



# 3<sup>rd</sup> WORKSHOP ON CONNECTING THE IOTC SCIENCE AND MANAGEMENT PROCESSES (SMWS03) Conservation and Management Measures: Case study

**INDIAN OCEAN TUNA COMMISSION**  
**Secretariat**

Presented by David T. Wilson



# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

- 1) What is a CMM? Formal definition, practical function, and current Compendium of IOTC CMMs.
- 2) Case Studies:
  - How scientific advice may be used by the Commission to develop CMMs
  - Pitfalls of waiting too long or being too quick to develop a proposal for a CMM
  - Example of how an IOTC CMM was conceived, implemented, reviewed and revoked
- 3) Practical:
  - Drafting a proposal for a new or revised CMM. What makes a good versus bad proposal/CMM, using science advice

# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

CASE STUDY: Res. 10/01

## 1) Original Resolution: now superseded

- Resolution 10/01 *For the conservation and management of tropical tunas stocks in the IOTC area of competence*



## 2) Current Resolution: Active

- Resolution 12/13 *For the conservation and management of tropical tunas stocks in the IOTC area of competence*



## 3) Incoming Resolution: will supersede Res. 12/13 on 8 October 2014

- Resolution 14/02 *For the conservation and management of tropical tunas stocks in the IOTC area of competence*



# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

## CASE STUDY

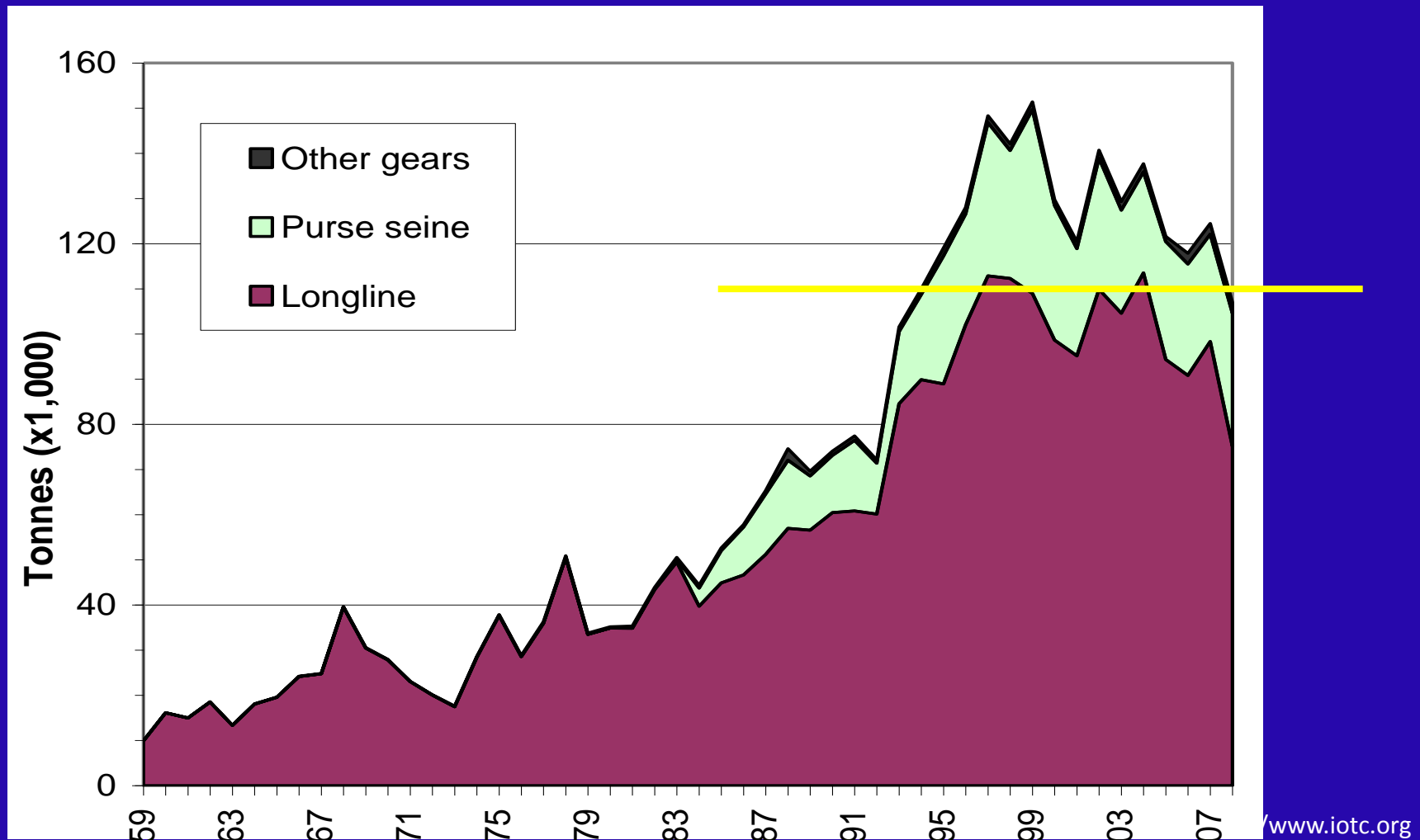
### 1) Origins:

During the 12<sup>th</sup> IOTC scientific meeting, the Scientific Committee recommended that yellowfin tuna and bigeye tuna **catches should not exceed the MSY levels** which have been estimated at:

