



# THE RTTP-IO AFTER THE END OF THE TAGGING OPERATIONS

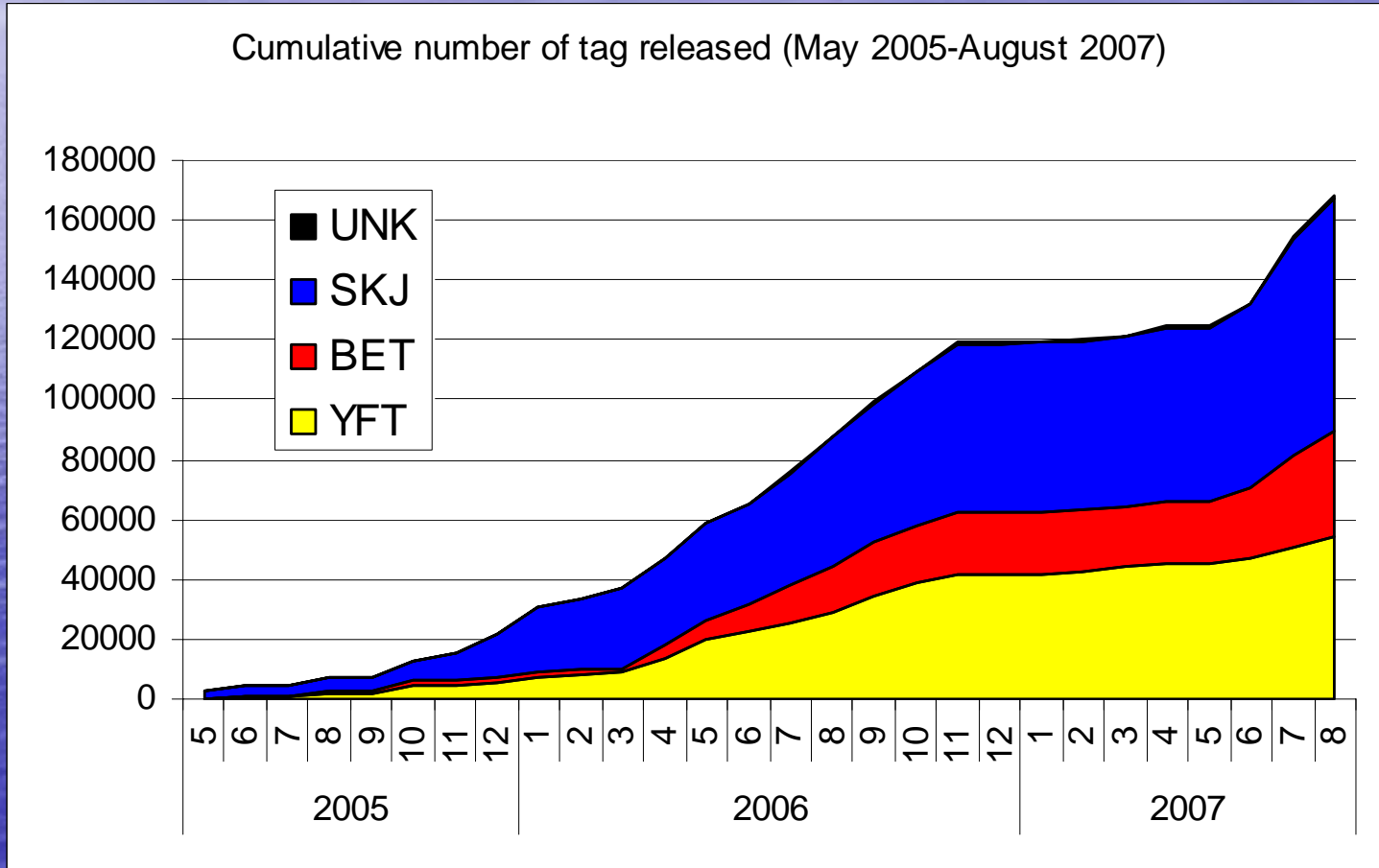
ICCS, Victoria - Seychelles  
November 7<sup>th</sup> 2007

by

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RTTP-IO Chief Coordinator



# 1. TAGGING – Overall number: 168,182

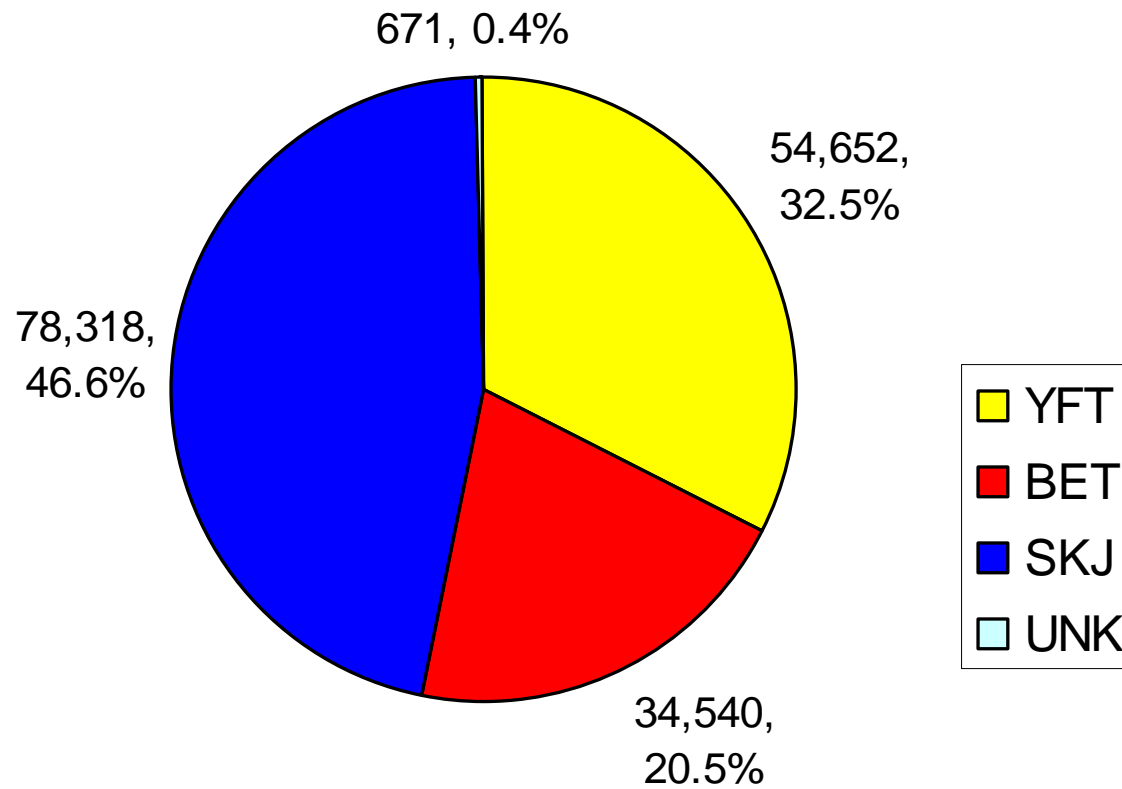


# 1. TAGGING – Distribution by species & type of tag

TYPE OF TAGGING	YFT	BET	SKJ	UNK	Total	% of total
Single yellow dart tags (ST)	41,748	24,502	67,208	438	133,891	<b>79.61</b>
Double yellow dart tags (DT)	10,665	7,521	9,609	30	27,825	<b>16.54</b>
White dart tags (OTC: OT)	2,006	2,425	1,487	25	5,943	<b>3.53</b>
White dart tags (Sonic: OTS)	14	12	14	0	40	<b>0.02</b>
Red dart tags (Archival: ET)	218	67	0	0	285	<b>0.17</b>
Unknown (UNK)	1	13	0	183	197	<b>0.12</b>
<b>Total</b>	<b>54,652</b>	<b>34,540</b>	<b>78,318</b>	<b>671</b>	<b>168,181</b>	
<i>% species</i>	<i>32.5</i>	<i>20.5</i>	<i>46.6</i>	<i>0.4</i>		

