

MINISTRY OF FISHERIES AND HALIEUTIC RESOURCES

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UNITE STATISTIQUE THONIERE D'ANTSIRANANA (USTA)

*(Tuna Statistic Unit of Antsiranana)*

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**REPORT ON THE UNLOADING OF PURSE  
SEINERS IN THE ANTSIRANANA HARBOR  
OVER THE NINE LAST YEARS  
2002-2010**

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## GLOSSARY and ACRONYMS

**AVDTH** : Acquisition et Validation des Données Thonières or Acquisition and Validation of the Tuna Data.

**CSP** : Centre de Surveillance des Pêche de Madagascar (or Fishing Control Center).

**EU**: European Union.

**GIDAT** : Groupement Interprofessionnel pour le développement des activités thonières (or Interprofessional Grouping for the development of the Antsiranana tuna activities).

**GTS** : Groupe de Travail Statistique.

**IEO** : Institut Espagnol d’Océanographie.

**IOTC** : Indian Ocean Tuna Commission.

**IRD** : Institut de Recherche pour le Développement.

**PFOI** : Pêche et Froid de l’Océan Indien.

**SECRETEN** : Société d’Etudes de Construction et REparation Navale.

**USTA** : Unité Statistique Thonière d’Antsiranana.

CODE	ENGLISH NAME	SCIENTIFIC NAME
<b>ALB</b>	Albacore	Thunnus alalunga
<b>BET</b>	Bigeye tuna	Thunnus obesus
<b>MIX</b>	Mixture of species	
<b>SKJ</b>	Skipjack tuna	Katsuwonus pelamis
<b>YFT</b>	Yellowfin tunua	Thunnus albacares

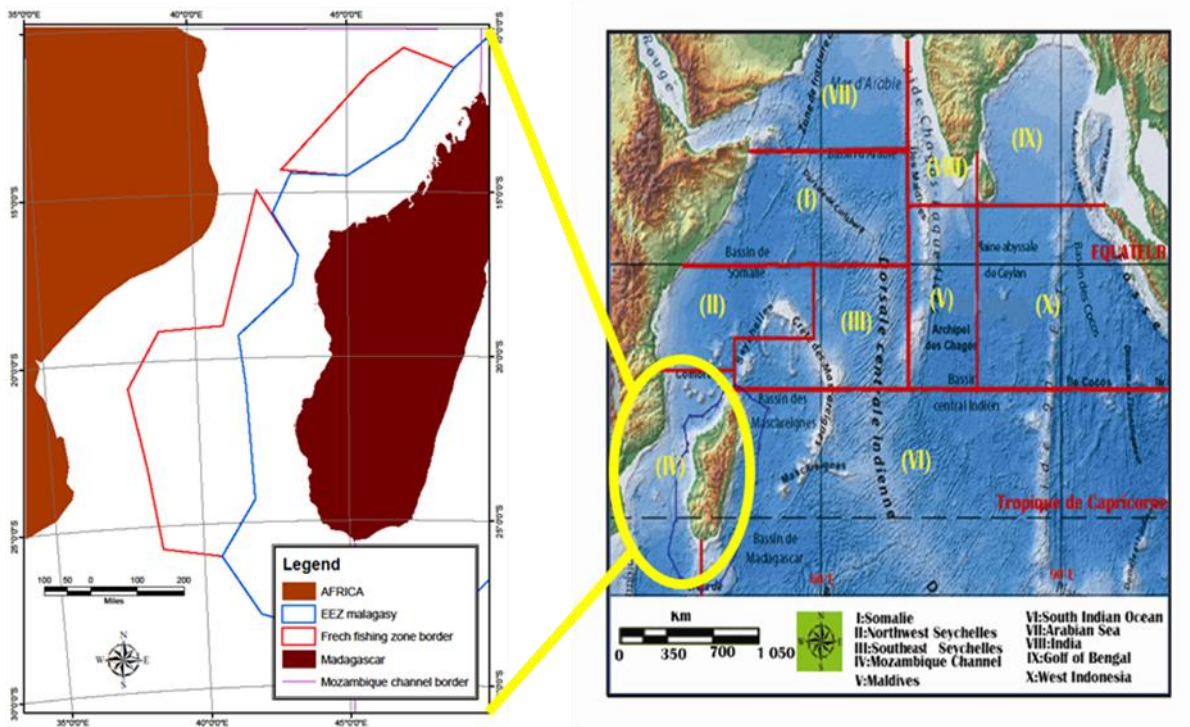
## ACKNOWLEDGEMENT

We wish to express our sincere gratitude to the Ministry of Fisheries and Halieutic Resources that gave us the opportunity to produce this report on the unloading of purse seiners in the Antsiranana harbor. We also would like to express our thanks to the all of Fisheries and Halieutic resources Directions, for support this work. Finally, we very much appreciate Mr RANDRIAMBOLA Tiana , for his precious help.