- Bigeye tuna: 110,000 t
- Yellowfin tuna: 300,000 t

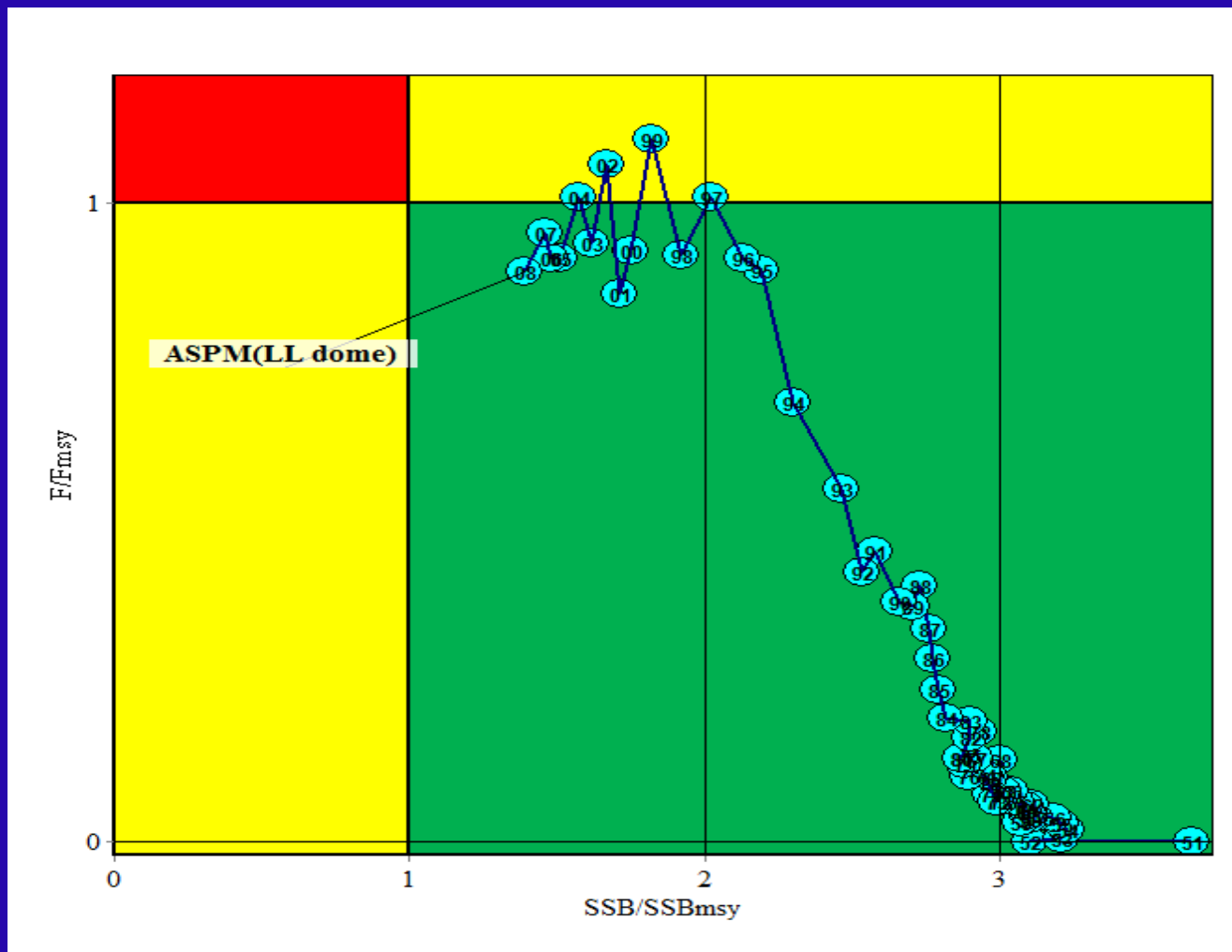
## CONSERVATION AND MANAGEMENT MEASURES (CMMs)