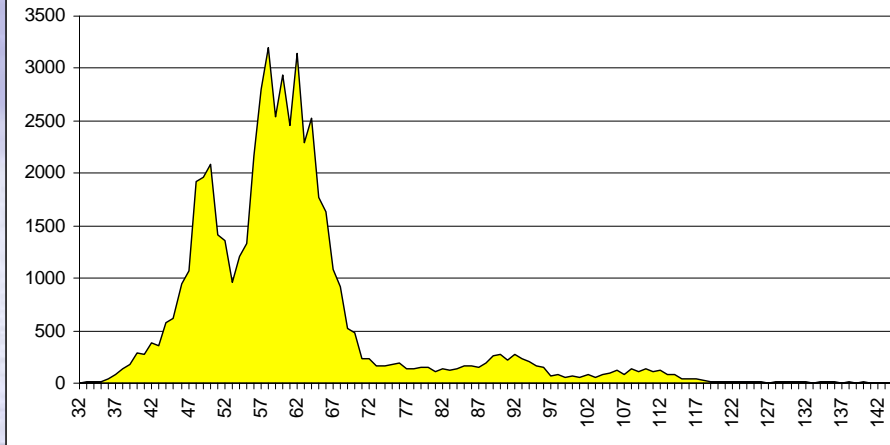
# 1. TAGGING – Species composition

Species composition of the tagged tuna

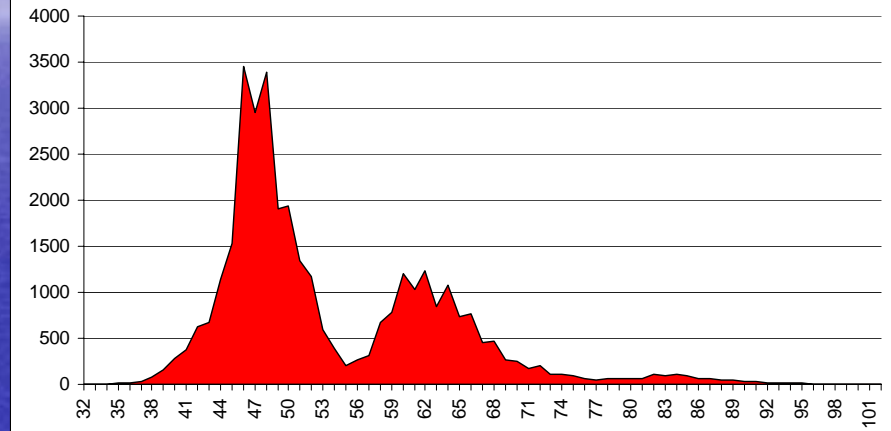


# 1. TAGGING – Size distribution

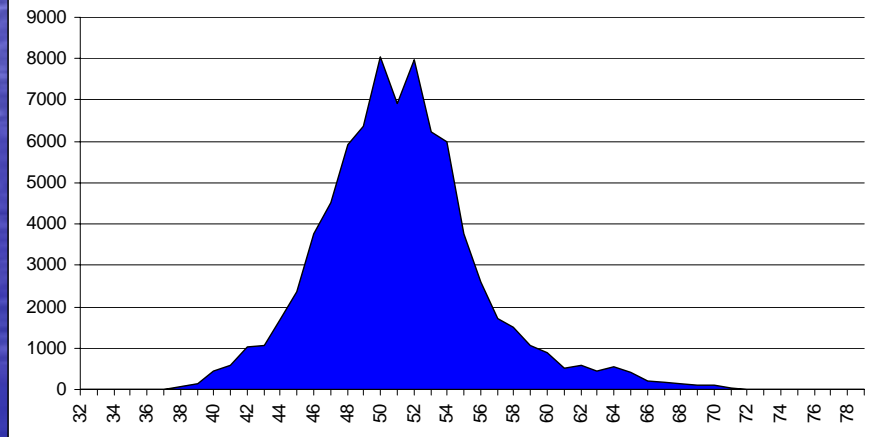
FL distribution of all tagged YFT (N = 54,390)



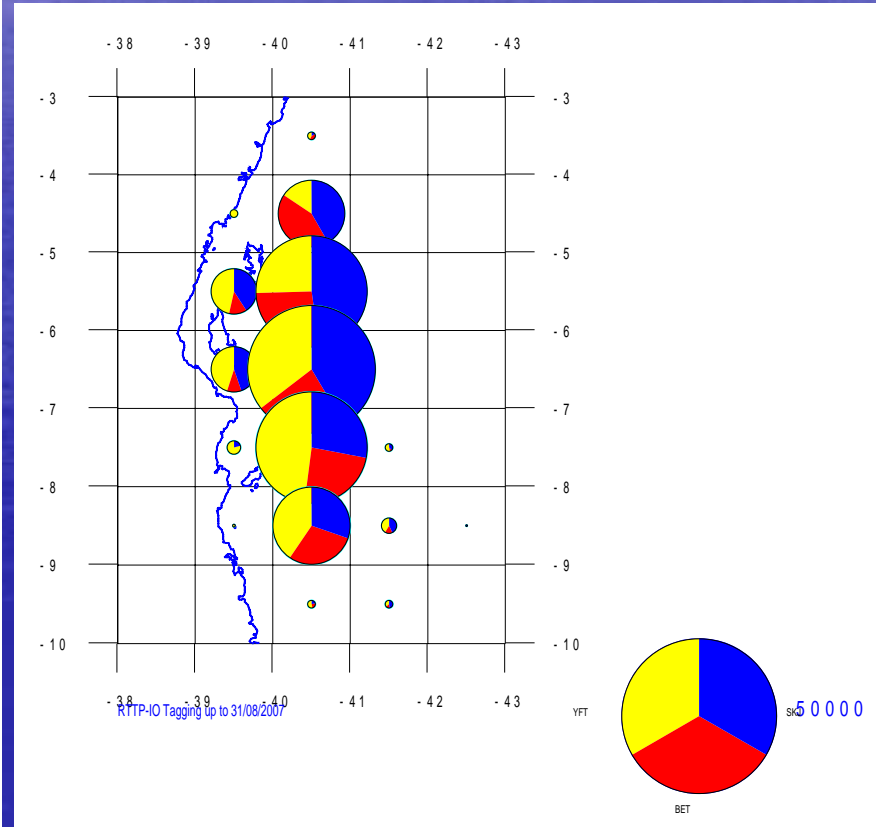
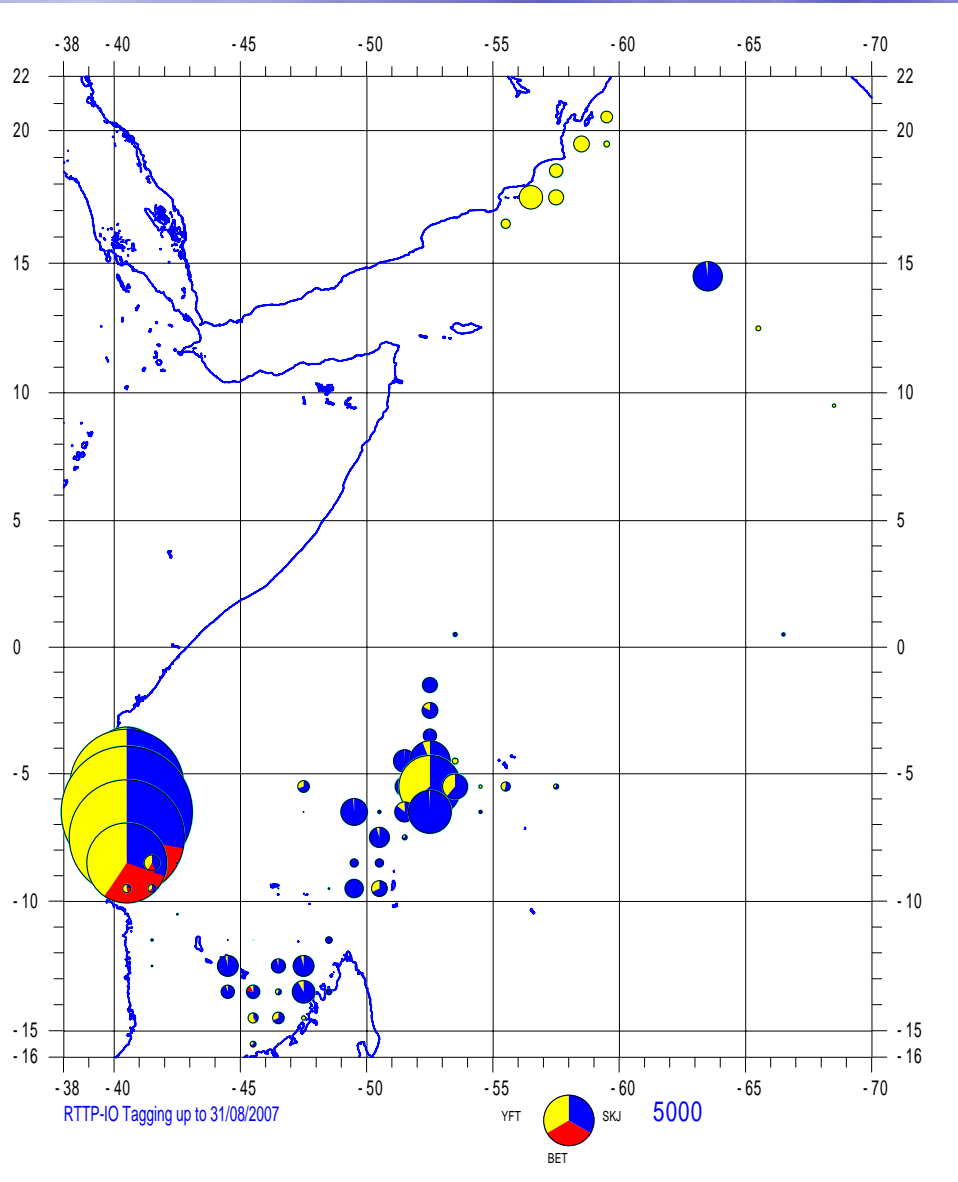
FL distribution of all tagged BET (N = 34,459)



