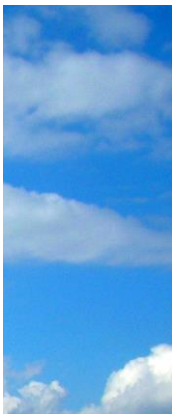
# ICCAT SCRS Report Panel 1- Tropical tunas

2016

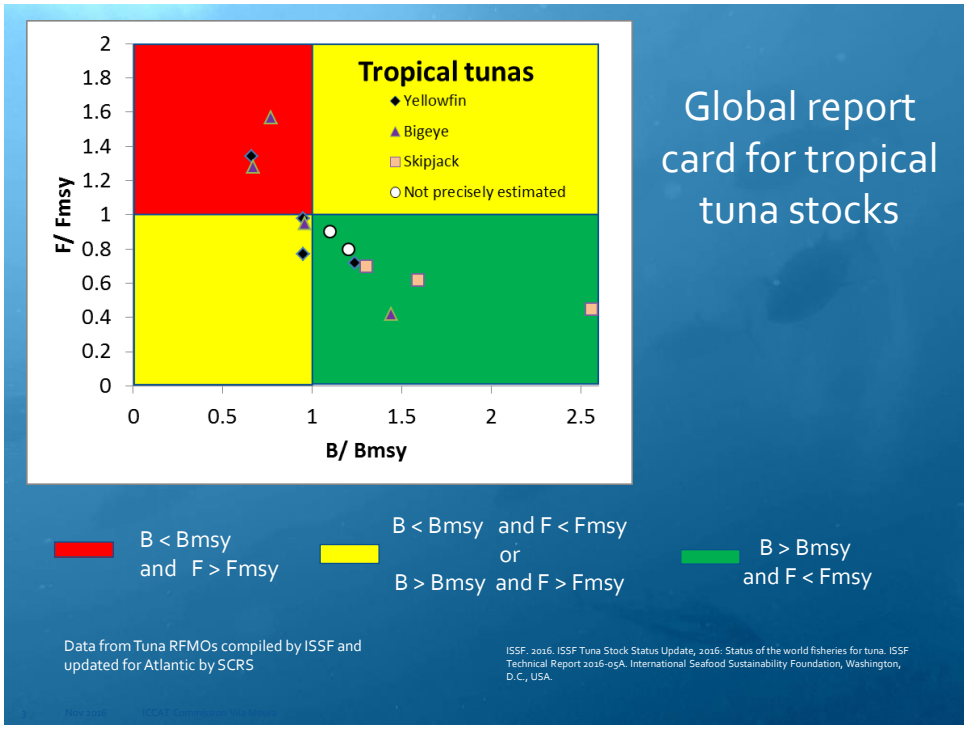




## 2016 Report of the SCRS tropical tunas

- Background and Scope
  - Global report card for tropical tunas
  - Report card for Atlantic stocks
  - Stock status summaries YFT, BET and SKJ

Activities in 2016
- AOTTP
- Responses to Commission Requests
- Additional recommendations and workplan



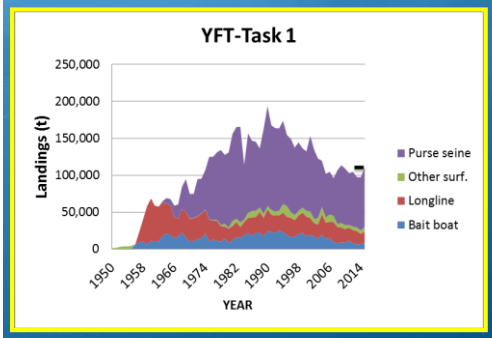

## ICCAT Stock Status Report card 2016

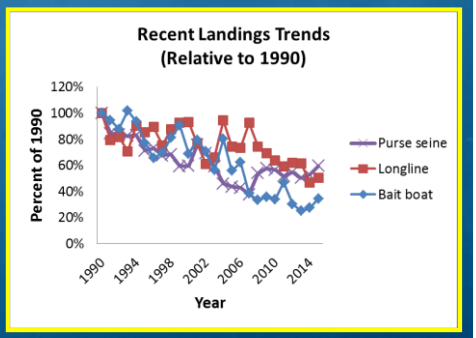
### Tropical tunas

| Species | Stock | Last SA | Next SA | | Most likely | Possibly |
|---|---|---|---|---|---|---|
| YFT | | **2016** | | | | |
| BET | | 2015 | 2018 | | | |
| SKJ | E | 2014 | 2019 | | | |
| SKJ | W | 2014 | 2019 | | | |