Bigeye tuna: Annual catches (thousand of metric tonnes) by gear



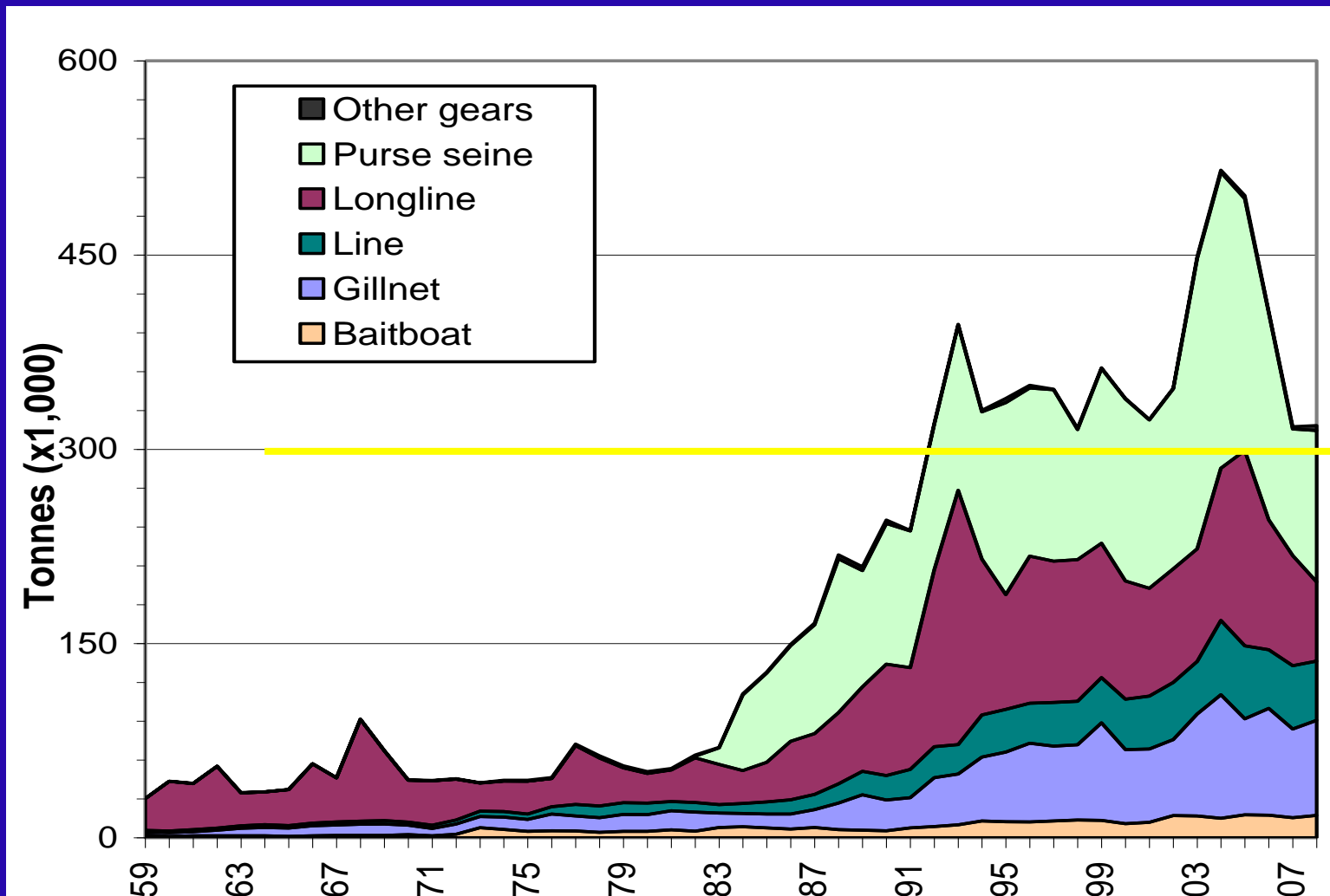
# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

Bigeye tuna: Kobe plot



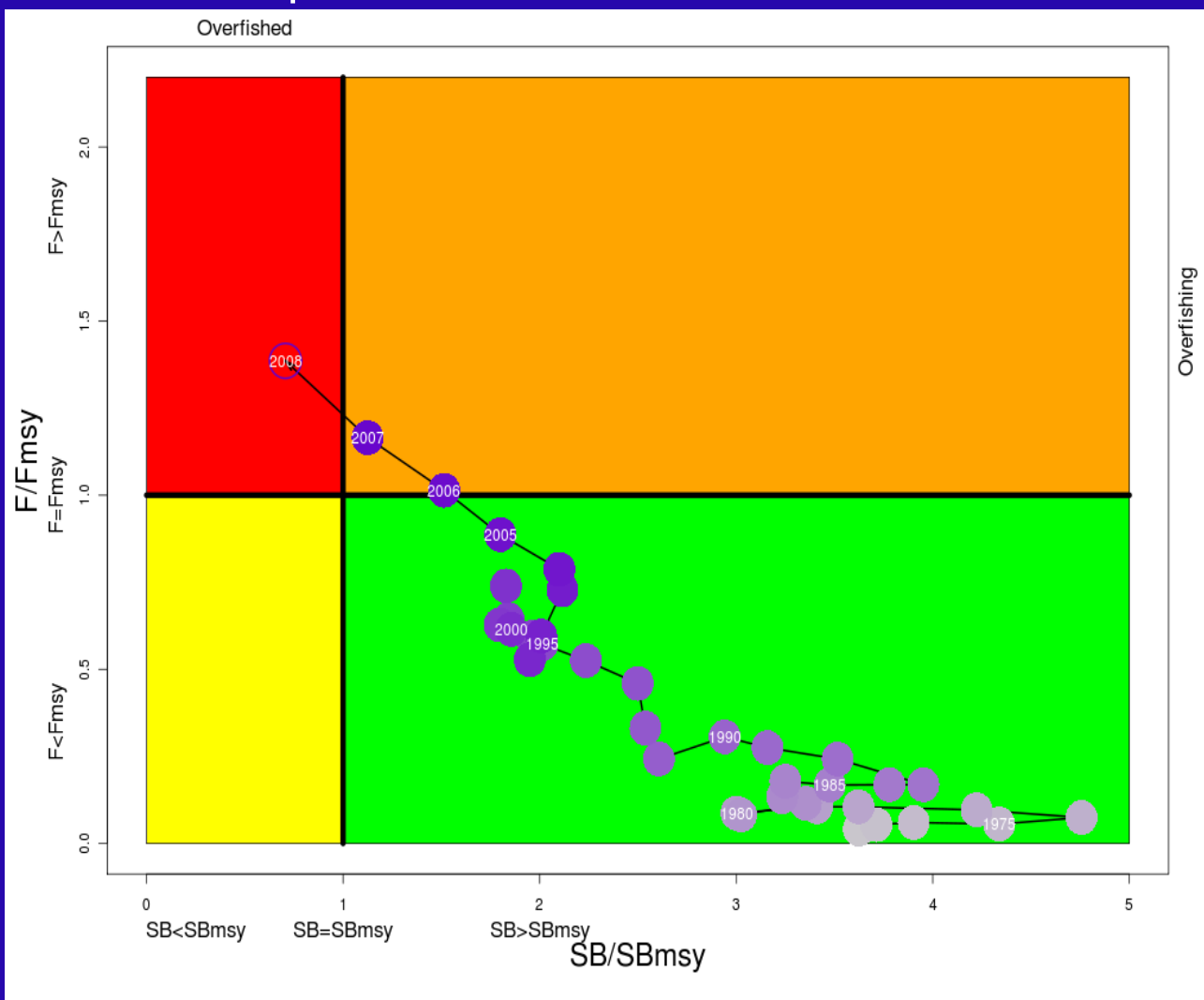
# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