We particularly address our thanks to the personnel of the USTA to have produced these data for the best tuna stocks management in the Indian Ocean. Lastly, our gratitude thanks are also addressed to all those which have contributed closely or by far to the development of this report.

Thank you infinitely!

## I. INTRODUCTION



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**Figure 1 : Mozambique channel locality in the Indian Ocean**

Geographically, Madagascar is an island nation in the south western part of the Indian Ocean, i.e., in the Mozambique channel or in IOTC zone No 4.

In the South countries, the strong demographic and the urbanization growth contribute to an increasing and urgent demand for animal proteins. Belonging to the poorest countries, Madagascar does not escape the problem of malnutrition. Currently, subjugated by its effort of development, the sector fishing is one of the major motor for an economic advancement of the country.

In the malagasy fishing area, tuna fishing occurs mainly, in the water of the north and those of the Mozambique channel, outside of the 12 nautical miles territorial sea, in particular for the period going from December to June.

The autonomous harbor of Antsiranana on which the activities of the only tuna canning industry malagasy are depended, is located at the northern point of the great island.

USTA<sup>1</sup> is an administration project supporter for the statistical and scientific follow-up of the tuna exploitation. The establishment of the Project in this city is explained by the favorable position of Antsiranana with regard to the tuna activities. Antsiranana enjoys a privileged position in the tuna fishing of surface in the south-western parts of the Indian Ocean. Moreover, it is the second fuelling and transshipment port of the tuna boats in the West Southern part of the Indian Ocean after Victoria. The infrastructures necessary to the arrival of the purse seiners are established in Antsiranana: canning industry (PFOI<sup>2</sup>),

<sup>1</sup>Unité Statistique Thonière d'Antsiranana

<sup>2</sup> Pêche et Froid de l'Océan Indien (of an annual initial capacity of 35 000 tons treated tunas. An extension was made since to increase this processing capacity)

shipyard (SECREN<sup>3</sup>), bay allowing transshipment<sup>4</sup> of fish, existence of company of handling tested in the tuna activities, abundant workers and at a cheap rate,...

One of the constraints for the project is the transshipment at sea carried out in particular by the long-line boats. But, this kind of activities is completely comparable to a transgression of the agreement of fishing.

### **Objectives of USTA**

The unit has two ambitious objectives :

- to reinforce the system of bio-statistics data-gathering and the follow-up of industrial tuna fishing and;
- to evaluate the economic impact of the tuna activities.

### **USTA activities**

To achieve these objectifs, the following activities are to be implemented :

- To check and validate the sheets of fishing (followed geographical positions of the zones) ;
- To proceed to the sampling and the measurement of fish on board ;
- To collect environmental data necessary to the improvement of scientific knowledge on tunas ;
- To treat the data collected with AVDTH<sup>5</sup> software ;
- To take part in the program of marking initiated by the IOTC<sup>6</sup> ;
- To follow the implementation of the Agreement of Fishing (checking of the licences, illicit Fishings not declared, unauthorized) in collaboration with the agents of the CSP<sup>7</sup> on the spot ;
- To set up a system of exchange of information with the CSP for a confrontation of the data ;
- To centralize the tuna datas for the constitution of a data base on tunas Fishing in Madagascar ;
- To transfer and develop the data at the regional level within the framework of the IOTC ;
- To attend the meeting of the GTS<sup>8</sup> in Seychelles enters the various national centers of the Indian Ocean and the International Organizations of Research (IRD<sup>9</sup>, IEO<sup>10</sup> ...) ;
- To help the Administration in the determination of the reference tonnage;
- To collect the economic situation for an analysis of the tuna activities impact on the economy ;
- To reinforce the partnership of the project with the private operators within the framework of the GIDAT<sup>11</sup> ;

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<sup>3</sup> Société d'Etudes de Construction et REparation Navale