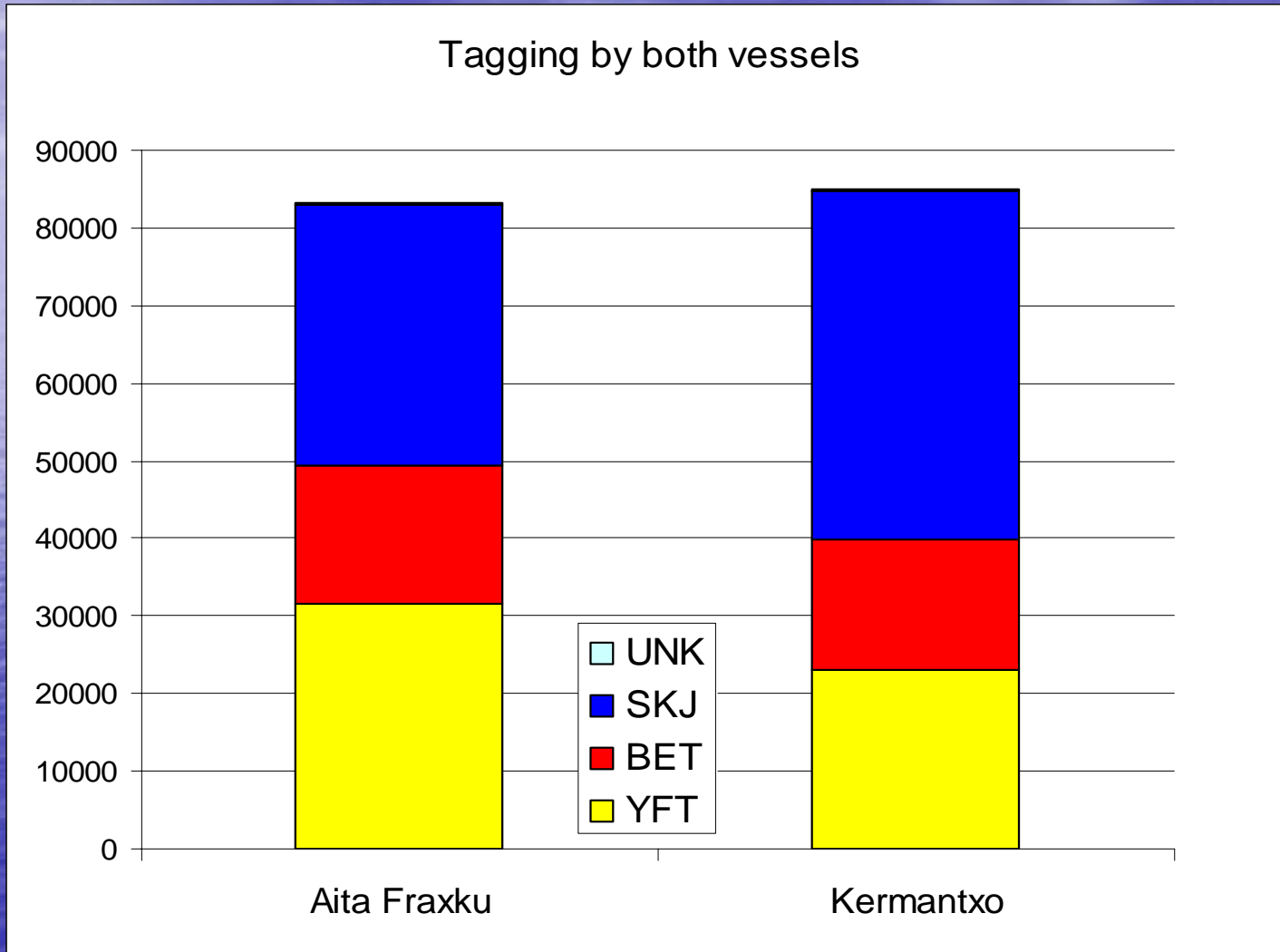
FL distribution of all tagged SKJ (N = 77,903)



# 1. TAGGING – Geographical distribution



# 1. TAGGING – Per vessel



83,177 (Y+B = 59%)

85,005 (Y+B = 47%)

# 1. TAGGING – Data quality (1)

## ➤ Species identification

- Sure: 99.3%
- Unsure: 0.3%
- Unknown: 0.4%

## ➤ Length reliability

- Good: 99.3%
- Unsure: 0.3%
- Unkown: 0.8%

## ➤ Fish reliability (state)

- Good: 97.5%
- Bleeding: 1.3%
- Damaged: 0.4%
- Dropped on deck: 0.6%
- Shark bite: 0.02%

## ➤ Tag reliability or state

- Good: 98.2%
- Badly placed: 1.2%
- Lost (overboard): 0.44%
- Rejected: 0.08%

*N.B.: The general impression is the good quality of the data. However, this is the appreciation of the taggers and not all incidents were recorded.*



# 1. TAGGING – Data quality (2)

## ➤ A limited number of taggers

- 30 different persons have tagged tuna BUT
- 12 are accounting for 82.3% of all tags (each tagged more than 6,000 tuna)
- And 5 for nearly half (49%) of all tags (each tagged more than 12,000 tuna)
- 8 taggers have only tagged 1.6% of all tags.

## ➤ Regional Tagging Technicians (RTT)

- 27 from 11 different countries have boarded the two vessels
- But only 10 have tagged (32.3% of all tags)
- Seychelles RTT (4) are accounting for 27.4% of all tags
- The tagger number one is Jude Ally a Seychellois RTT with 22,744 tags

*We have obviously improved the quality of the tagging by keeping as low as possible the number of main taggers.*

*The RTT system which represented a difficulty at this level was also turned to the advantage of the tagging quality, a constant concern of the PMU.*

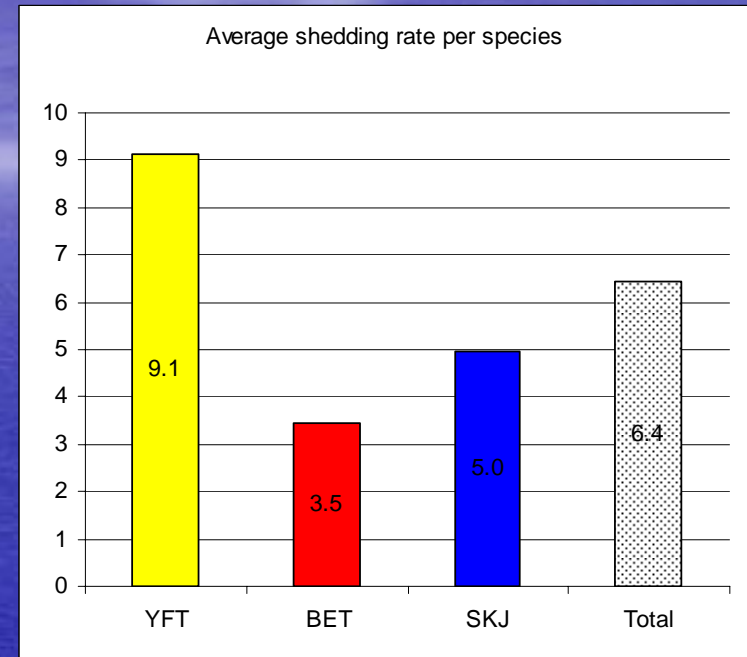
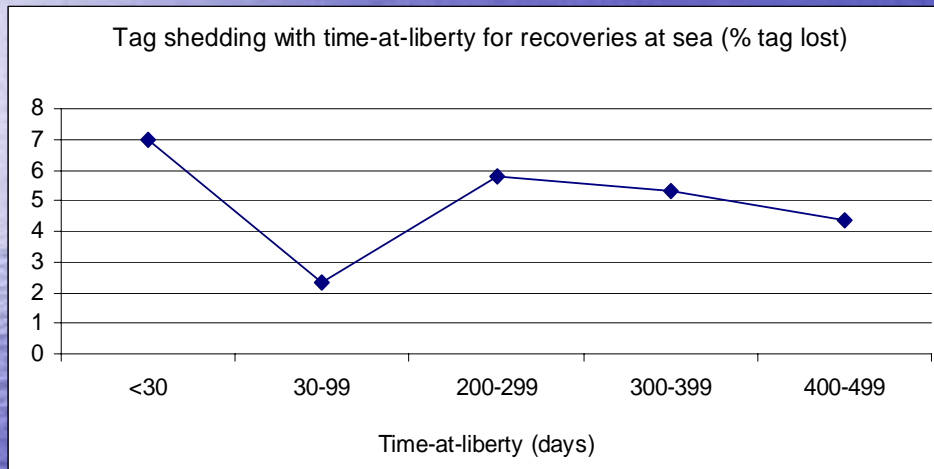
# 1. TAGGING – Data quality (3)

- Tag shedding (tags which are lost between the tagging and the report of the recovery to the RTTP-IO)
  - 27,827 tuna have received two tags (one on each side = DT)
  - They are accounting for 16.5% of all tagged tuna
  - So far 3,260 DT have been recovered or 11.7%
  - Of those: 121 have lost their 1<sup>st</sup> tag and 89 the 2<sup>nd</sup>.

