

Estimation of bycatch and discard in Iranian fishing vessels (gillnets) in the IOTC area of competence during 2012

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By: Reza Shahifar

r.shahifar@gmail.com

Abstract:

In order to assessment of bycatch and discard in Iranian tuna fishing vessels in the IOTC competence of area, I.R.Iran distributed log book among 75 gill net fishing vessels. Based on received information through the log books and some observer reports (questionnaires), we assessed amount of catch, bycatch and discard. Although some deficiencies have seen in identification of different species but collected information are valuable and give a common view of the Iran's catch composition.

Base on the pilot project results, around 87% of catch belong to target species while around 11.4% and 1.4% of catch, consequently comes from bycatch and discards. According to the pilot project information, the main catch of target species belong to long tail, yellow fin, Kawakawa and Skipjack, while were recorded, Sail fish and Marlins as bycatch and discard species more than the others. This is very important and considerable that, we have never received any reports about mammals or marine Turtles as a bycatch (Table 1).

Target Species / Ton						Bycatch / Ton				Discard / Ton	Total / Ton
YFT	SKJ	LOT	KAW	BET	FRI	Sharks	Sail Fish	Dolphin Fish	Others		
30.5	165.5	29.3	30.7	1.9	1.1	9.5	10.9	7.3	6.1	4.3	297.1
10.3%	55.6%	9.9%	10.3%	0.4%	0.7%	3.2%	3.7%	2.4%	2.1%	1.4%	100%
87.2%						11.4%				1.4%	100%

Table1: Composition of Iranian fishing vessels catch in Gill net, through the IOTC areas in 2011

Base on received information, there are some problems on identification of different species by observers. So they need more trains to collect valid and qualitative information. In addition Iranian vessels do not enough facilities to accommodate observers as an officer level. Finally Iran has a big fleet in quantity and for monitoring of 5% of them, the organization needs to put on board observers on 67 vessels which implementation of this plan will be so expensive. For solving the problems and base on the I.R.Iran recommendation during 7th Session of the WPEB meeting in 2011, where held in Maldives, the percentage of observers should decrease up to 3%, for the countries that has 500-1000 and 1% for the countries that have more than 1000 active

vessels in the IOTC area and now I.R.Iran presents his recommendation again to the 8th session. Also I.R.Iran offers his request to receive technical and financial supports to extend implemented observer plan in current Iranian fleets.

I-Introduction:

According to sustainable fisheries, through the 1995 agreement for implementation of the provisions of the United Nation convention on law of the sea (1982) relating to the conservation and management of straddling fish stocks and highly migratory fish stocks and Food and Agriculture Organization (FAO) code of conduct objectives for implementation responsible fisheries, also related resolutions of IOTC about developing and implementation of management measures for conservation ecosystem and fish stocks, such as 05/05, 10/06, 10/02, 11/04, Iran Fisheries Organization (IFO) has been trying to monitor and control all fishing fleets through the IOTC competence of area. Although some deficiencies and problems have seen in develop and implementation monitoring and control measures in Iranian fleets, but compliance to regulations and resolutions of IOTC have had a progressively trend and IFO intent to continue procedure up to complete implementation of all regulations.

Because of some reasons IFO has not achieved to implement on board observer plan and distribution of log book among gill net vessels until 2012. Also there are no historical information around bycatch and discard in Iran. The other problem is miss-identification of different species of bycatch and discard, by observers. Beside of these preventative problems and in order to review the status of none targeted species catch on tuna fisheries by Iranian vessels and provide information for 8th Working Party on Ecosystem and Bycatch (WPEB) I had tried to collect and analyze the received data through the log books and questionnaires (brief observer reports). In conclusion current paper is a preliminary survey on received information and need to more improvement, but extracted information show us a clear view of the bycatch and discard in Iranian gill net fleets.

Materials and methods:

Base on IOTC existence resolutions and in order to estimate of bycatch and discard in Iranian gill net vessels we have tried to train some experts as observer chiefs. We also trained some crews of the vessels as observer on board. On this plan IFO experts have had the responsibility of control of data and evaluation of the completed form validity and the crews of vessels have completed the log books and questionnaires on board. In fact the information was collected by self declarations of vessels distinguished crews who was trained and are responsible to complete the log books and statistical information in a questionnaire. During first step we tried to simplify the observer reports and briefed it as a questionnaire.