<sup>4</sup> At the moment when the quay of the port is occupied

<sup>5</sup> Acquisition et Validation des Données Thonières or Acquisition and Validation of the Tuna Data

<sup>6</sup> Indian Ocean Tuna Commission

<sup>7</sup> Centre de Surveillance des Pêche de Madagascar (or Fishing Control Center)

<sup>8</sup> Groupe de Travail Statistique

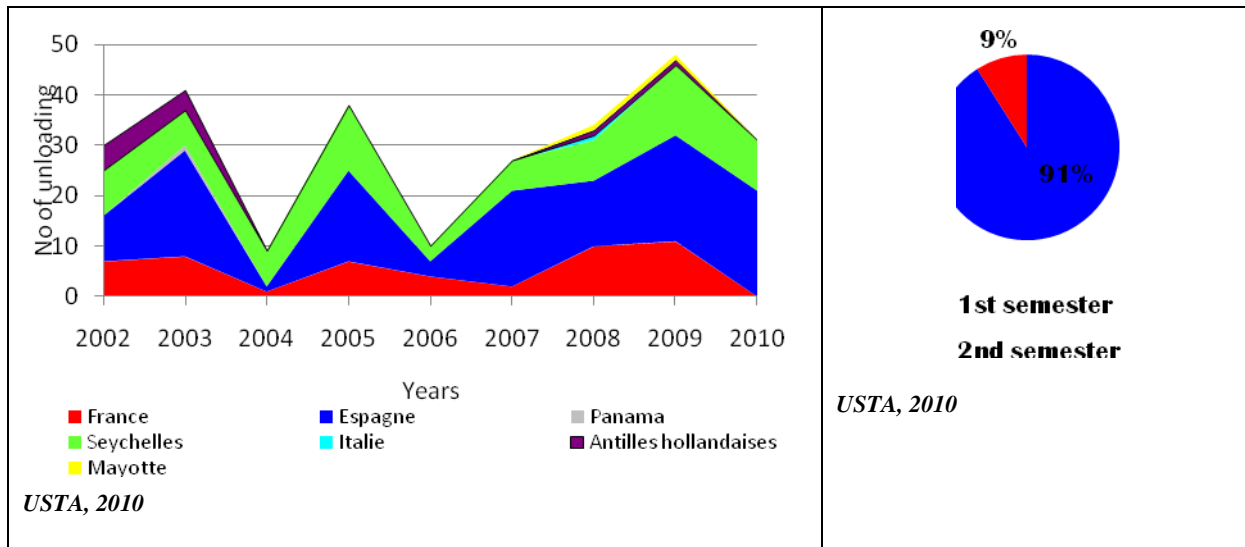
<sup>9</sup> Institut de Recherche pour le Développement

<sup>10</sup> Institut Espagnol d'Océanographie

<sup>11</sup> Groupement Interprofessionnel pour le développement des activités thonières (or Interprofessional Grouping for the development of the Antsiranana tuna activities)