# 1. TAGGING – Data quality (4)

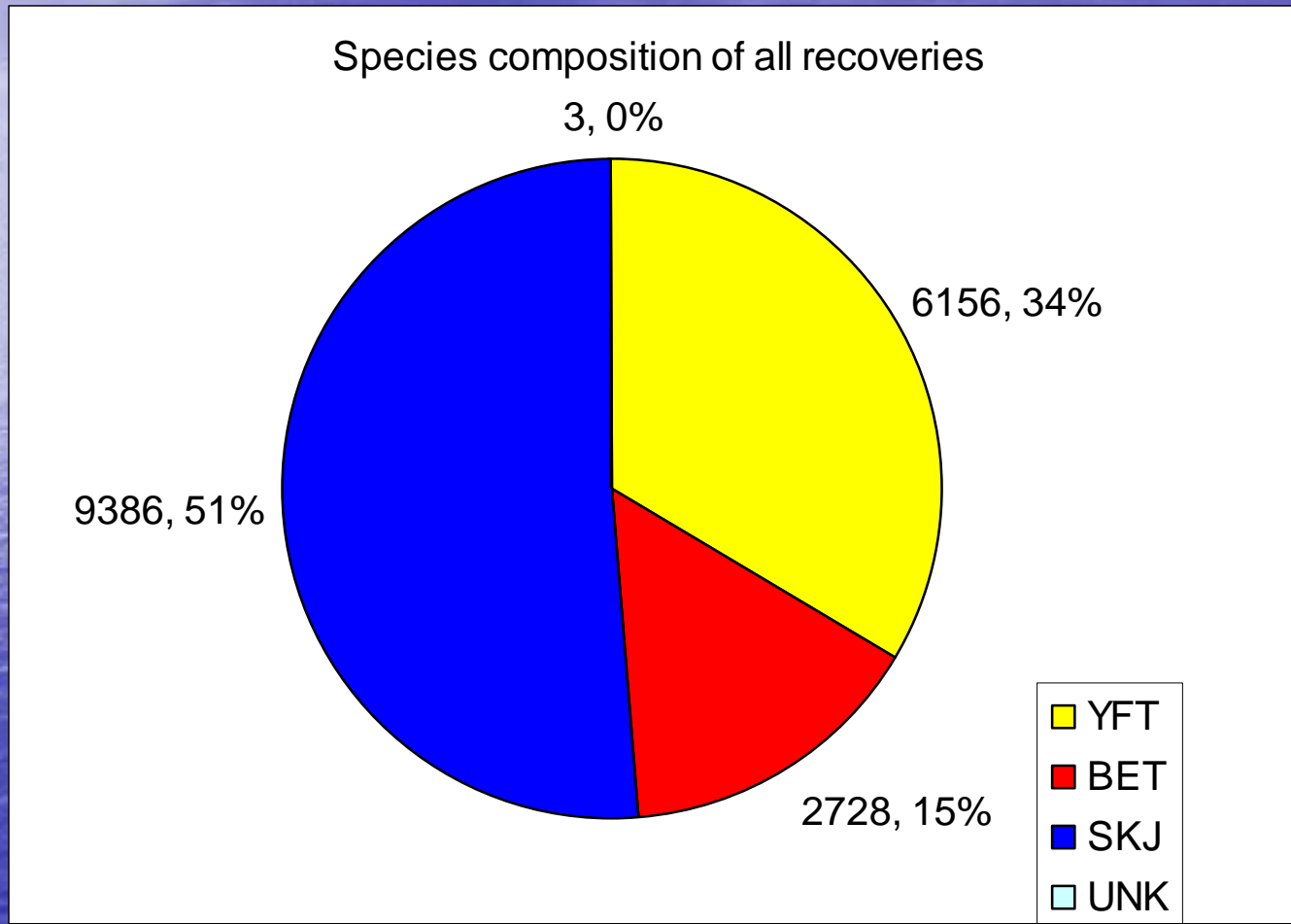
## ➤ Tag shedding

- The overall shedding rate is reasonable;
- It is very different between species;
- The 1<sup>st</sup> tag is lost more often than the 2<sup>nd</sup>;
- Tag shedding is higher during the first month.

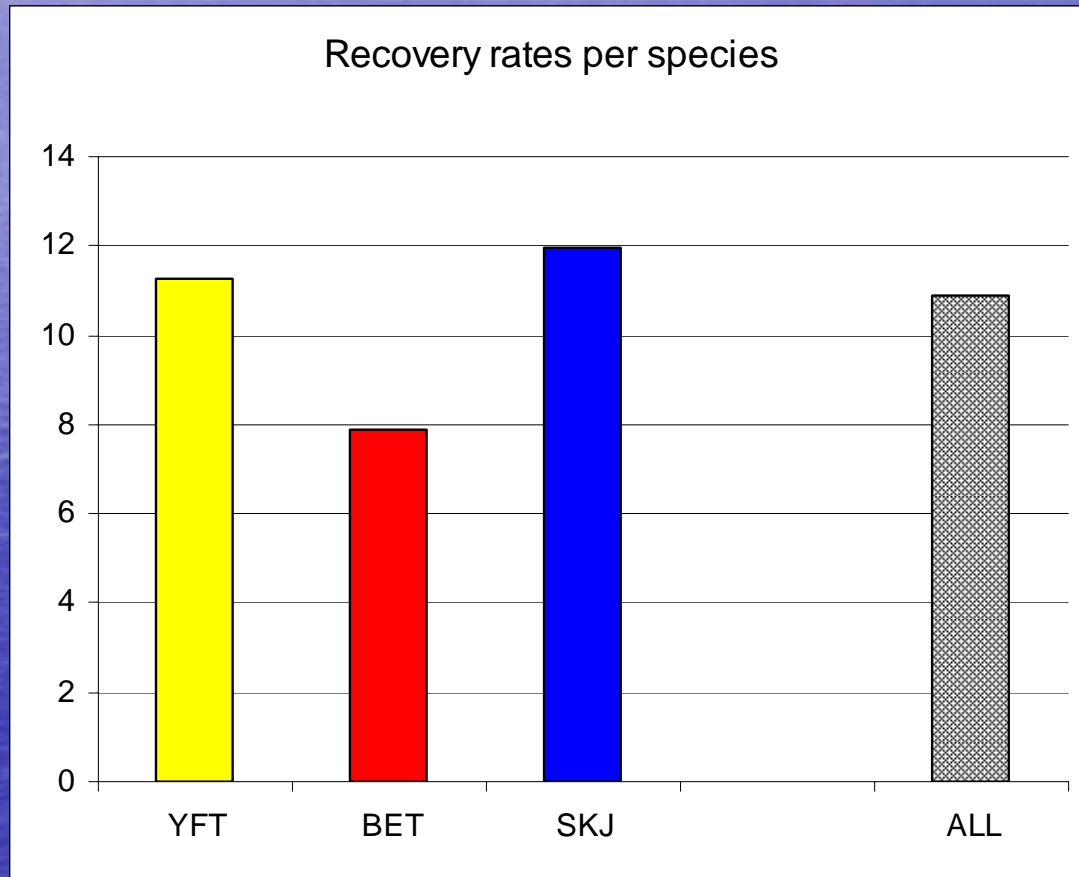


Time-at-Liberty	<30	30-99	200-299	300-399	400-499	>499	<i>All DT recoveries</i>			
							YFT	BET	SKJ	<i>All</i>
1st tag lost	5	0	5	2	0	0	72	12	36	<b>121</b>
2nd tag lost	2	4	9	5	1	0	53	11	25	<b>89</b>
One tag lost	7	4	14	7	1	0	125	23	61	<b>210</b>
Total DT recoveries	100	172	242	132	23	4	1368	666	1226	<b>3260</b>
<b>Tag shedding</b>	<b>7.0</b>	<b>2.3</b>	<b>5.8</b>	<b>5.3</b>	<b>4.3</b>	<b>0.0</b>	<b>9.1</b>	<b>3.5</b>	<b>5.0</b>	<b>6.4</b>

