

# Sharks caught as bycatch by malagasy national fleet in the Madagascar waters

WORKING PARTY ON ECOSYSTEM AND BYCATCH

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# ABSTRACT

The traditional fishermen are the first actors of the shark's fisheries in Madagascar. Recently, shrimp fisheries started shifting their activity into pelagic fisheries by changing their vessels to small scale longliners. Since the ending of 2008 to the starting of 2010, there were four and one longliners which fish respectively in the west and east of Madagascar waters. Besides, some trolling liners and encircling gillnet have also fished in Malagasy EEZ (Economic Exclusive Zone). There were 30 vessels of this fishery registered in the ministry of fisheries in 2010 and main of them evolve in western (60 %) of EEZ. This paper would show the first results of these fisheries according to the temporary data received by the project called USTA (Unité Statistique Thonière d'Antsiranana or Statistical Unit of Tuna Fisheries in Antsiranana -Madagascar). So, all most 23 % of the longliners' captures for the eastern are sharks while this proportion reaches 17 % from the western waters. But, it's really inconsiderable for the trolling liners and encircling gillnet wich are called artisanal fisheries in Madagascar because their proportions of sharks on the landed catches are just 1.13 % for the east and 0.74 % for the west. Unfortunately, all most of the data returned by fishing companies and administrated at the project are not detailed especially about the species identification of these sharks. USTA is exhorted to involve its data gathering system to manage as possible the shark resources, especially main of them are threatened according the IUCN status, within the Madagascar waters.

Key words: Madagascar's waters, shark, longliner, trollers, USTA, data, management

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# GLOSSARY

<u>MPRH</u>: Ministère de la Pêche et des Ressources Halieutiques (Ministry of Fisheries in Madagascar) <u>USTA</u>: Unité Statistique Thonière d'Antsiranana (Statistical Unit of Tuna Fisheries in Madagascar)

# BACKGROUND

For ages, Malagasy fishermen have practiced fishing activities for subsistence. From 90s, a significant increasing in catch landed has recorded following the participation of foreign operators using modern fishing techniques with powerboats. Moreover, because of the decline of shrimp stocks in the western part of Madagascar, testing fisheries diversification in industrial shrimp fishing for tuna longline and line has been made from 2008 to 2010 by the fishing local companies based in Madagascar. Depends mainly on the market, some operators have chosen to exploit demersal fish while others have preferred to pelagic resources.

# Characteristics of Malagasy national fleet

	No vessels		
Targets	Eastern EEZ	Western EEZ	Total
Demersal fish	11	19	30
Tuna and Tuna like spe cies	4	1	5
Total	15	20	35

MPRH, 2010.

Table 1: Number of vessels according to the target.

For now, the national fleet is focused on the exploitation of demersal resources by deploying small or medium sizes boats. In 2010, fisheries' administration registered 30 fishing vessels for demersal fish against only 5 vessels for tuna and tuna-like species.

	No vessels			
Gears	Eastern EEZ	Western EEZ	Total	
Encircling gill nets		1	1	
Trolling lines	11	18	29	
Longlines	4	1	5	
Total	15	20	35	

MPRH, 2010.

Table 2: Number of vessels according to gear used.

According to the Malagasy fisheries legislation, there are two types of demersal fisheries such as:

- The traditional fishery, which are composed by non-motorized boats and;

- The artisanal fishery, which are composed by small vessels under 50 hp power. Given the difficulty for covering the more than 5000 km of coastline in Madagascar, monitoring the traditional fishery is a major handicap for the management of fisheries resources in the Big Island. However, much more structured, artisanal fishermen are supposed to report periodically their fishing activities to the ministry of fisheries. In terms of techniques, they use the encircling gillnets and trolling lines. In 2010, there were one vessel for encircling gillnet and 29 for trolling liners. Besides, local resident operators have begun fishing tuna and like species since 2008. In 2010, five fishing boats, including 4 operating in the east and only one in the west, wanted to take part in the exploitation of pelagic resources in the waters of Madagascar. As artisanal fishermen, they have to report their fishing activities such as a catch, effort through the logbook.

# RESULTS

This work is, then, based on informations from the reporting system which is sometimes

inaccurate.



#### USTA, 2011.

#### Chart 1: Evolution of Sharks' percentage on the catch landed

Sharks, as Bycatch, did not exceed during the whole year 20% of the catch landed. The above figure confirms us that for the first semester shark's percentages are lower than the second semester. This confirmation pushes us to go more deeply for giving further detail about each fishery and each fishing area in the Madagascar waters.

# Area criteria

East



USTA, 2011.



The chart above shows the catches' composition species of 4 longliners and 11 trolling liners. It highlights the capture of sharks which increases from the beginning to the end of the year. Captures are almost stables for the period from January to May with a catches per month under 5 tons. Then, they take an ascending form from below 10 to almost 35 tons from June to December. For the overall year, sharks represented 18.61 % of the landed catches.

# West





#### Chart 3: Evolution of the composition species in the western part of the EEZ all gear confused.

Despite the presence of a Longliner, shark's proportion on the catch is almost negligible, not exceeding the tonnage of 1 ton per month. And for the overall year, sharks represented 2 % of the landed catches. This chart points out also that the capture is predominated by Lethrinidae, Serranidae and Lutjanidae. This dominance is due to the high level of demersal resources gears which are trolling lines and encercling Gillnet.

# Combination of area and gear criteria

# Longline in east



#### USTA, 2011.



Curves form can be assimilated to those in chart 2. This remark allows us to assert that the catches of 4 longliners dominate largely those of trolling liners. As the curve of sharks catches, it increased from 8.9 to 33.7 tons per month from June to December, after having been stable at around 1.4 to 3.4 tons per month. For the overall year, sharks represented 22.81 % of the landed catches. Furthermore, in the eastern part of the Big Island, Sharks are caught by longliners like Swordfish in terms of quantity landed.

# Longline in west



#### USTA, 2011.



Note that in one hand, there is only one Longliner which evolved in the western waters of Madagascar and in other hand, the company experienced difficulties in the maintenance of the ship. The maintenance problem affected the ship's regular traffic. The fluctuation of these curves is synonymous with the number of trip carried out. In any case, sharks landed did not exceed 0.35 ton per month. It has even been found at very low levels such as 35 or 50 kg in February and May. For the overall year, sharks represented 17.55 % of the landed catches.



#### Artisanal fisheries in east and west

USTA, 2011.

Figures above point out that Lethrinidae, Lutjanidae and Serranidae families are mainly caught by these gears. Catching sharks is really accidental because the values of their catches are insignificant. For the overall year, sharks represented 1.13 % and 0.74 % of the landed catches respectively in the East and West waters.

#### CONCLUSION

Systematic declarations of logbook from fishermen to ministry of fisheries, in spite of some inaccurate of the system, allow possible to carry out this paper for presenting some results about sharks caught as bycatch. In 2010, 15.63 % of landed catches by the whole of Malagasy fleet were sharks due mainly by 4 longliners in the eastern of the EEZ. Indeed, 22.81 % landed by these longliners evolving in the eastern side were sharks in the same year. The system of gathering and administrating of data has some inaccurate not only on the irregularity of logbooks' submission but also on its form. In fact, the form of the logbook doesn't allow to distinguish the identification of sharks species. To avoid this lack, we are implementing data collection unit in 3 main landing sites such as: Toamasina, Sainte-Marie and Mahajanga. Then, mixture of data from those units and observers will be occurred to involve tuna and sea fish resources management in Madagascar fishing waters.