Yellowfin tuna: Annual catches (thousand of metric tonnes) by gear



# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

## Yellowfin tuna: Kobe plot

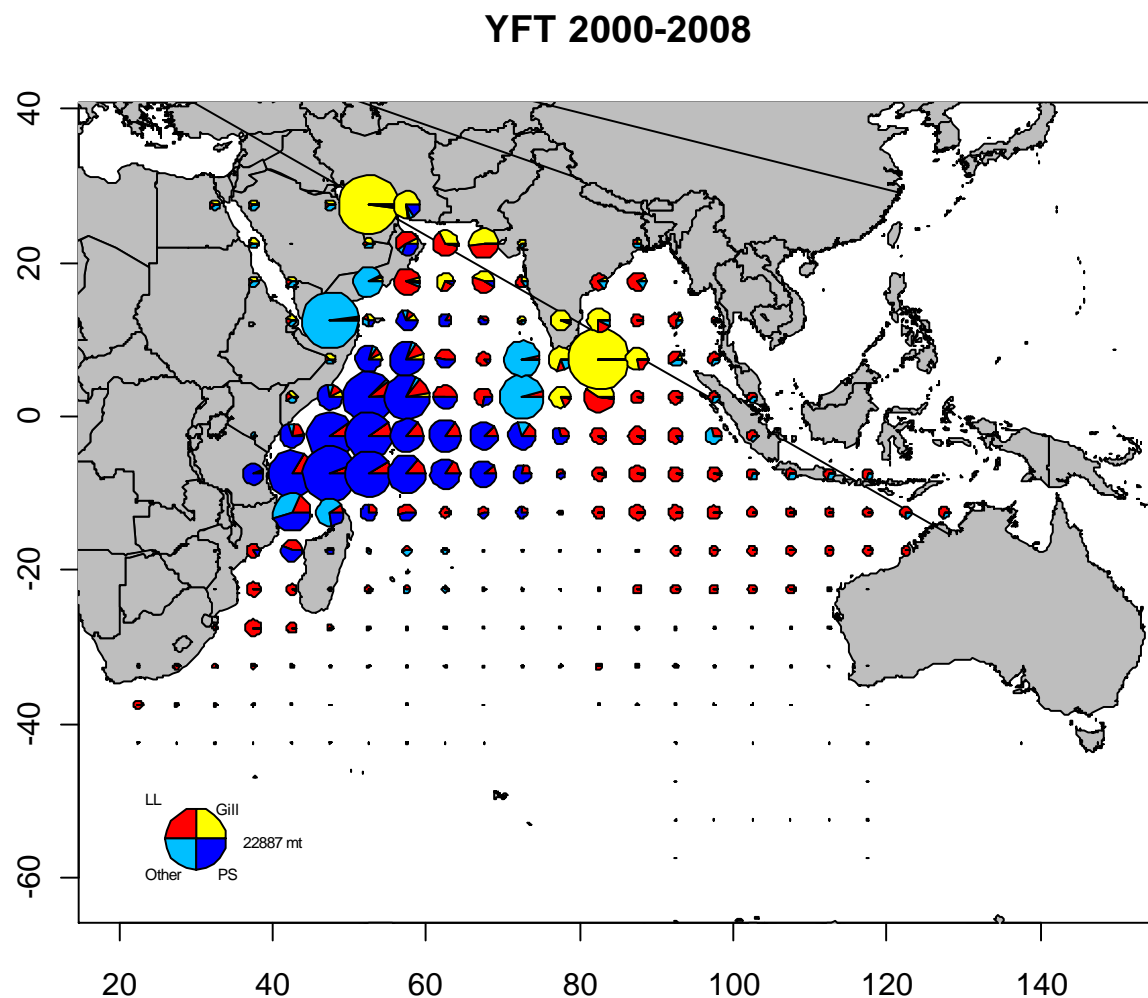




# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

Yellowfin tuna:  
Location and size of  
catches by gear

(Source: IOTC-2009-  
SC12-R)