## II. RESULTS

### 2.1. Annual unloading by fishing fleet and semester

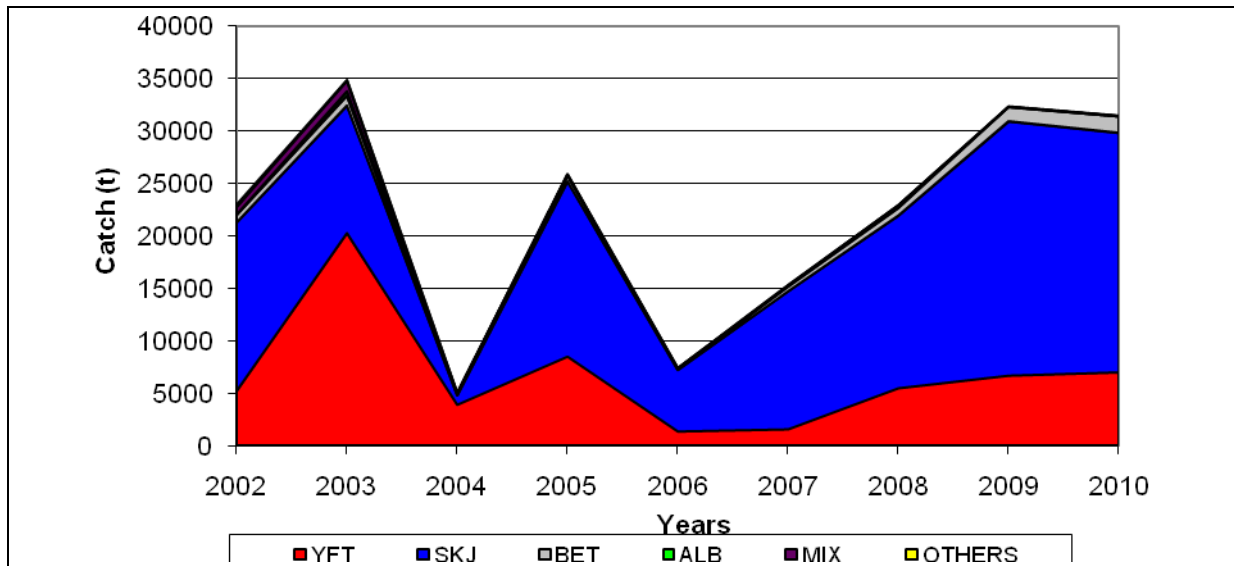


**Figure 2 : Reported annual purse seiners unloading in the Antsiranana harbor (2002 – 2010)**

The unloading in the Antsiranana harbor are mainly constituted by the EU<sup>12</sup> purse seiners. They depend of the PFOI tuna requirements. In 2009, the tuna activities of the harbor of Antsiranana reached 48 unloading concentrated especially over first half of year.

The absence of the French purse seiner unloading, during the first semester of this year was observed and involved a rather clear reduction of the tonnage handled in the harbor.

### 2.2. Reported annual catches and effort



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**Figure 3 : Composition species of annual unloading**

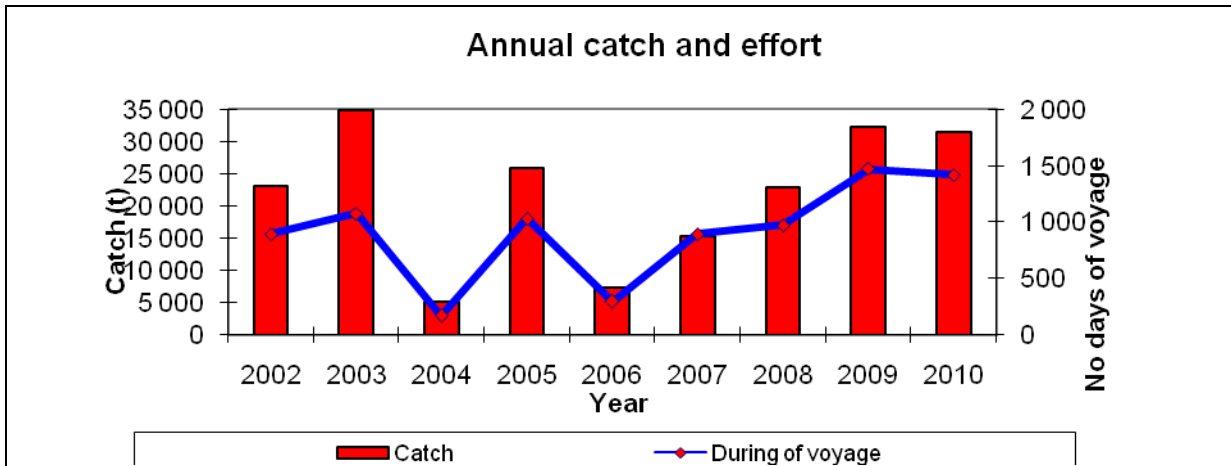
Over these nine last years, the unloading known tops and bottoms? Some balance about tonnage unloaded by purse seiners is observed. It is about 25 000 to 35 000 t a year.

<sup>12</sup> European Union

From 2004 to 2006, the factory lived a difficult period for its own reasons. Since, the ascending curve shows a considerable increasing implemented by the factory. Currently, in spite of crisis political, which has certainly a harmful effect on the economic environment, PFOI still continues to function normally with the annual capacity of 35 000 tons.

