Progress on the Tag Seeding experiment

Julien Million & Juan Jose Areso

In 2004, a tag seeding experiment was started on the purse-seine fleet based in Seychelles. The plan was to use the observer coverage of the EU fleet (France and Spain) to placed some tags inside the well of the purse-seiner to measure and study the recovery rate. Taking into account the too low coverage for the Spanish observers and the null coverage for the French, it was tried to work with some skipper, in particular Spanish skipper during a first period.

To-date, 636 fish were tagged onboard 26 purse-seiner (23 spanish and 3 french) and 335 fish were recovered. This document is only a description of the data gathered at the IOTC on this experiment. This data will be precisely analysed in the near future as soon as they will be entered in the main tagging IOTC database (in development) regrouping all the tagging data from the RTTP-IO, the pilot and small-scale projects and the tag seeding.

1. Protocol

All the tagged are asked to place 15 tags onboard during a trip. They are asked to tag the three main species of tropical tuna and to spread them among the different wells. It is also asked to place half of the tags on fish less than 10kg and the other half on fish more than 10kg. The information recorded by the tagged is:

- Date of tagging
- Species
- Well number
- Position in the well (top, middle, bottom)
- Fork length in cm (for observers) or approximate weight (for skippers).

Special tags were employed for this experiment as the conventional plastic tags are not very suitable and may shad of the tuna in the well. The tags used have a metal attachment and they are implant in the muscle of the fish near the second dorsal fin.

For the recovery, a publicity campaign was started before the starting of this operation in Seychelles. This campaign involves the stevedore and the cannery IOT. Several posters were deployed in both the port and the cannery and meetings were organised with the representative of the stevedores and with the director, operation manager and quality control manager of the cannery. Posters were also deployed in each purse-seiner to make the stevedores aware of the reward for the reporting of tags. Also several correspondences were sent to different canneries in Mauritius, Madagascar, Mombasa, Africa, Europe and Thailand. Also the SOVETCO accept to send to their clients with the proforma invoices letters and posters from IOTC.

2. Results

For the description of the data, we used the species identification and the length produced by the tagger (skipper or observer) unless it was not provided. In this case, we used the data provided by the recoverer.

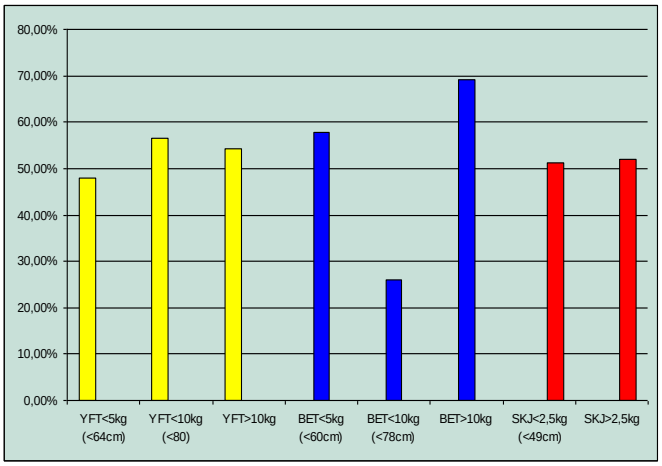
Taking into account the information provided by the recoverers, 86% of the fish are reported coming from the boats where they were tagged. When the well number is provided, only 34,% of the recovery are still in the well where they were tagged.

During the first phase of this experiment 56,1% of the tagged fish were less than 10kg and 43,9% more than 10kg. The process of unloading for small fish is much faster than for the big fish, which are almost handled one by one. The first hypothesis was that the recovery rate will be then higher for big fish than for small ones. In table 1 and figure 1 are represented the recovery rates for different class of size.

Table 1. Number of tagged fish, recoveries and recovery rate per size classes.

	Tagged	Recovered	Recovery rate
YFT<5kg (<64cm)	75	36	48,00%
YFT<10kg (<80)	46	26	56,52%
YFT>10kg	253	137	54,15%
total YFT	**374**	**199**	**53,21%**
BET<5kg (<60cm)	19	11	57,89%
BET<10kg (<78cm)	23	6	26,09%
BET>10kg	26	18	69,23%
total BET	**68**	**35**	**51,47%**
SKJ<2,5kg (<49cm)	37	19	51,35%
SKJ>2,5kg	157	82	52,23%
total SKJ	**194**	**101**	**52,06%**
TOTAL	**636**	**335**	**52,67%**

Figure 1. Recovery rate of YFT, BET and SKJ for different size classes.



The overall recovery rate for the tag seeded is 52,67%. This rate is quite low taking into account that most of the fish are unloaded or transhipped in Seychelles. This rate varies from 26% to 69% for different species and class of size.