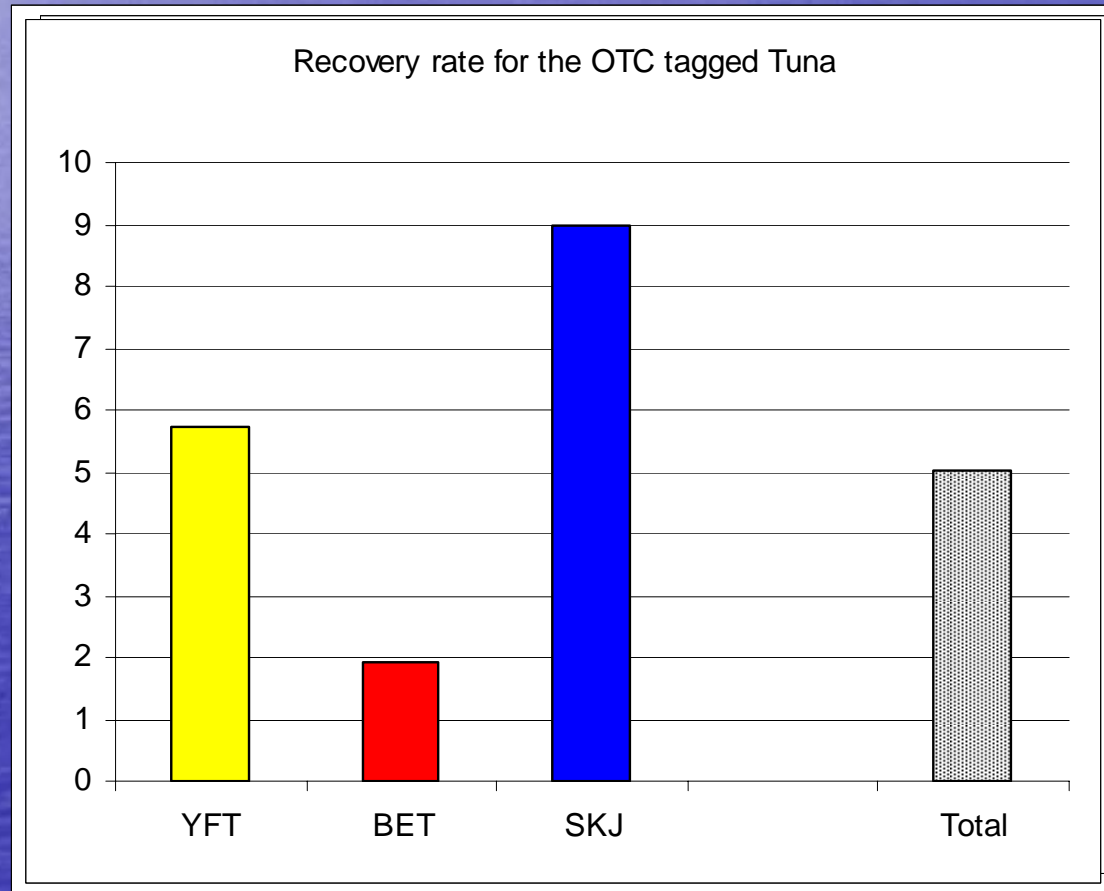
## 2. RECOVERY – Species composition of the 18,273 recoveries



## 2. RECOVERY – Recovery rates

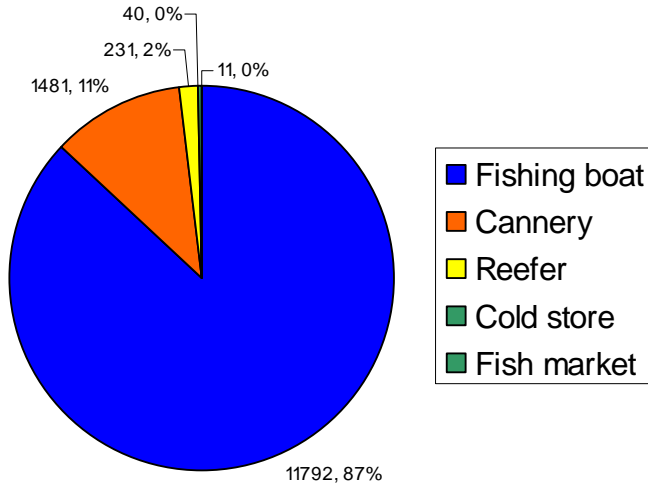


## 2. RECOVERY – Recovery rates by type of tagging

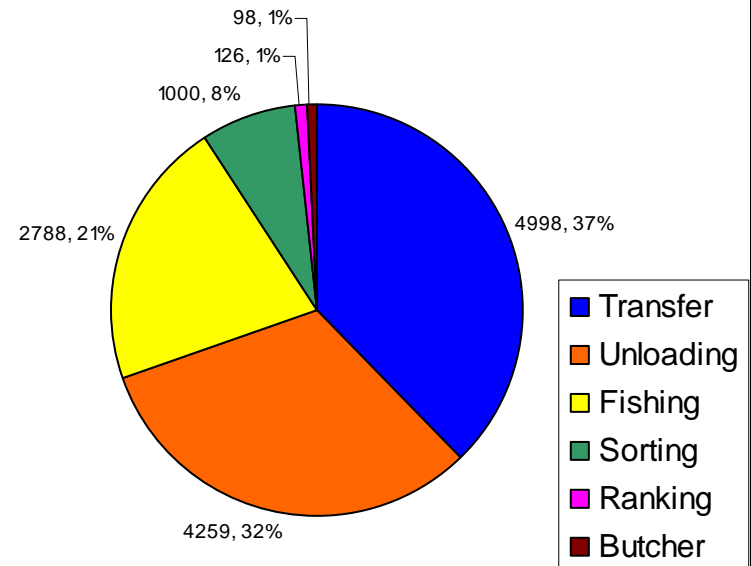


## 2. RECOVERY – The origins of the recoveries

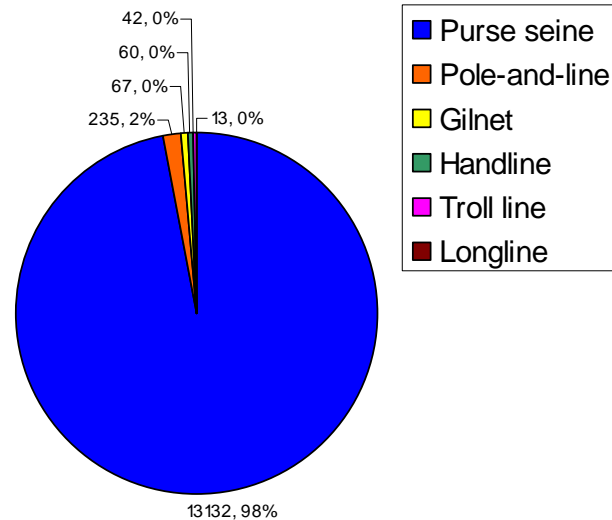
Where the recoveries were found?



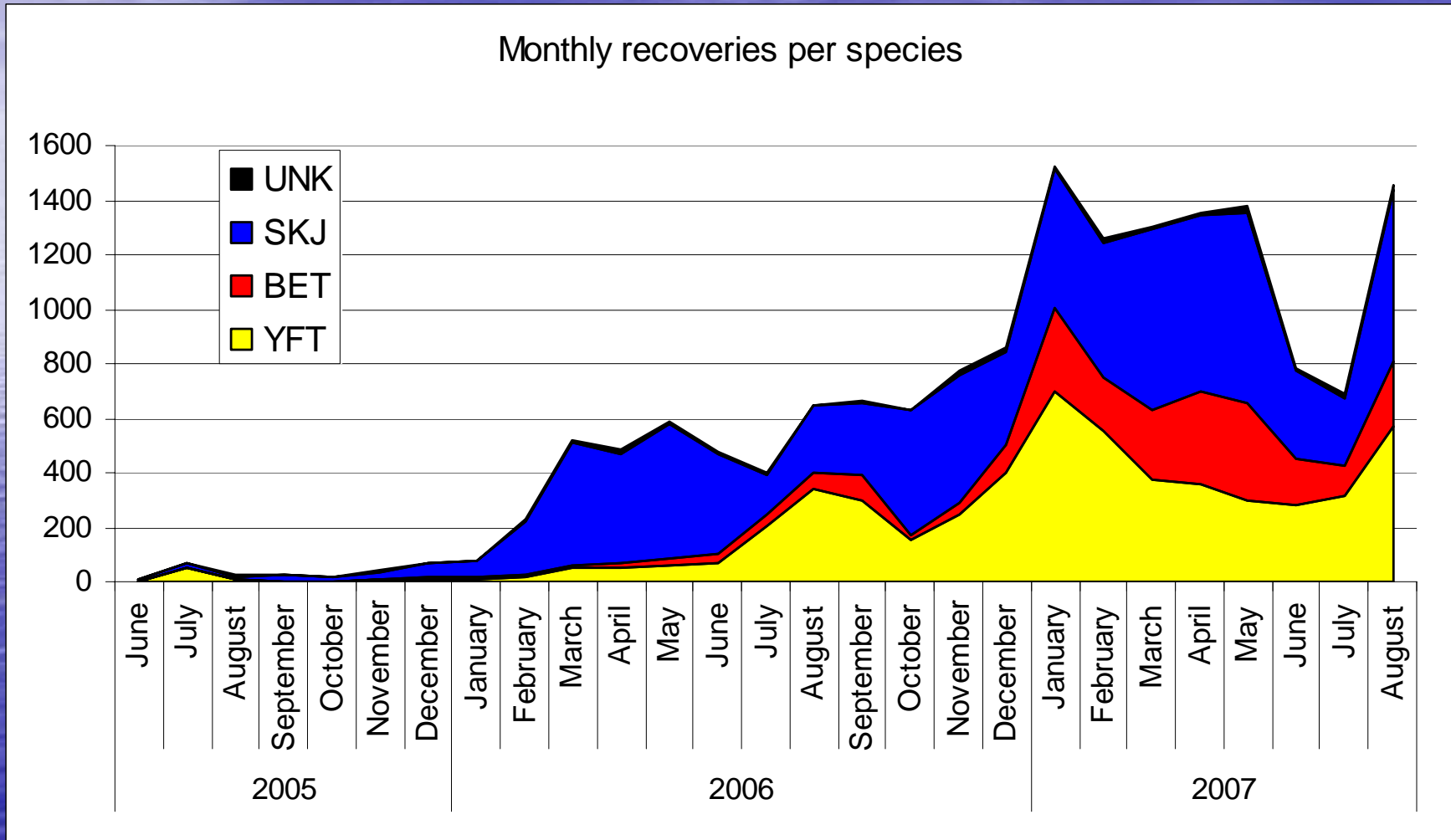
What process was on when the recoveries were found?