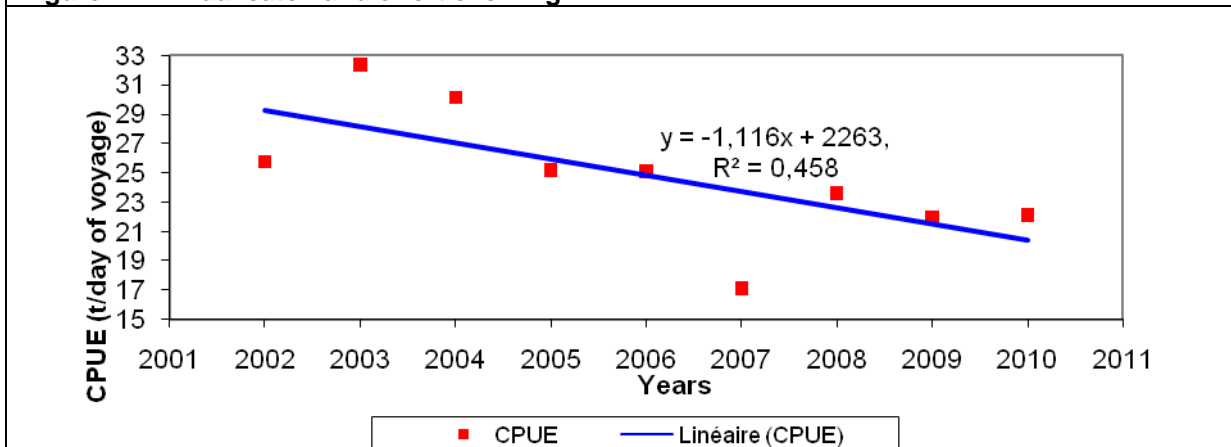
In addition, the greatest parts of the purse seiner catches in the Mozambique channel are SKJ and YFT.

### 2.3. Annual catch (all species) and CPUE



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Figure 4 : Annual catch and effort evolving



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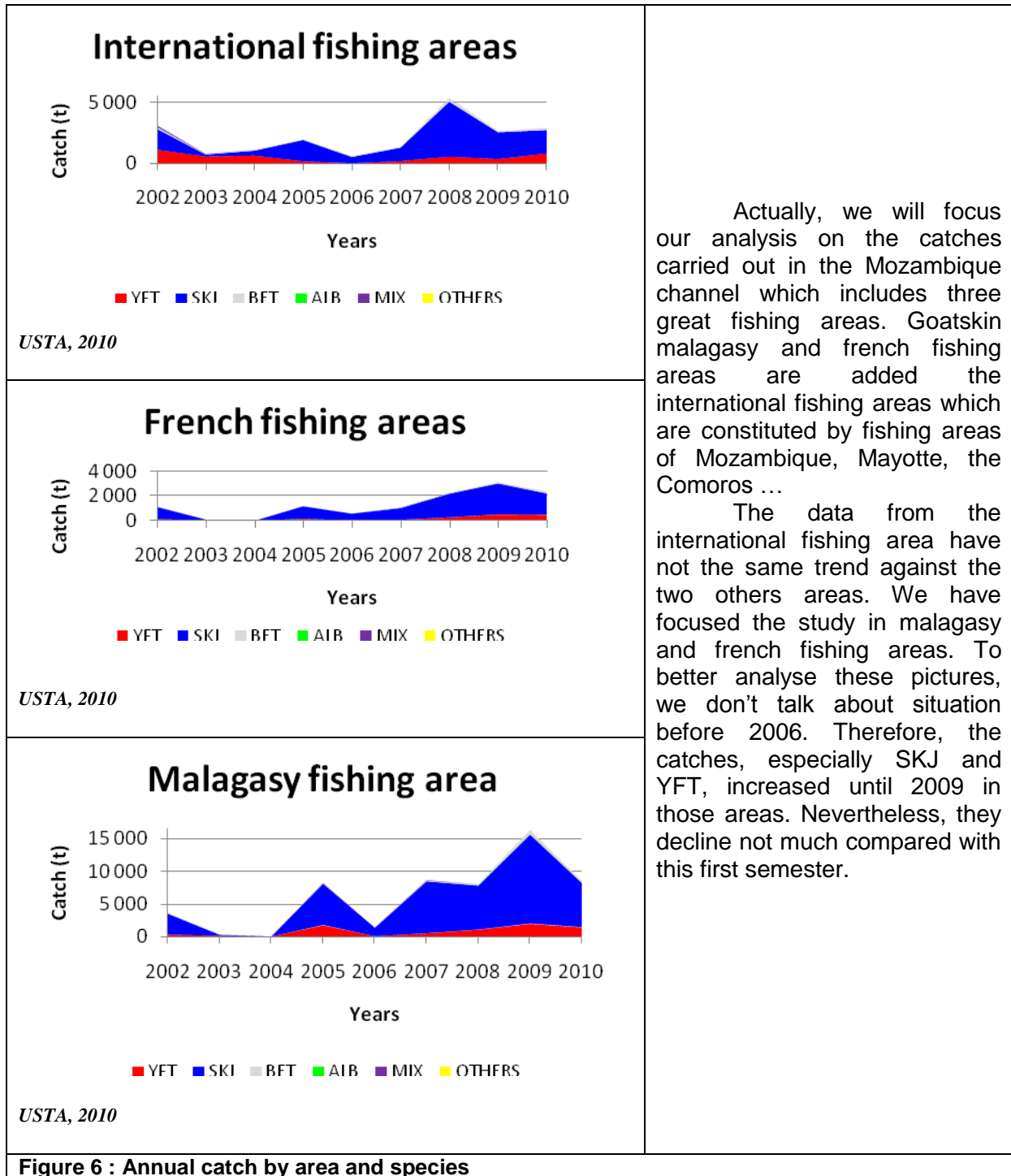
Figure 5 : Annual CPUE