## CONSERVATION AND MANAGEMENT MEASURES (CMMs)

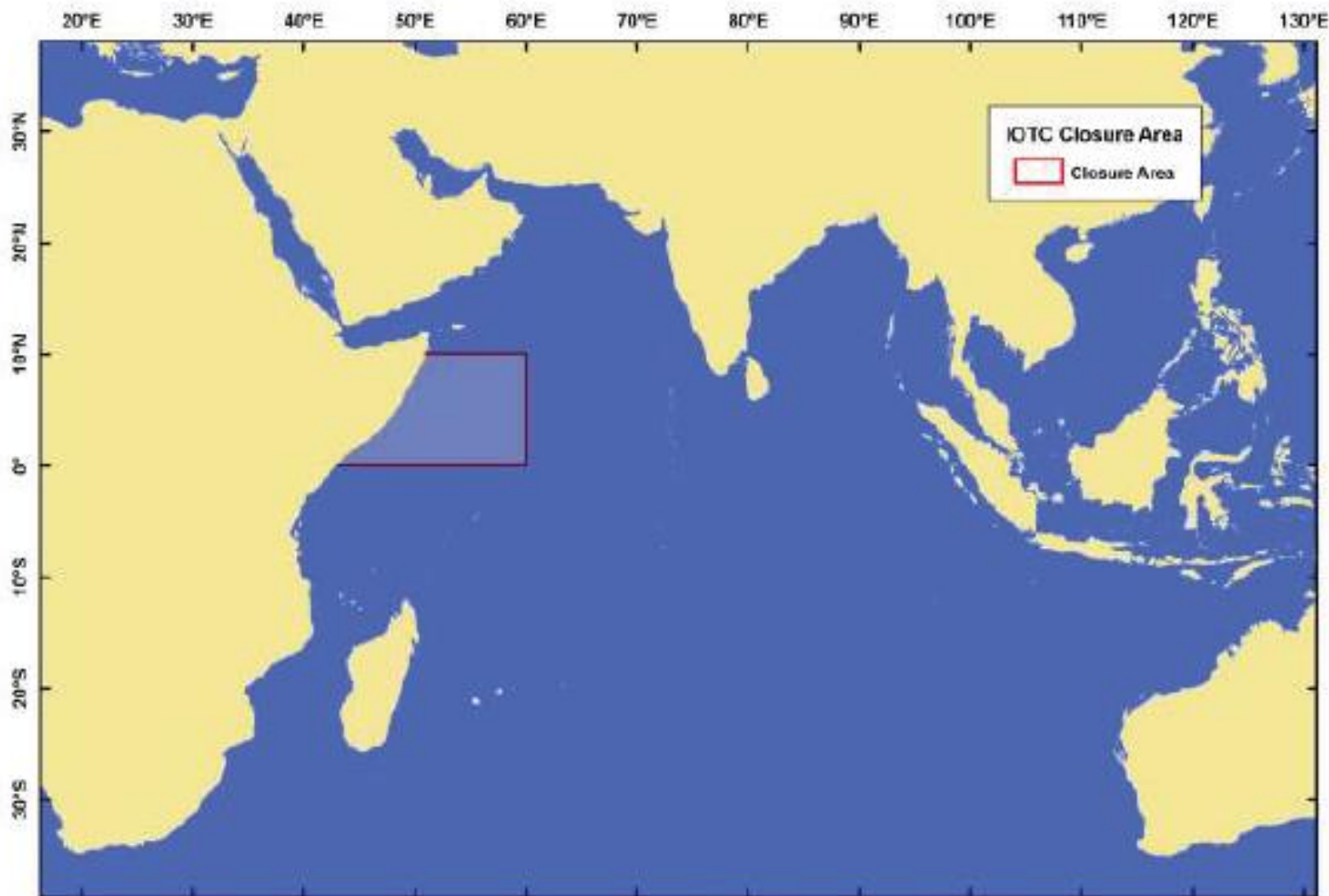
Res. 10/01, para 2: (superseded)

2. With the view to decreasing the pressure on the main targeted stocks and in particular on the yellowfin tuna and bigeye tuna in the IOTC area of competence for the years 2011 and 2012, the area defined by the following coordinates (**Annex I**) will be closed for **longline vessels in each year from 0000 hours on 1 February to 2400 hours on 1 March**, and for **purse seine vessels in each year from 0000 hours on 1 November to 2400 hours on 1 December**:

- 0 ° - 10° North
- 40° and 60° East

# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

## ANNEX I





# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

## REVIEW

The IOTC Scientific Committee will provide at its 2011 and 2012 [subsequently 2013 added] Plenary sessions:

- a) An evaluation of the closure area, specifying in its advice if a modification is necessary, its basic scientific rationale with an assessment of the impact of such a closure on the tropical tuna stocks, notably yellowfin tuna and bigeye tuna;
- b) An evaluation of the closure time periods, specifying in its advice if a modification is necessary, its basic scientific rationale with an assessment of the impact of such a closure on the tropical tuna stocks, notably yellowfin tuna and bigeye tuna



# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

REVIEW: SC Advice

Paper IOTC–2013–SC16–INF11, provided an evaluation of the IOTC time-area closure.

It estimated what the maximum potential loss of catches would be under **different scenarios of time-area closure**, as estimated from the catch statistics of the IOTC.

**Finding:** Both the longline and purse seine effort had already been entirely redistributed to other areas.



# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

## REVIEW: SC Advice

The results obtained from the study were similar to the analysis carried out for the SC in 2010 and 2011 = **catch reduction expected from the current time-area closure was negligible.**

The study examined scenarios to:

1. Investigate the impacts of a one, three and 12 month closure of the current IOTC time-area closure for longliners and purse seiners, on the assumption that effort is relocated to areas outside of the time-area closure, or fully eliminated (six different scenarios in total).
2. The effects of each scenario were assessed for the combined catches of yellowfin tuna, skipjack tuna, bigeye tuna and albacore on purse seine fleets; and yellowfin tuna, bigeye tuna, albacore and swordfish on longline caught tunas.
3. Look at potential losses and gains in catch for each tropical tuna species and gear at the time the time-area closure was in place.