Recoveries per fishing gear

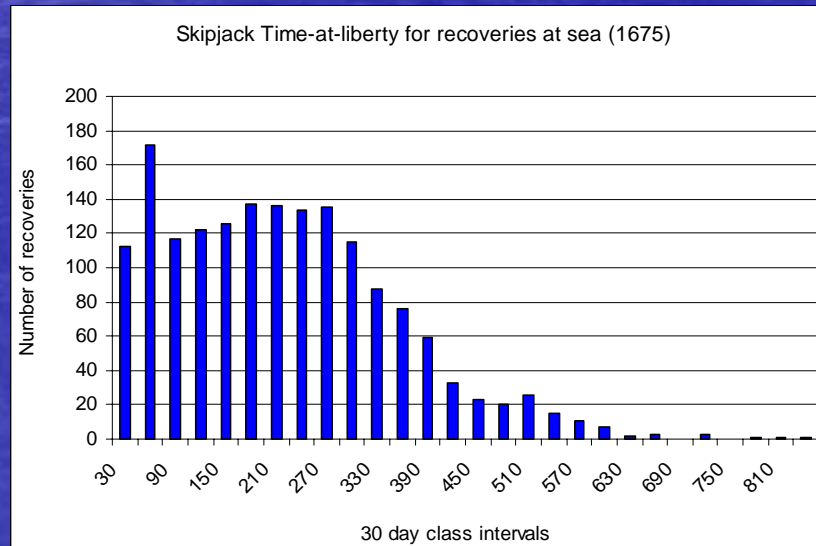
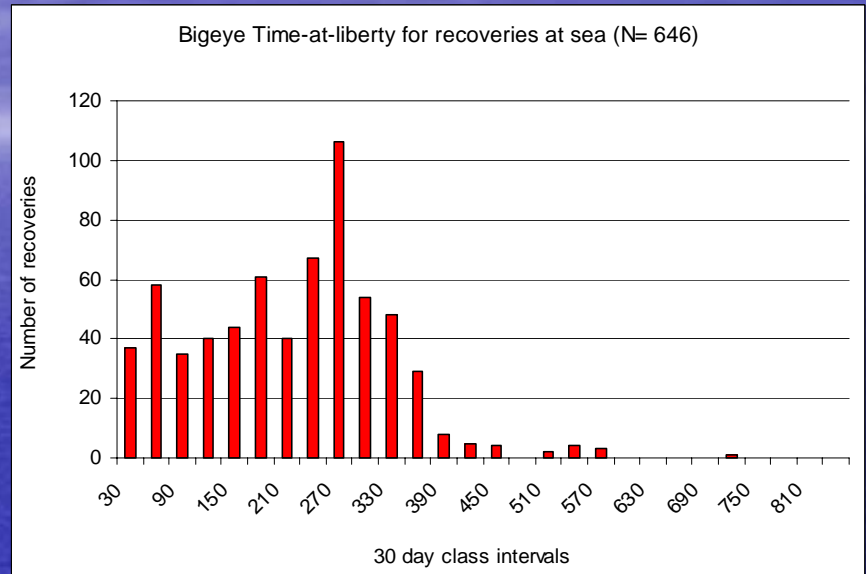
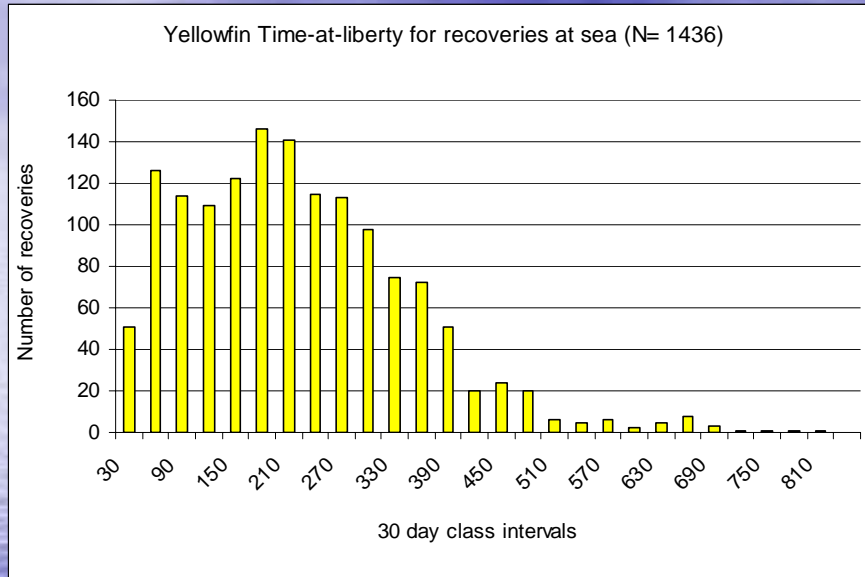