The first distribution of the log books and questionnaires have done during February and March of 2012 and second round have done in August 2012 when is after monsoon. During first round, we only collected 32 log books and 50 questionnaires and tried to check validity of all the data and information on them. In total, log books are distributed among 50 vessels and questionnaires among 75 vessels. On this pilot project all the vessels were chosen from gill net, the length of them were more than 24 m and they fished out of Iranian territorial waters on open sea. In the end we summarize the data and used the results in our estimation. Nowadays sample vessels are sailing and we are going to collect received data and information after landing of them. The

collected information summarized in a table which includes composition of target, bycatch and discard species catch in vessels (Weight and percentage of species).

Results:

According to IFO Catch statistics data in 2011, Iranian fishermen caught 183100 tons of different species of tuna and tuna like fish in IOTC competent of area. Base on this information the composition of catch was including, long tail tuna, Yellow fin tuna, Kawakawa and Skipjack tuna have been the main composition of Iranian vessels catch. Also during the year around 10128 tons of different species of Sharks and 378 tons Common Dolphinfish (*Coryphaena hippurus* 1758) and Sailfish (*Istiophorus platypterus*, 1972) were caught by fishermen. During 2011 more than 96.5% of catch came from Gill net, 2.5% from Purse seine and the rest from trolling fishing vessels. Also 57.2% of these catch was done in Iranian EEZ while less than 42.8% are caught in open sea of Indian Ocean. (Tabel 1)

	Tuna and Tuna like species									Bycatch		Total
Name of Fish	BET	FRI	KAW	LOT	SKJ	YTF	SFA	GUT	COM	Shark Sp.	Sailfish / Dolphinfish	Catch/ Bycatch
Weight / Ton	105	6013	22266	80883	17473	28800	8866	3900	14794	10128	378	193606
Weight / %	0.05	3.1	11.5	41.8	9	14.9	4.6	2	7.6	5.2	0.2	100
Total target Species 183100 ton										10506 ton		

Table2: Composition of Iranian fishing vessels catch in the IOTC areas in 2011

Base on the pilot project results (Feb and March 2012), around 87.2% of catch belong to target species while around 11.4% and 1.4% of catch, consequently comes from bycatch and discards. Base on the project results, the main catch of target species was long tail Tuna, yellow fin Tuna, Kawakawa and Skipjack, while among bycatch and discard species, Sail fish and common Dolphinfish were seen more than the others. This is very important and considerable that, we have never received any reports about mammals or marine Turtles as a bycatch (Table 1).

Base on log books and questionnaire information, two main species of sharks including Oceanic white tip shark (*Carcharhinus longimanus*) and Shortfin mako (*surus Oxyrinchus*) are seen in catch composition of the vessels which completed the log books, while base on experimental information the Milk sharks (*Rizoprionodon acutus*), Spottail shark (*Charcharinus sorrah*) and white cheek shark (*Charcharinus dussumieri*) are the main species in Iranian territorial waters. Although we received some valuable information through the log books and questionnaire but there are some doubt about correct identification of species.

Target Species / Ton	Bycatch / Ton	Discard	Total
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YFT	SKJ	LOT	KAW	BET	FRI	Sharks	Sail Fish	Dolphin Fish	Others	/ Ton	/ Ton
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87.2%						11.4%				1.4%	100%

Table3: Composition of Iranian fishing vessels catch in Gill net, through the IOTC areas in 2012, summarize from log books and questionnaire reports

A brief interview with observers who completed log books and questionnaire made us aware that these people have some problems in identification of species especially sharks. For this miss identification of shark species is common and these reports are not enough valid but for start is valuable.