Figure 2 presented the size frequency of the tuna (YFT, BET and SKJ) tagged and recovered during this experiment.

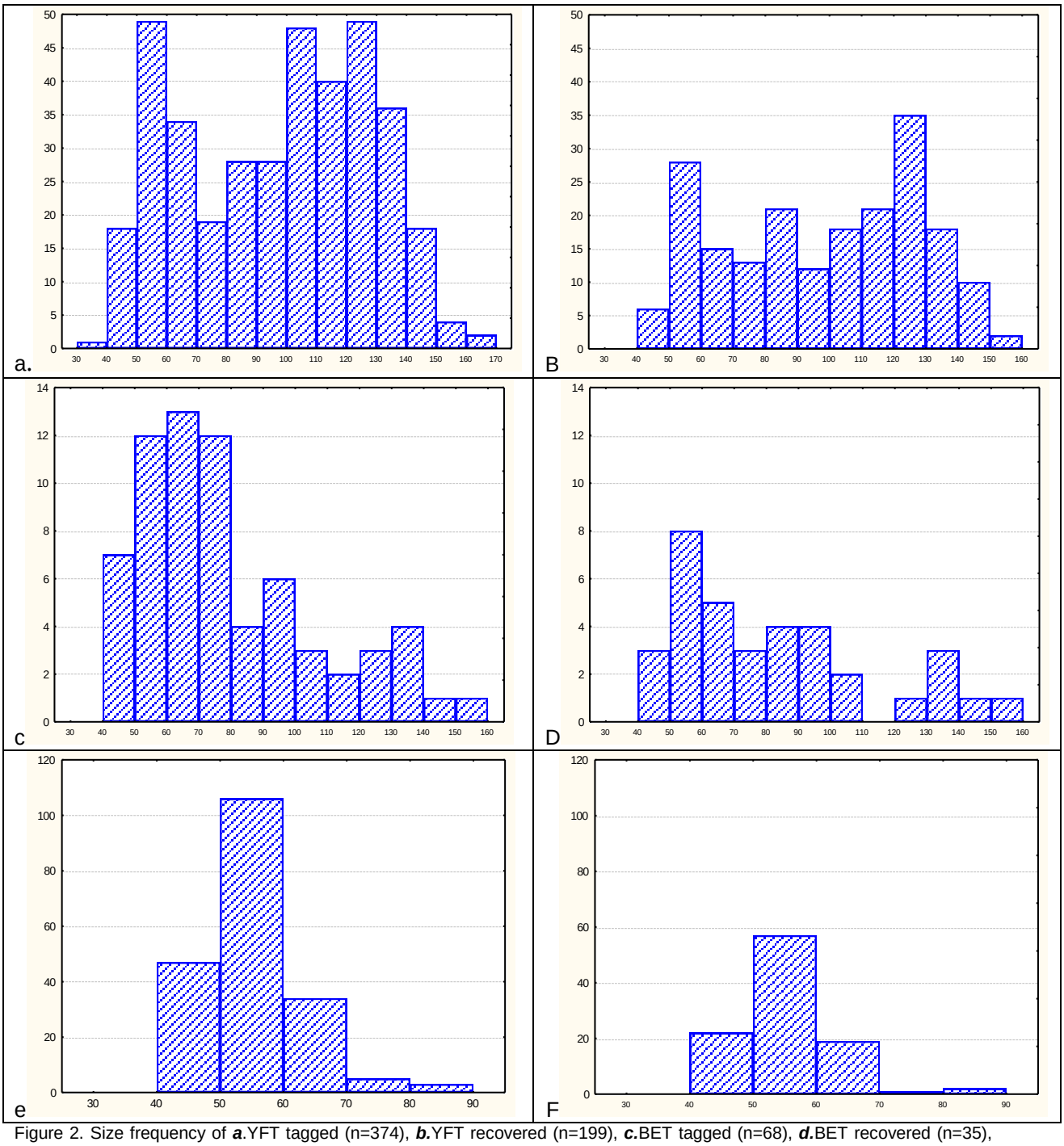
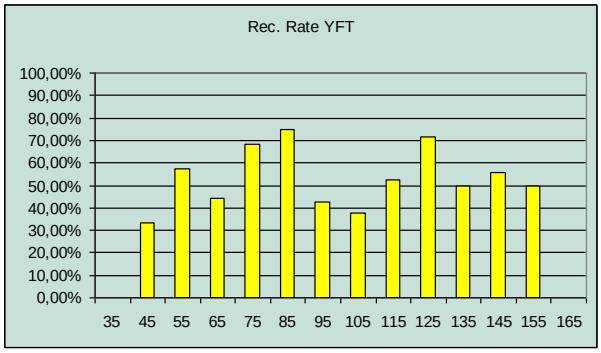
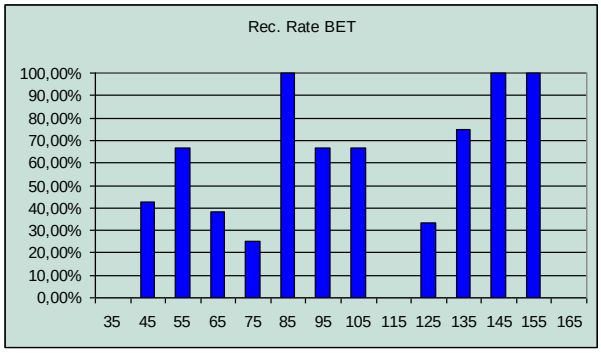