## 2. RECOVERY – Number of recoveries per month

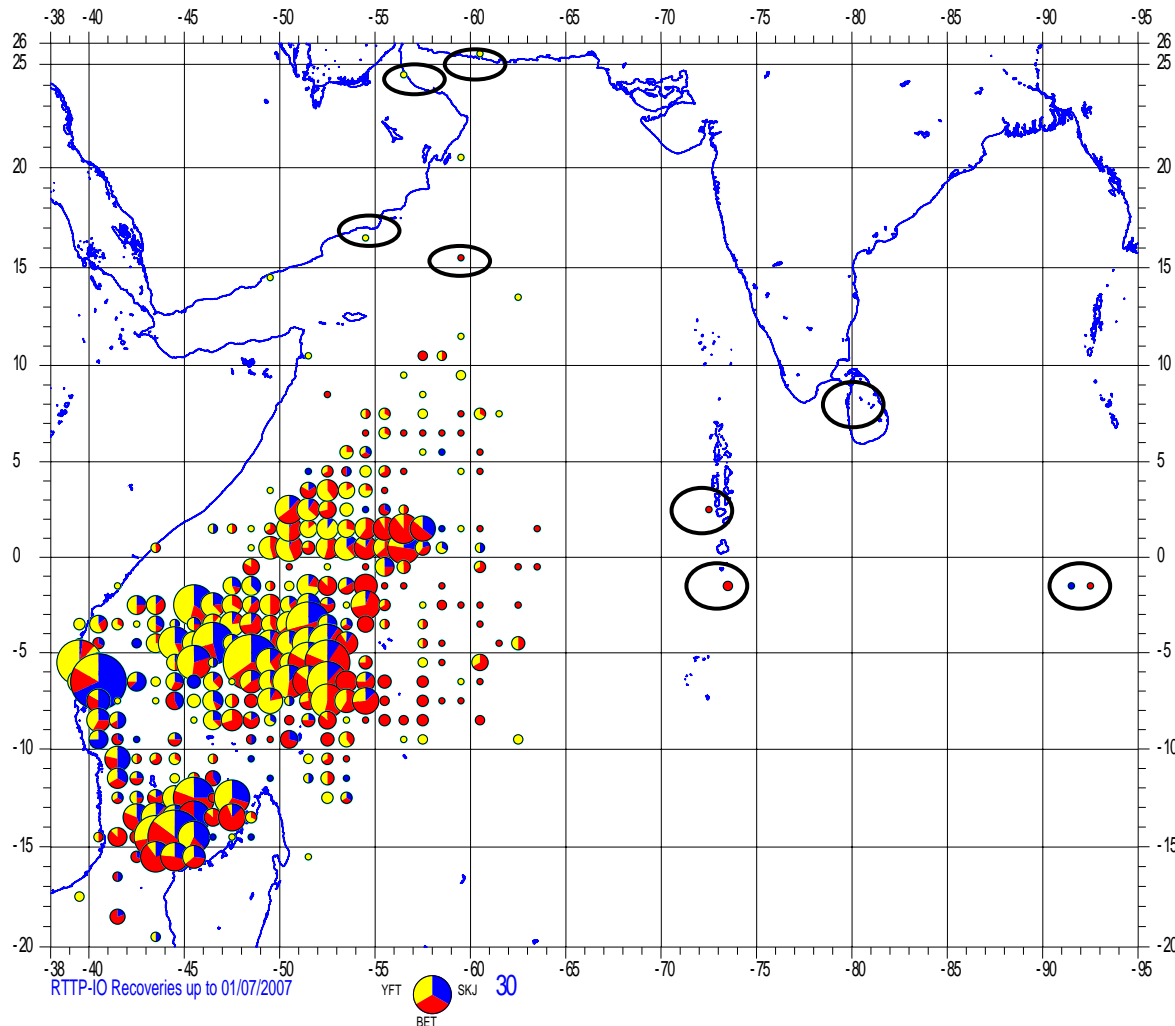




## 2. RECOVERY – Time-at-liberty for the recoveries with date of catch already known (3,546 recoveries)

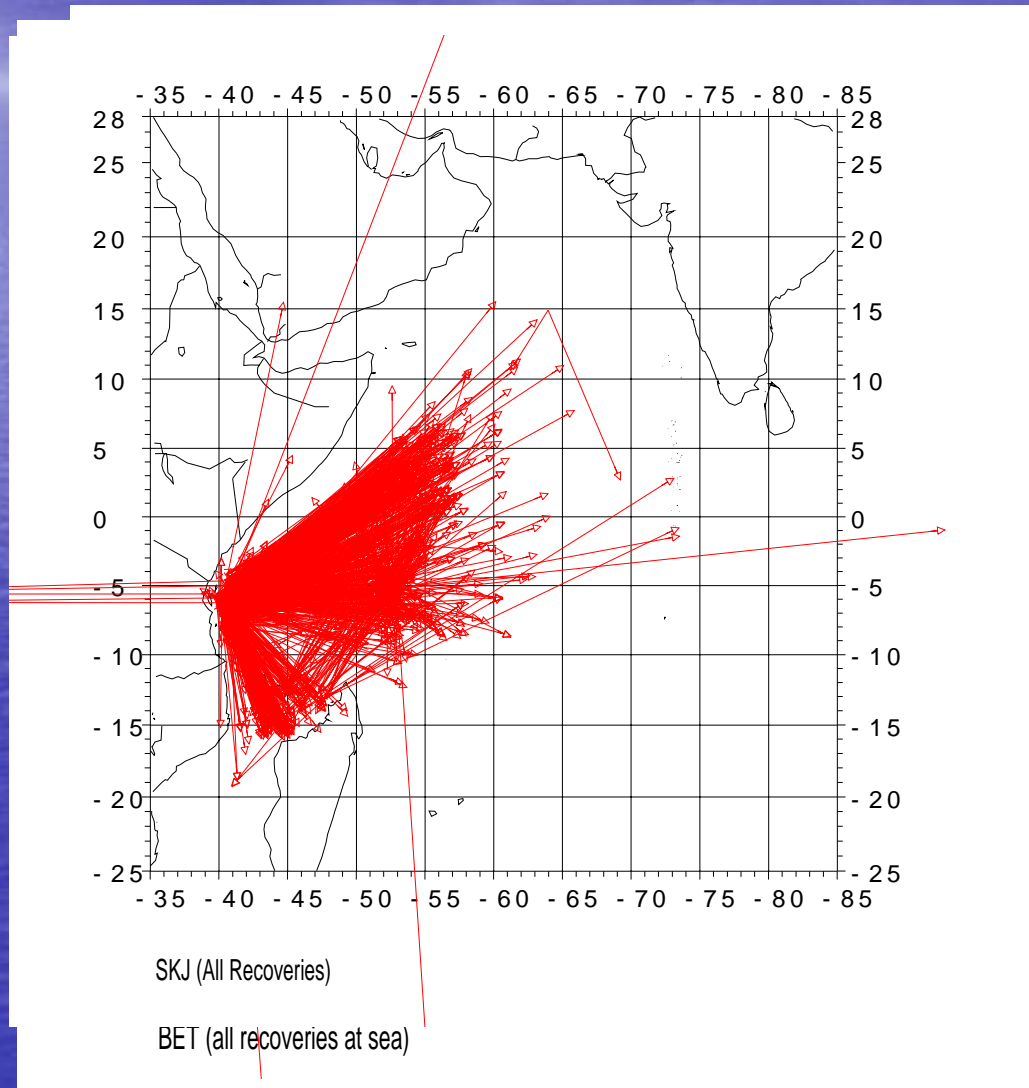


## 2. RECOVERY – Geographical distribution of a sub-sample of the recoveries (2,100) with known date of catch

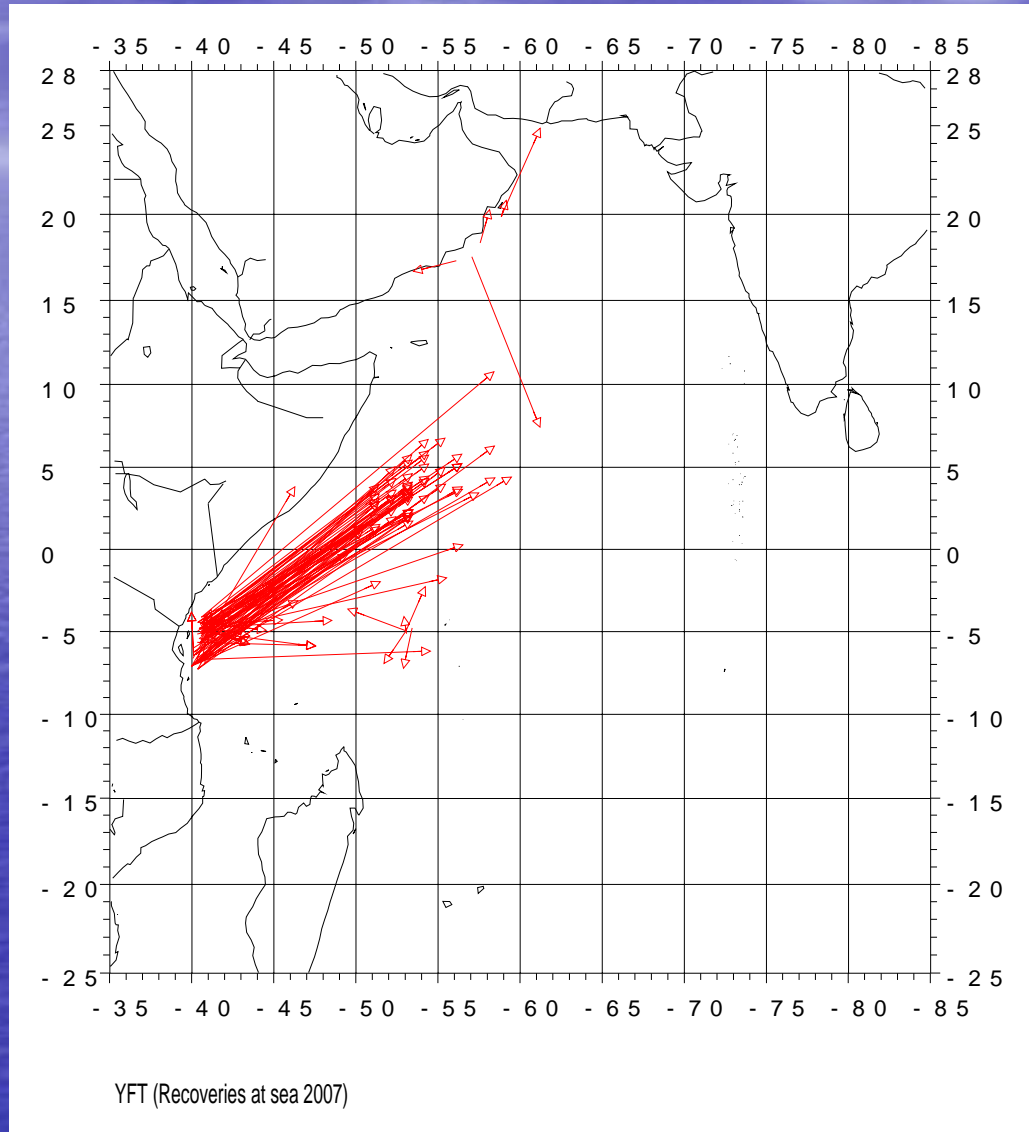


○ Some remarkable recoveries

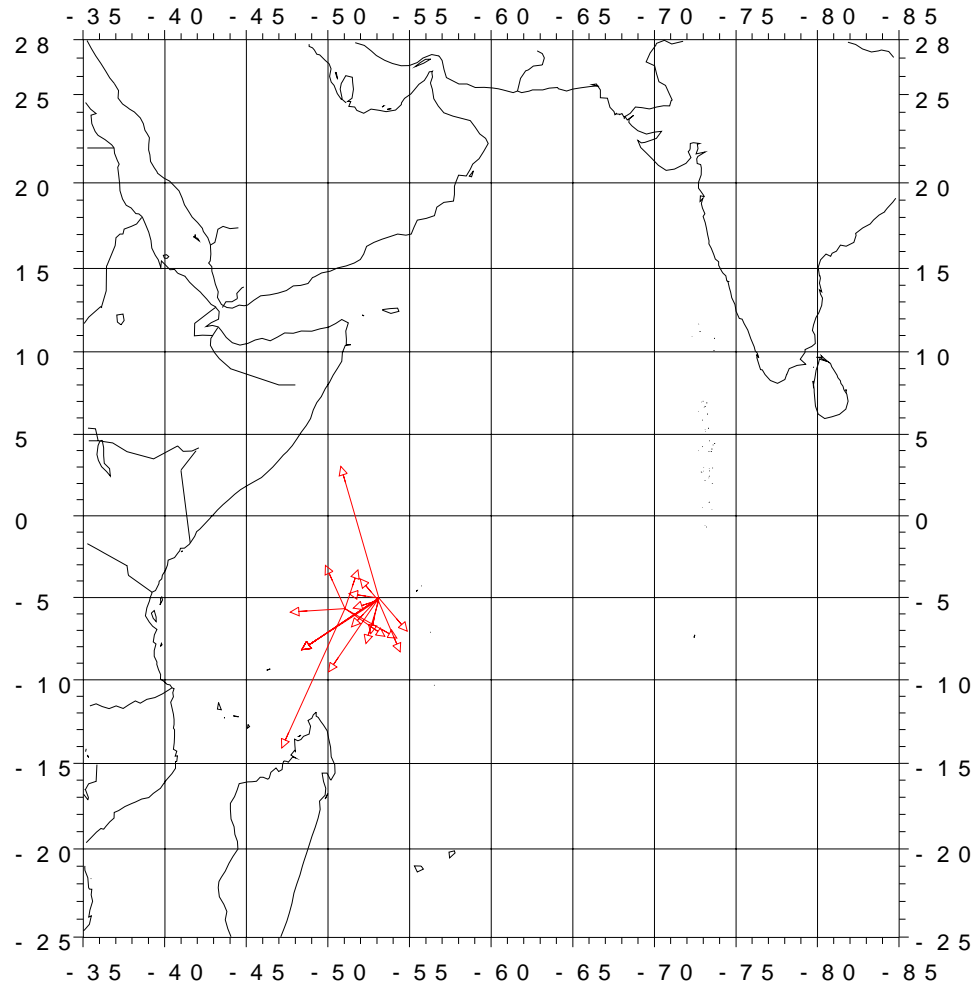
## 2. RECOVERY – Movements described by theoretical lines between tagging and recovery positions for a sub-sample of the recoveries with known date of catch



## 2. RECOVERY – YELLOWFIN tagged during different years

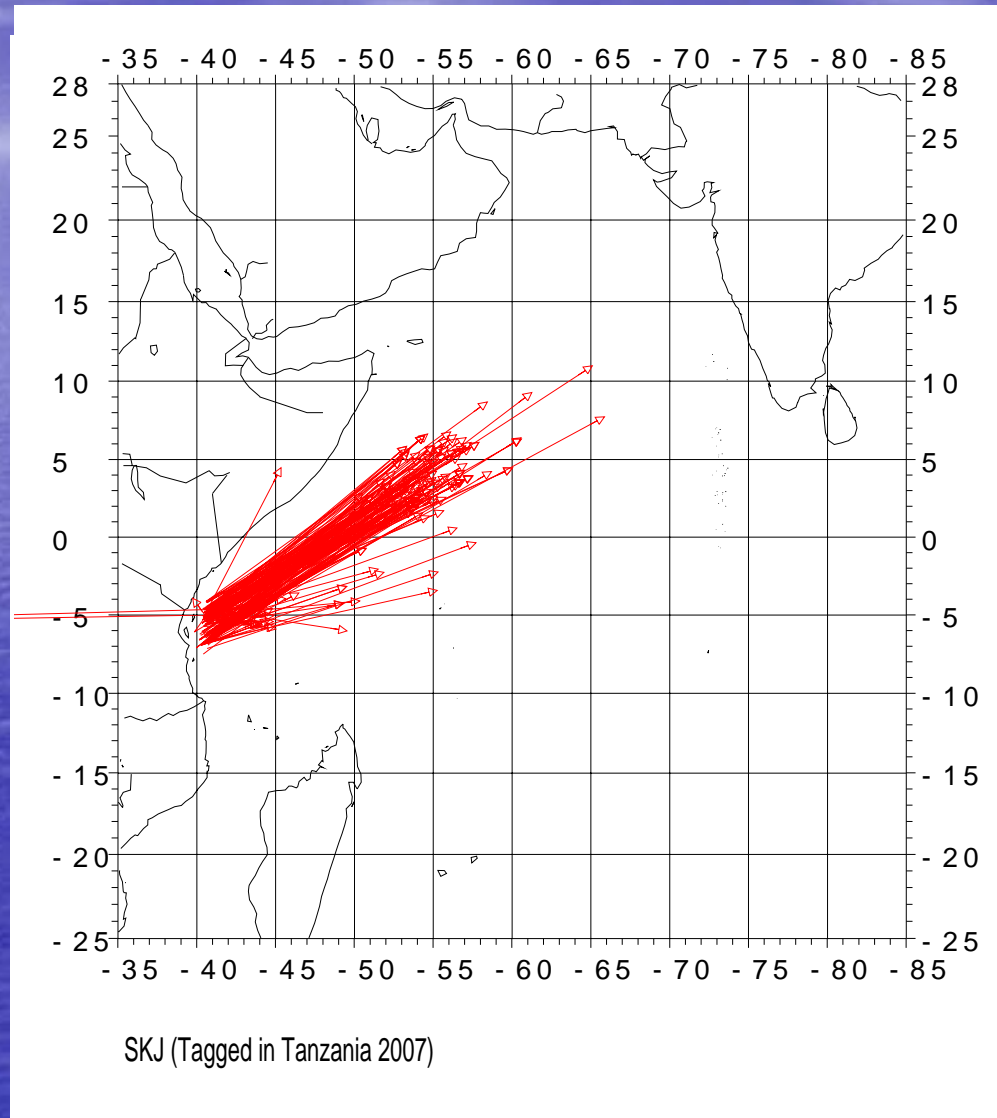


## 2. RECOVERY – SKIPJACK tagged off Seychelles



SKJ (Recoveries in Seychelles 2007)

## 2. RECOVERY – SKIPJACK tagged in Tanzania during different years



## 2. RECOVERY – In the associated schools

- In 2006 4,468 tuna were recaptured between 1 and 7 times
  - BET up to 3 times
  - YFT up to 7 times
  - SKJ up to 6 times
  - These recoveries account for 5.8% of the 79,255 tunas tagged in the Associated school in 2006
- In 2007 4,354 tuna were recaptured between 1 and 9 times
  - BET up to 4 times
  - YFT up to 7 times
  - SKJ up to 9 times
  - These recoveries account for 10% of the 43,397 tunas tagged in the Associated school in 2007.

### 3. RTTP-IO - CONCLUSIONS



- For Tagging the initial target of 80,000 have been more than doubled;
- With more than 50 % of Yellowfin and Bigeye the RTTP has succeeded in giving the priority to these two species according to the wishes of the IOTC Scientific Committee;
- The Recoveries already reach 11 % while the tagging just ended; therefore more recoveries are expected in the years to come and especially in the next 6-8 months.
- The distribution of the time-at-liberty are showing a very good mixing of the tagged tuna among the rest of the populations which is a very important feature for stock assessment.

The achievements briefly presented in this document have been made possible through the dedication, hard work and collaboration of many different partners; the first being the skippers, the crew, the Cruise Leaders, Chief Tagging Technicians and Regional Tagging Technicians.