# 2016 YFT assessment
# Yellowfin tuna Fisheries Indicators

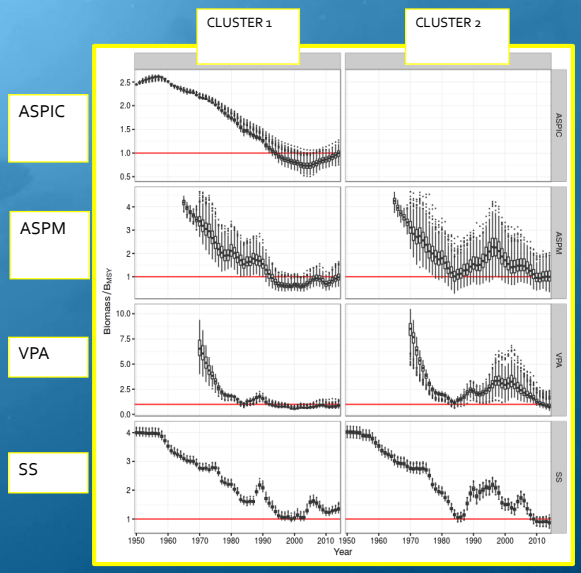
- 3 Major Gears (PS, BB, LL)
- Total Landings increased to 194,000 t by 1990, then decreased by nearly 50% to 109,810 t in 2015
- Since 2012, TAC = 110,000 t



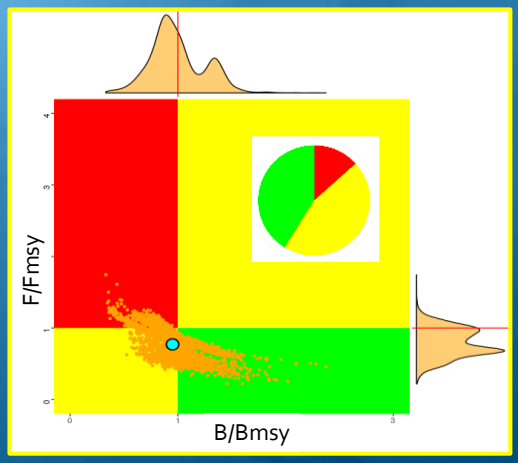

# Stock Status – biomass trends

- For a given cluster, trends in **$B/B_{MSY}$** were similar for all models, although small differences in current stock status were noted



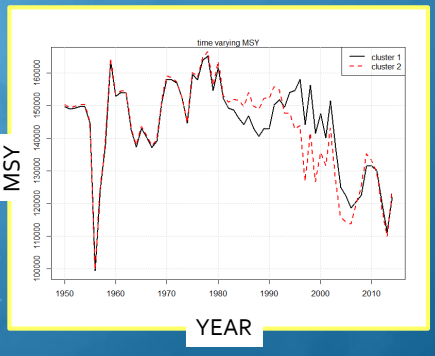
# Stock Status – Kobe plot

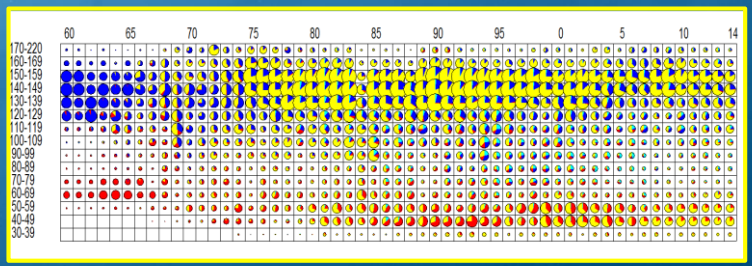
- Combined 7 models, equally weighted.
  - ASPIC Cluster 1
  - ASPM Cluster 1
  - ASPM Cluster 1
  - VPA Cluster 1
  - VPA Cluster 2
  - SS Cluster 1
  - SS Cluster 2
- $B/B_{MSY}$ = 0.95;
  - Overfished
- $F/F_{MSY}$ = 0.77
  - Not Overfishing
- MSY ~ 132,000 t




