

Status of Tuna fishery in Sudan

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Abstract: tuna fisheries in Sudanese Red Sea Coast under utilization, their catch sorted as by catch in industrial fishery (trawling and purse seine), and in artisanal fishery (traditional fishery), annually estimated in both fishery not more than 300 tons. Seven species record in the Sudanese red sea coast, these were: *Rastrelliger kanagurta* (small eye tuna), *Trachurus indicus* (big eye tuna), *Scomberomous commerson* (Spanish mackerel), *Scomberomorus guttatus* (indo-pacific Spanish), *Auxis thazard* (Frigate mackerel), *Katsawonus pelamis* (Skipjack Tuna) and *Thunnus albacores* (yellow fin tuna). Tuna catch compose 2.8% to 5% from both fishery annually.

Introduction:

Tuna fishery in Sudanese Red Sea coast sorted into two types of fisheries (traditional fishery and industrial fishery), Elawad (2009) . The traditional one usually practicing by local fishermen in whole coast, they used hooks over coral reefs zone and net over depth 50m, boats used here length range between 7m to 8m (fiber and wooden boats) FAO (1985). While the industrial fishery practicing by Egyptian trawlers in the southern area (length range 20m to 30m and power engine close to 1000hp or less), used trawling and purse seine nets. Seasonally this

fishery appears in particular areas of Sudanese red sea coast, even in winter season (February to April). Tuna are migratory pelagic fishes and are not very common on the local market. Usually product as by catch in industrial fishery and artisanal fishery, not targeted, poor statistic analysis and measurement among the tuna fishery recognize. So the real production over the present catch of the two types of fishery not known. No reliable or organizing data take. For that we need and require to now the real catch of tuna fishery from this paper and to present the tuna fishery a status in the Sudanese Red Sea coast.

Material and method:

The material and methods used here were data fisheries obtained from the Red Sea Fisheries Administration (these include catch in tons and effort number of boats operated), and we used this parameters to estimated the mean Maximum sustainable Yield for the tuna fishery from industrial and traditional fishery.

Status:

Many kinds of species of mackerel fishes records in Sudanese coast, the common known about seven species (Red Sea Fisheries Research Station, 2013), these are:

- 1- *Rastrelliger kanagurta* (small eye tuna).
- 2- *Trachurus indicus* (big eye tuna).
- 3- *Scomberomous commerson* (Spanish mackerel).
- 4- *Scomberomorus guttatus* (indo-pacific Spanish).
- 5- *Auxis thazard* (Frigate mackerel).
- 6- *Katsawonus pelamis* (Skipjack Tuna).

7- *Thunnus albacores* (yellow fin tuna).

All these species are commonly caught by trawling and purse seine methods, in addition to a huge number from the traditional fishery. Their percentage catch range between 2 % to 5%, summarize in the below table 1 and 2. According to the catch of tuna during the period (2002 to 2013), most of this catch seem to be obtaining during the winter period (October to February), no target method applied in Sudan for tuna fishery, all the fishing practice made by foreign vessels from Egypt in especial contract between Sudan government and Egypt government. Discard fishes constituted most of the catch (63%) from trawling in the Southern Area, but is disposed Elawad (2002). Usually tuna fishery consider one type of the discard in trawling fishery. From table 1 and 2, it is appear that the optimum catch and effort for the tuna fishery close to 15 vessels per year and catch seem to be 115.8 tons per year from industrial practice and catch per unit effort for one industrial vessel range between 16 tons to 5 tons. While for traditional fishery the optimum catch for tuna fishery near the annually catch (139 tons) and the number of boat and effort were 832 boats, from these evidence it is appear that the opportunity to increase the tuna catch from both fishery. Also we see that when the effort increase directly the catch increase. Also chance opening to catch more if direct methods use for obtaining the tuna fishery.

Table 1. catch and effort for industrial fishery and tuna (bigeye and small eye Tuna) from Sudanese Red Sea coast 2013.

Year	No. of vessels	Industrial catch (tons) (Trawl +purse seine)	Tuna catch (tons)	Catch/vessel (for total industrial catch)	Catch/no.vessels (tuna catch ton/vessel)
2002	10	3594	160	359.4	16
2003	13	2237	100	172.07	7.6
2004	31	3758	170	121.22	5.4
2005	11	3666	155	333.27	14.09
2006	0.0	0.0	0.0	0.0	0.0
2007	0.0	0.0	0.0	0.0	0.0
2008	13	570	50	43.8	3.8
2009	12	800	60	66.6	5
2010	0.0	0.0	0.0	0.0	0.0
2011	0.0	0.0	0.0	0.0	0.0
2012	0.0	0.0	0.0	0.0	0.0
Mean	15	2437.5	115.8	182.72	8.6
%			4.7		

Table 2. Show the catch and catch per unit effort for traditional and mackerel catch (*Scomberomous commerson* and *Gymnosarda unicolor*) in Sudanese Red Sea coast 2013.

Year	Number of boats(effort)	Coral reef fishes (ton)	Mackerel fishes (ton)	Catch/effort (coral reefs)	Catch/effort (mackerel)
2002	1000	4510	135.5	4.51	0.14
2003	600	4620	138.6	7.7	0.231
2004	700	4660	139.8	6.7	0.199
2005	650	5660	169.8	8.7	0.26
2006	750	6340	190.2	8.5	0.253
2007	800	3979	119.4	4.9	0.149
2008	900	3904	117.2	4.3	0.13
2009	775	3936	118	5.08	0.152
2010	950	3888	116.6	4.09	0.123
2011	1000	3800	75	3.8	0.075
2012	1100	3600	80.5	3.27	0.07
Optimum	832	4889	139.6	6.16	0.21
%			2.8		

Problems facing the tuna fishery in Sudan:

Tuna fishery in Sudanese red sea coast not practicing in economic scope, these may be refer to the limit opportunity of marketing tuna fishes locally and outside Sudan, also may be refer to the knowhow of the local fishermen in fishing tuna, must the tuna fishing ground concentrated in the Southern area, which were too far away from the fishermen villages (Mashirgi, et al,1993), whom they lives in the north of Sudanese red sea coast. The access to this fishing ground require will and proper gear and fishing equipments , these also require to changing the types of boats gear now used on traditional fishing, yet now the Sudanese fishermen not know more on industrial fishery, no national felt now access this type of fishing.

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