Figure 2. Size frequency of ***a***.YFT tagged (n=374), ***b.***YFT recovered (n=199), ***c.***BET tagged (n=68), ***d.***BET recovered (n=35), ***e.***SKJ tagged (n=195) and ***f.***SKJ recovered (n=101). (step=10cm)

a.



b.



c.

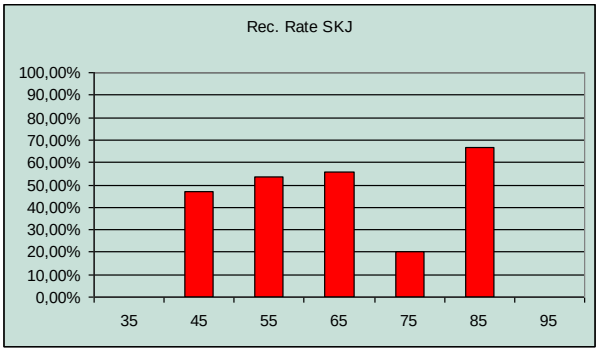


Figure 3. Recovery rates for 5cm size classes for ***a.***YFT, ***b.***BET and ***c.***SKJ.

For the moment, 83,3% of the recoveries occurred in Seychelles; 21,5% in the cannery IOT and 61,8% in the port of Victoria by stevedores. The cannery in Seychelles is processing more small fish than big ones which are essentially transhipped to be process in others countries. Unfortunately, very few recoveries were reported from other countries than Seychelles and only a few fish were recovered in Madagascar, Mombasa.

The size frequency of the YFT recovered in the cannery IOT is presented in figure 5. It appears in those figures that mostly the big fish are recovered by the stevedores in the port of Victoria, and very few are recovered in the cannery in Seychelles. Most of the big fish are transhipped in other countries were they never are reported as tagged fish recovered. This is also confirmed by table 2 where we can see that the best proportion for fish recovered in IOT are for SKJ, the main species process in IOT.

Table 2. Recovery per place for YFT, BET and SKJ.

	YFT rec.	YFT Rec. Rate	BET rec.	BET Rec. Rate	SKJ rec.	SKJ Rec. Rate
Antsiranana	11	5,53%	2	5,71%	7	6,93%
Mombasa	25	12,56%	6	17,14%	5	4,95%
IOT	34	17,09%	7	20,00%	31	30,69%
Port Victoria	129	64,82%	20	57,14%	58	57,43%
Total	**199**	**100,00%**	**35**	**100,00%**	**101**	**100,00%**

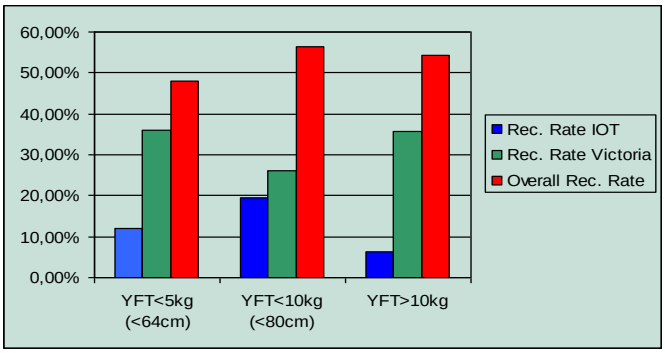


Figure 4. Recovery rate of YFT in port Victoria, IOT and Seychelles.

3. Improvements.

Taking into account the low recovery rate for a tag seeding experiment, the publicity campaign needs to be increase. The first and main target of this publicity campaign is Seychelles and the stevedores in Port Victoria, as they are able to spot most of the fish during the unloading and to provide the more accurate data. This is in progress with the work of the publicity and tag recovery officer of the RTTP-IO and we can expect that the recovery rate will increase in the near future and that the quality of the data provided with the recovery will be better.