relevant paragraph. No person shall engage in fishing for, harm, kill or trade in cetaceans
13/05	On the conservation of whale sharks (Rhincodon typus)	Paragraphs 7– 9	New draft bill is amended and fisheries regulations are in place for conservation of marine turtle as explain above at relevant paragraph in the report.
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	New draft bill is place and fisheries regulations are in place for conservation of shark species caught in association with IOTC managed fisheries as explain above at relevant paragraph in the report.
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	To date, the national database includes entries on over 30,000 fish, weight and length measurements for over 8,000 fish, and effort data for over 900 vessel-trip entries. We report here preliminary estimates of nation-wide catch composition (Figure 1a), and length-weight and length-frequency (Figures 1b-1e) for a few key IOTC-managed species.
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	The database is currently being validated for quality assurance, completeness, and data entry accuracy. Next steps include a validation workshop for all members of the FDCWG to achieve consensus on data collected during this phase. To date, the data are not comprehensive enough to support extrapolation to country-wide estimates. The FDCWG will continue when new funds are secured (by end of 2020) and data should be available for reporting in 2021.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	New draft bill is amended and fisheries regulations are in place for conservation of shark species caught in association with IOTC managed fisheries as explain above at relevant paragraph in the

Res. No.	Resolution	Scientific requirement	CPC progress
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	New draft bill is amended and fisheries regulations are in place for conservation of shark species caught in association with IOTC managed fisheries as explain above at relevant paragraph in the report.
18/05	On management measures for the conservation of the Billfishes: Striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7 – 11	Data not available for 2019. In 2020, a regional project funded by the Western Indian Ocean Marine Science Association will bring together catch and effort data for all billfish species in the WIO. Somalia is contributing to this project and will have results from socio-economic studies of billfishes in Mogadishu, plus disaggregated data on billfish catch to inform the larger study.
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	Somalia is trying very hard to comply with the obligations of IOTC. Somalia is doing the first national data collection for catch data and catch and effort data for artisanal fisheries. Size data are collected through the observer program and port sampling. Fleet characteristics are submitted annually. Somalia has introduced an observer scheme to monitor the artisanal fisheries at the landings through this program. The Ministry is currently in the process of re-establishing the formal observer program which would require at least 20% coverage of licensed longline (at-sea observer coverage) and (port observer coverage) fishing trips.
19/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence	Paragraph 22	Somalia does not have any Purse seine or Longliners operating under its flag, the only type of fisheries exist are small-scale fisheries, with vessels ranging from 3 –10 and semi-industrial fisheries, with vessels ranging between 12–23. However, Somalia has never consumed more than 3,000 mt of yellowfin tuna since the inception of its large pelagic fisheries. Somalia only operates artisanal vessels and very limited number of semi-industrial vessels within the IOTC area of competence.
19/03	On the Conservation of Mobulid Rays Caught in Association with Fisheries in the IOTC Area of Competence	Paragraph 11	In Somalia, mobulid rays are directly targeted or valuable by-catch species in small-scale fisheries and accidentally caught as by-catch in industrial fisheries. Preliminary estimates suggest Mobulid rays targeted by Somalia small-scale fisheries are significant, and there is evidence of exceptional decreases in landings of Mobulid rays in Somali waters. There is no special sampling plan for mobulid rays at the moment, and the current efforts for fisheries data collection working group is not yet incorporated in the survey method sampling forms. However, MFMR-Somalia is implementing precautionary management for Mobulid rays. All fishing vessels, other than for subsistence fishing, should be prohibited to catch these species and live release of unharmed specimens. Hence, the new data forms of sampling survey method will be revised to separate and identify mobulid rays.

9. Literature Cited

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