This ascent of tonnage handled in the Antsiranana harbor is the synonym of the consequent increasing of purse seiners number. Therefore, the made efforts also grow in their turns which pass 300 to 1500 days of voyage, that is to say the effort in 2009 is multiplied by 5 compared to his level in 2006.

The low value of the correlation shows us the heterogeneity of the variables: capture and effort. This is explained by the heterogeneity of the data and consequently their representativeness is to be called into question. Therefore, to make a study of CPUE, the data must be joined together on a much larger scale, such as the IOTC, for better drawing a much more robust conclusion.



2.4. Annual catches in the Mozambique channel through the unloading data

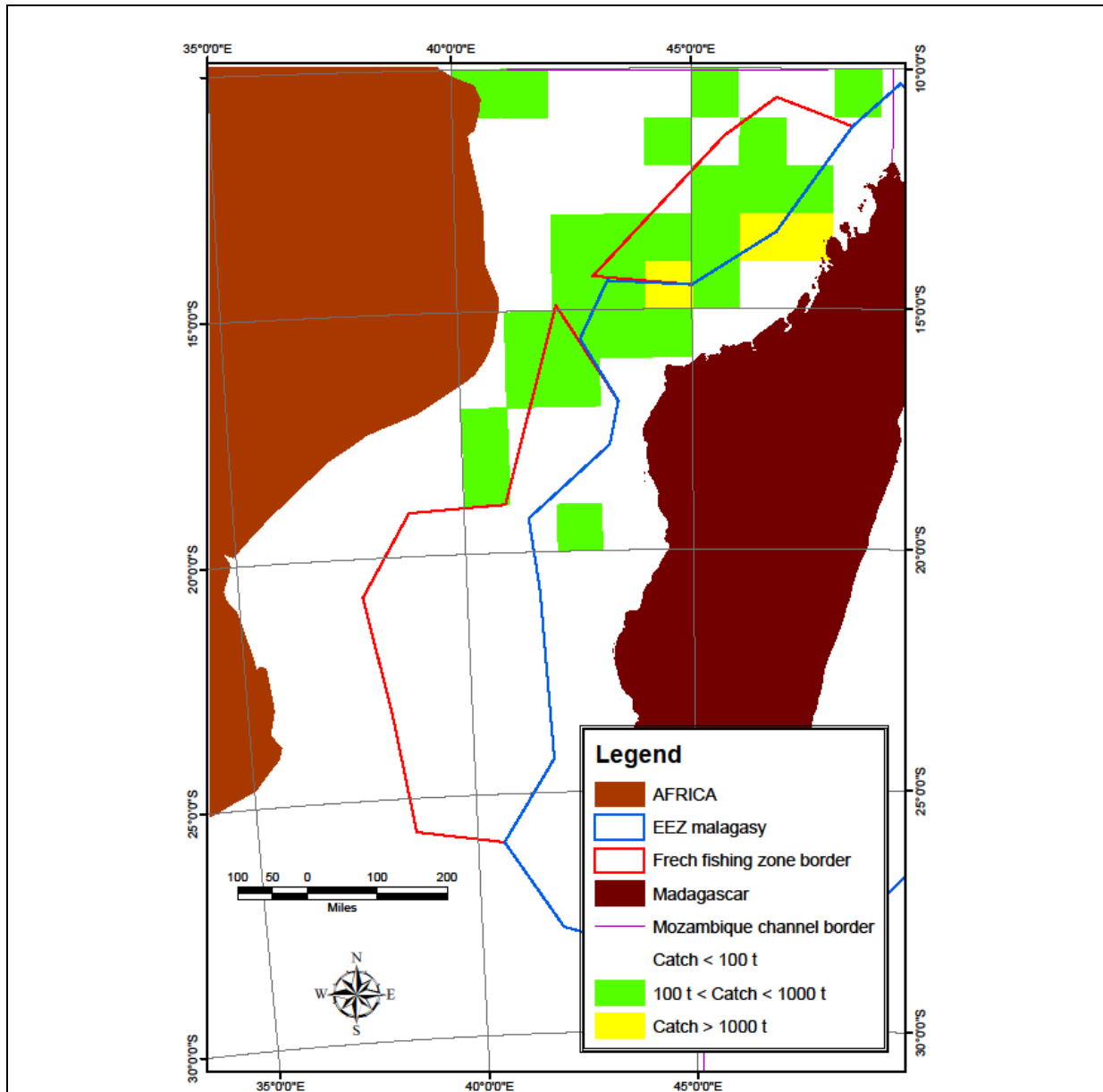