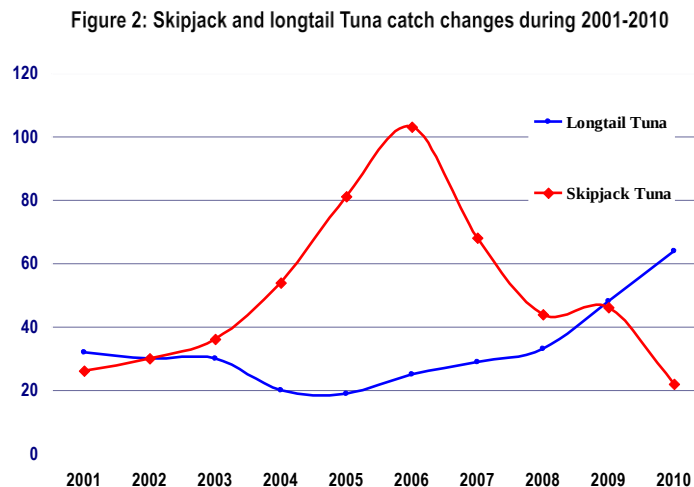
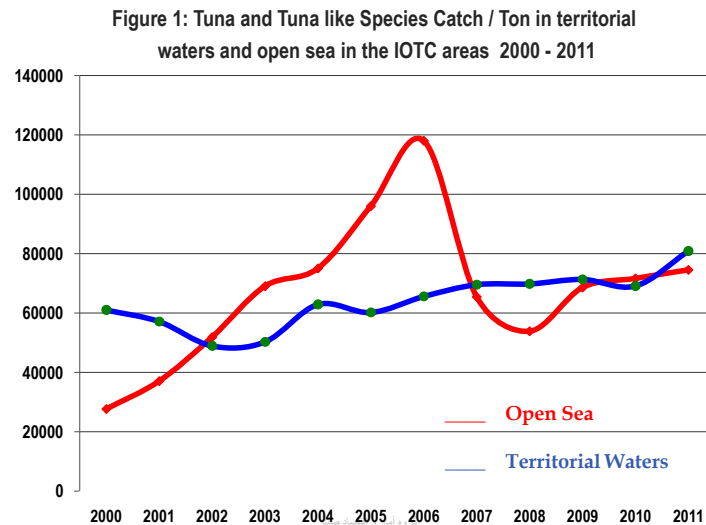
Discussion:

A compare between composition of Iranian fishing vessels catch (Table 2) and extracted information from Gill net vessels log books and questionnaire reports (Table 3) in the IOTC competence of areas in 2012, shows some significant differences. For example Long tail Tuna with 41.8% has been the main catch of Iranian vessels in 2011 and after that Yellow fin and Kawakawa located in second and third level consequently, while base on extracted information from log books and questionnaire, the main catch of these vessels have been skipjack, yellow fin and Kawakawa. Also according to 2011 catch information the amount of bycatch of tuna fishing vessels were 5.4% of total catch while base on log books and questionnaire information the amount of bycatch was calculate 11.4% of total catch. In addition there is no information about discard in 2011 catch information while we see 1.4% of catch is recorded as a discard in log books and questionnaire.

As we mentioned, in the first round of distribution of log books and questionnaire we covered the vessels with more than 24 m length which they fished in open sea (Do not cover Iranian waters) with gill nets. In fact our log books and questionnaire information do not cover the vessel less than 24 m. Also this information does not include neritic tuna and purse seines catch. In addition these log books information extracted from the vessels fishing activities during February and March of 2012 and does not cover entire a year.

A review on past 12 years catch information shows some differences between amounts of catch in Iranian shorelines (up to EEZ) and open sea of the Indian Ocean (Figure 1). These changes are seen not only in composition of catch, but also in percentage of catch per each area. For example in 2005 around 38.5% of tuna and tuna like species are caught in Iranian waters (shoreline and EEZ) but in 2011 this percentage intensively changed and increased to 57.2% of catch in Iranian territorial waters. Although this shows the interest of fishermen for do their fishing activities in

Iranian territorial waters because of piracy problems, but surely there are significant differences between composition of catch in Iranian territorial waters and Indian Ocean and also between small scale vessels (less than 24m) and big vessels (More than 24m). A survey on total catch of tuna and tuna like species show, the percentage of Skipjack tuna are recorded 55% and for longtail tuna 12.5% in 2005 while in 2011, only 9.5% of Skipjack and 44.2% longtail tuna are recorded (Figure 2). These variations in composition of catch in different years show significant changes in species composition during different years and seasons.



A review on log books information shows the recorded data has been 297 tons of different species catch while annually catch of Iranian vessels normally are around 150 thousand tons. In fact extracted information only covered 0.2% of annually catches. In the other hand Iran seriously needs to extend quantity and quality of current observer plan and log book program.

Also Iran seriously needs technical and financial aids and helps of competence organizations such as FAO and IOTC. In a entire view although Iran fishing activities have faced with some problems in the IOTC competence of Area but the progressive trend are seen obviously in Iran fishing activities during recent years.

Conclusion:

According to current paper results, the recorded bycatch and discard in Iranian gill net vessels which they fished in open sea of the Indian Ocean has been 12.8% of total catch. Scientifically this amount of bycatch and discard is normal happening in fishing activities. Also the calculated bycatch of sharks were only 3.2% of total catch which in comparison with the other fishing activities is low. But the main defect of this project is the low level of obtained information and coverage of the log books and questionnaire.

In conclusion in order to implementation controlling methods and conservation and management measures, IFO should to continue this program progressively and on this way seriously needs technical and financial aids and supports of competence organizations such as FAO and IOTC.

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