## CONSERVATION AND MANAGEMENT MEASURES (CMMs)

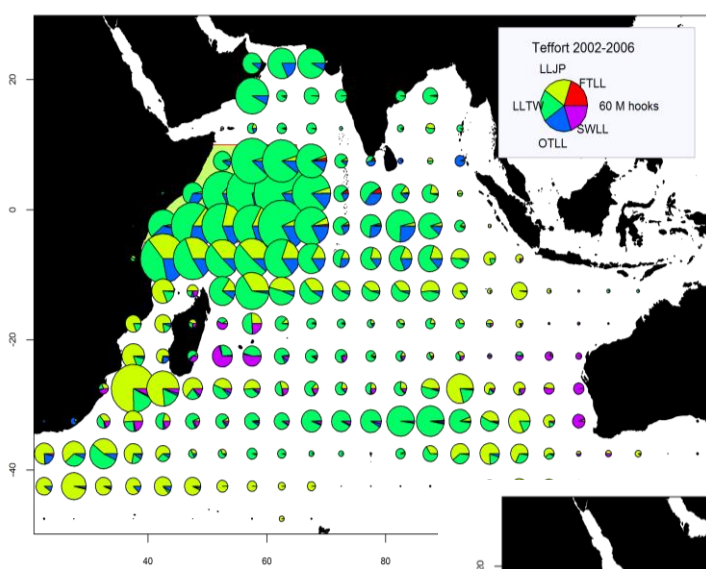
### REVIEW: SC Advice

The SC NOTED that, due to the high mobility of the fleets involved, and the fact that the overall levels of effort at the time of the time-area closure appeared to have remained constant for each fleet, **relocation of effort to other areas was much more likely to have occurred during the time of the time-area closure.**

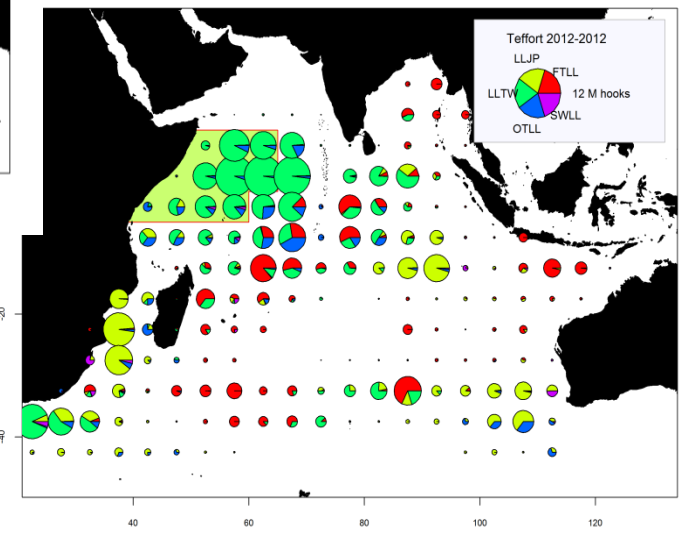
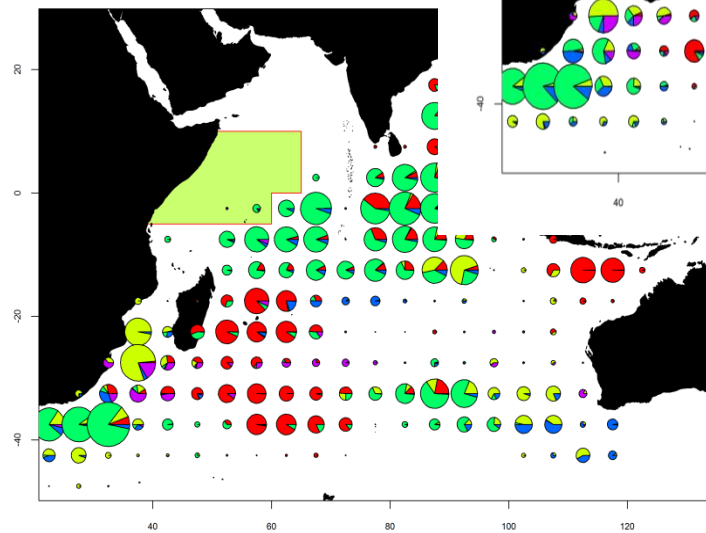
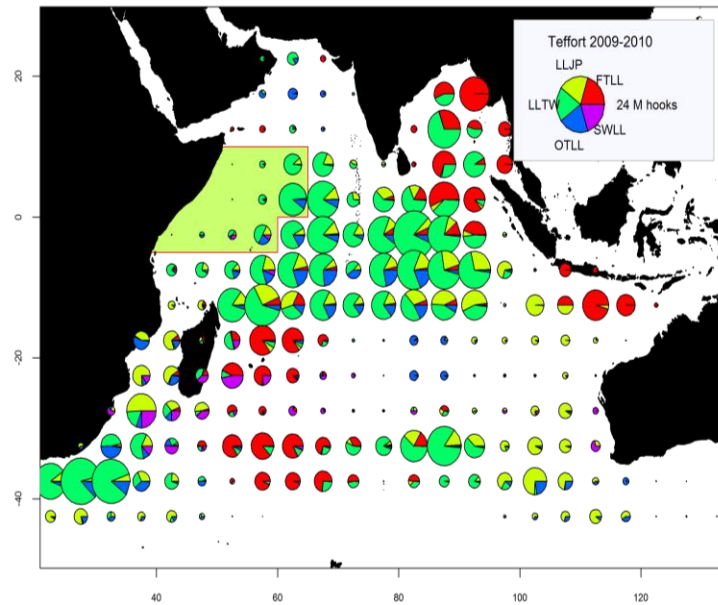
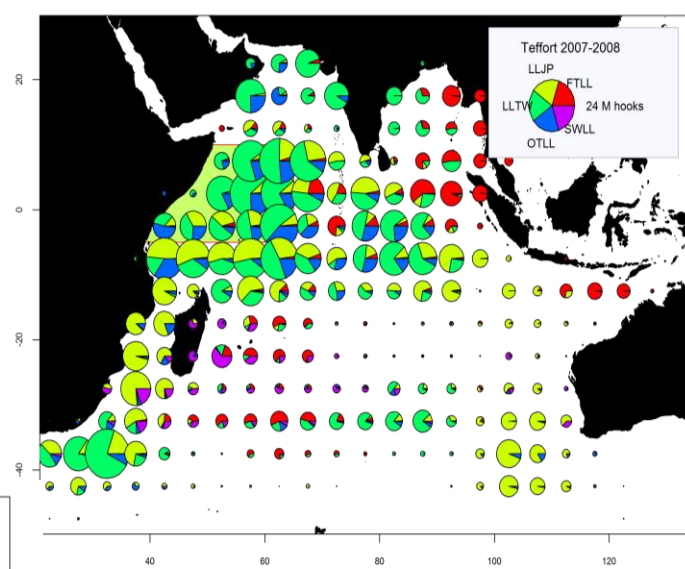
Piracy in the area off Somalia = led to the relocation of part of the effort from longline fleets to the South Indian Ocean, and increased pressure on the stock of Indian Ocean albacore.