Actually, we will focus our analysis on the catches carried out in the Mozambique channel which includes three great fishing areas. Goatskin malagasy and french fishing areas are added the international fishing areas which are constituted by fishing areas of Mozambique, Mayotte, the Comoros ...

The data from the international fishing area have not the same trend against the two others areas. We have focused the study in malagasy and french fishing areas. To better analyse these pictures, we don't talk about situation before 2006. Therefore, the catches, especially SKJ and YFT, increased until 2009 in those areas. Nevertheless, they decline not much compared with this first semester.



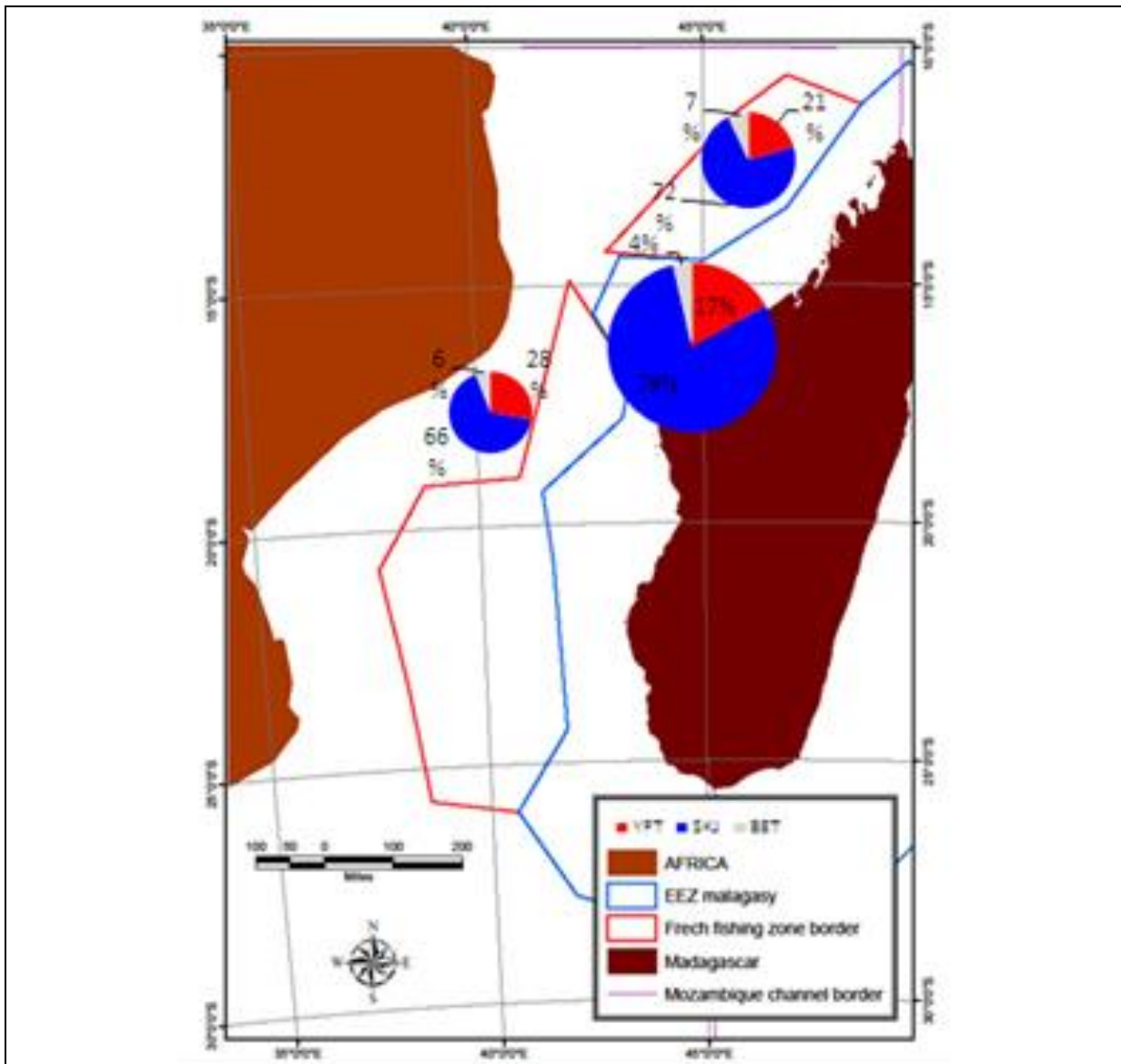
## 2.5. Catches distribution by statistical square and composition species (First semester 2010)



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**Figure 7 : Catches geographical distribution of Mozambique channel in this first semester (2010)**

Catches are mainly occurred in the northern parts of Mozambique channel. Three statistical squares colored in yellow are very snuffed by the purse seiners unloading in Antsiranana.



USTA, 2010

**Figure 8 : Reported catches by species composition and zone in this first semester (2010)**

SKJ tuna form the bulk of the catches in Mozambique channel. This figure would like to put forward the composition species of purse seiner catches as well as them spacial distribution during this first semester.

More and more move away from the coasts, the captures obtained get a raised commercial value. In other words, association YFT and BET in the catch is about 21% in the EEZ malagasy, 28% in the French fishing areas and 34% in the international fishing areas.

## 2.6. Report on the annual sampling carried out by the investigators

YEARS	YFT	SKJ MEASURED	SKJ COUNTED	SKJ counted/SKJ measured	BET	ALB	TOTAL
2000	19 825	6 055	28 857	5	4 808	522	31 210
2001	16 334	6 588	27 849	4	7 032	484	30 438
2002	1 199	662	3 651	6	439	0	2 300
2003	3 024	1 309	4 912	4	864	259	5 456
2004	2 453	501	501	1	239	6	3 199
2005	4 859	2 955	9 993	3	1 482	37	9 333
2006	3 248	2 684	14 991	6	871	0	6 803
2007	3 341	3 727	12 577	3	1 551	7	8 626
2008	7 588	4 367	13 239	3	2 114	332	14 401
2009	8 725	3 900	30 330	8	3 868	0	16 493
2010	8 379	3 350	25 410	8	2 882	9	14 620

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**Table 1 : Annual measured and counted species number (2000 – 2010)**

The quotient, relationship between counted and measured SKJ shows that we did not really observe the common procedure of sampling between the Atlantic Ocean and Indian Ocean. I.e. the investigators do not have the right to make a pause only after having measured 25 SKJ and counted approximately 300 of this same specie during the first turn. During the second turn, the number of measured SKJ remains the same but they can stop measuring the other species when 200 SKJ are counted. In other words, the ratio between counted SKJ and measured SKJ are normally about 10.

These data of sampling are important for the determination of the biological parameters and the mortalities parameters.

## III. PERSPECTIVES

As a conclusion, it is significant to put forward that the unit is in phase of revival and we, the personnel, wish:

- To reinforce the partnership with the IOTC with regard to the tagging program;
- To start again the natural tagging activities, i.e. the description of the growth; parameters through the tuna hard parts like otholite...;
- To study the tuna ecosystem and the bycatch;
- To standardize all of ours datas gathered
- To exploit the bio-statistics datas resulting from sampling carried out on board
- To study of economic impacts of tuna activities in Madagascar
- To concretize these projects formations of personnel and restorations for the adequate equipment, with regard to these ambitious perspectives are to be implemented with the supports of ours partners.