Albacore in the southern Indian Ocean is **subject to overfishing** according to the assessment undertaken by the WPTmT in 2011.



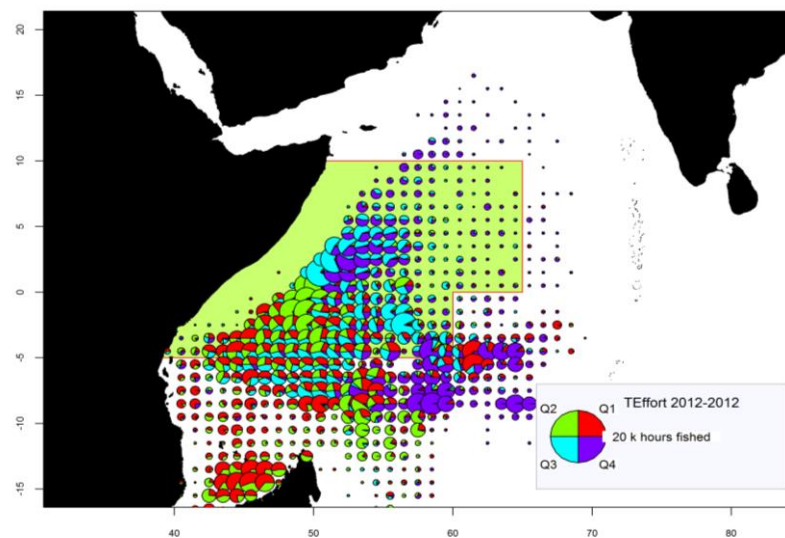
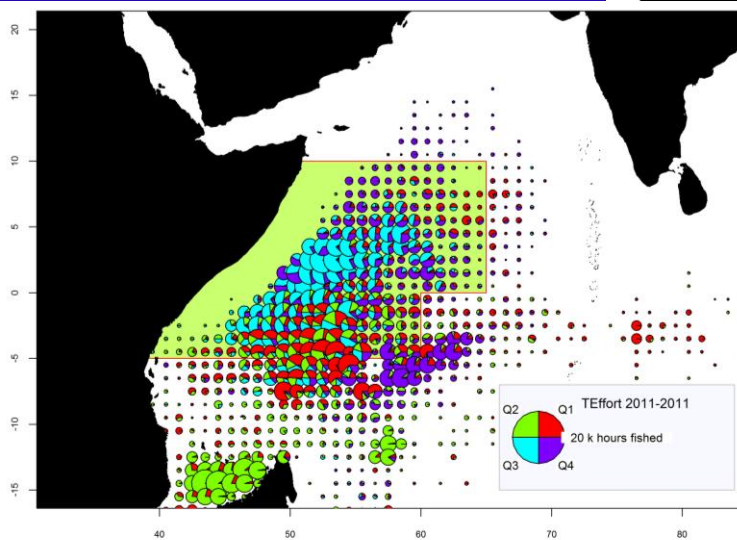
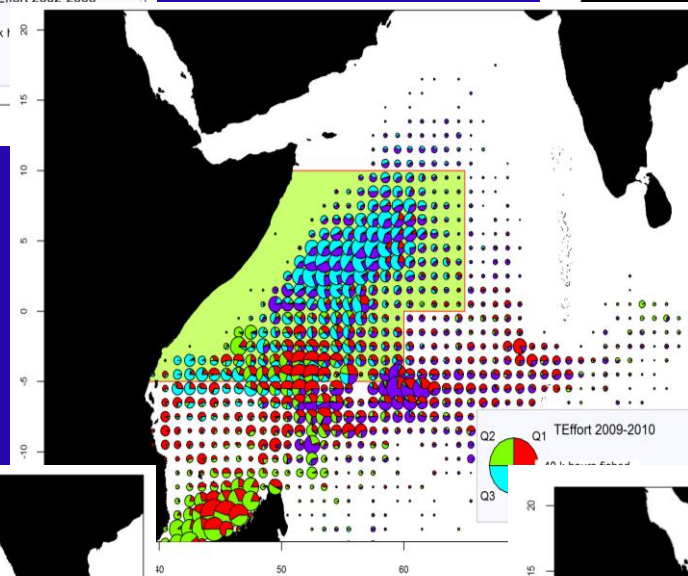
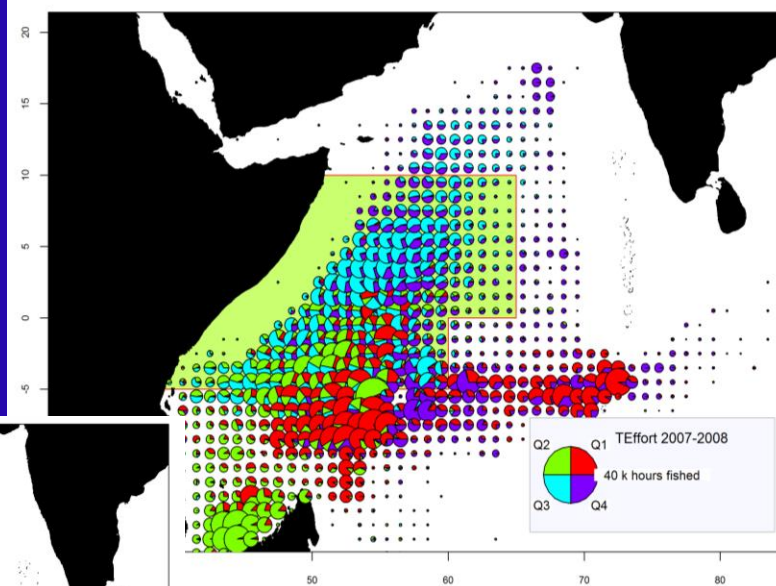
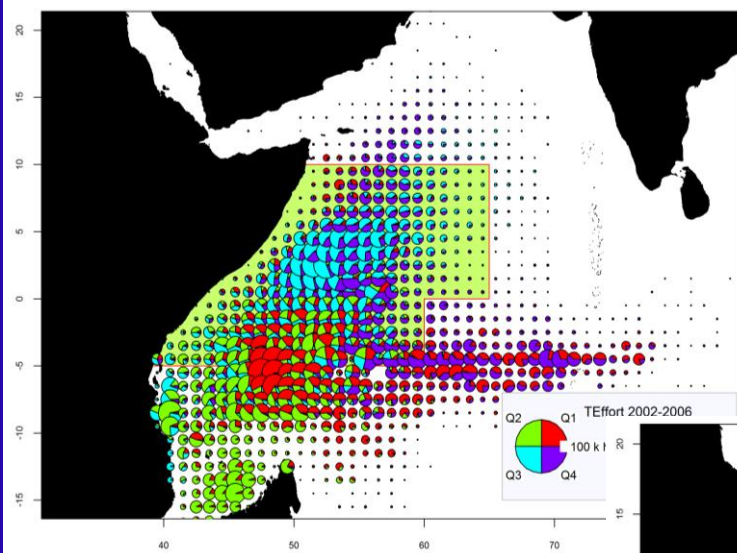


LL effort  
2002-06  
2007-08  
2009-10  
2011  
2012





PS effort  
2002-06  
2007-08  
2009-10  
2011  
2012



# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

## REVIEW: SC Advice

The SC **AGREED** that relocation of effort is a more plausible scenario and therefore the consequences of the time-area closure on the stocks of tropical tunas in the Indian Ocean are likely to be **negligible**

- less than 4% reduction in the total purse seine catch, and almost no reduction at all on longline catch, over the entire time-series.

In terms of reduction of purse seine catches, while the time-area closure appeared to have a positive, although minor, effect in reducing the catches of bigeye tuna and skipjack tuna, the effect on the catches of yellowfin tuna appeared to be **nil** (Fig. 4).



# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

REVIEW: SC Advice

The SC reiterated its previous **RECOMMENDATION** that the Commission note that **the current closure is likely to be ineffective**, as fishing effort will be redirected to other fishing grounds in the Indian Ocean.

The positive impacts of the moratorium within the closed area would likely be offset by **effort reallocation**, as they will result in similar catch rates and total annual catches.

# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

REVIEW: SC Advice

**NOTING** that the objective of Resolution 12/13 is to decrease the overall pressure on the main targeted stocks in the Indian Ocean, **in particular yellowfin tuna and bigeye tuna**, and also to evaluate the impact of the current time/area closure and any alternative scenarios on tropical tuna populations, the SC reiterated its previous **RECOMMENDATION** that:

- **The Commission specify the level of reduction or the long term management objectives to be achieved with the current or alternative time area closures and/or alternative measures**, as these are not contained within the Resolution 12/13.

# CONSERVATION AND MANAGEMENT MEASURES (CMMs)

## 18<sup>th</sup> Session of the Commission

The Commission decided that as one of the SC recommendations indicated that the Time-Area-Closure was ineffective, that the closure elements should be removed.

This took effect on 8 October 2014.