# MSY varies with Selectivity

- Estimates of current MSY (120,000 to 150,000 t) may be below what was achieved in past decades because overall selectivity has shifted to smaller fish since 1980s.




Distribution of catches by size category and gear (colors)

# Management Recommendations

- Maintaining the current TAC of 110,000 t maintains healthy stock status through 2024 with >68% probability, increasing to 97% by 2024.

Joint Probability that $B>B_{MSY}$ and $F<F_{MSY}$

Current TAC

| TAC | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|
| 60,000 | 75 | 91 | 99 | 99 | 99 | 99 | 100 | 100 |
| 70,000 | 74 | 87 | 97 | 99 | 99 | 99 | 99 | 99 |
| 80,000 | 73 | 86 | 96 | 99 | 99 | 99 | 99 | 99 |
| 90,000 | 71 | 82 | 91 | 97 | 99 | 99 | 99 | 99 |
| 100,000 | 70 | 80 | 89 | 92 | 96 | 97 | 99 | 99 |
| 110,000 | 68 | 78 | 85 | 90 | 92 | 95 | 96 | 97 |
| 120,000 | 65 | 73 | 79 | 78 | 79 | 80 | 82 | 82 |
| 130,000 | 57 | 59 | 61 | 61 | 57 | 54 | 50 | 48 |
| 140,000 | 45 | 44 | 38 | 33 | 31 | 31 | 31 | 30 |
| 150,000 | 31 | 24 | 21 | 20 | 19 | 20 | 20 | 20 |

# Effect of Current Regulations

- The area-time closure [Rec. 14-01] was evaluated in 2015. The Committee concluded that any reduction in YFT mortality was minimal, largely due to the redistribution of effort into areas adjacent to the moratorium area.
- The anticipated effect of the moratorium described in Rec. 15-01 was estimated in 2016 (see Response to the Commission) and will be reevaluated when data becomes available.
- Rec. 14-01 also implemented a TAC of 110,000 t for 2012 and subsequent years. The overall catches in 2012 (104,500 t), 2013 (97,300 t) and 2014 (97,000 t) were lower than this TAC, but the 2015 estimates are near this level (108,910 t).

**ATLANTIC YELLOWFIN TUNA SUMMARY**

| | | |
|---|---|---|
| Maximum Sustainable Yield (MSY) | | ~132,000 t (120,000 - 150,000) |
| 2015 Yield | | 108,910 t |
| Relative Biomass | $B_{2014}/B_{MSY}$ | 0.95 (0..71-1.36)[2] |
| Relative Fishing Mortality: $F_{current\ (2014)}/F_{MSY}$ | | 0.77 (0.53-1.05)[2] |
| Stock Status | | Overfished: Yes<br>Overfishing: No |

Management measures in effect:
[Rec. 14-01]:
- Time-area closure for FAD associated surface fishing
- TAC of 110,000 t
- Specific authorization to fish for tropical tunas for vessels 20 meters or greater.
- Specific limits of number of longline and/or purse seine boats for a number of fleets

**NOTE**: $F_{current(2014)}$ refers to $F_{2014}$ in the case of ASPIC, ASPM and SS, and the geometric mean of F across 2011-2013 in the case of VPA. Relative biomass is calculated in terms of spawning stock biomass in the case of ASPM, SS and VPA and in fishable biomass in the case of ASPIC.

[1] Estimates (with 80% confidence limits) based upon results of both the non-equilibrium production model (ASPIC) and the age-structured models.

[2] Median ($10^{th}$-$90^{th}$ percentiles) from joint distribution of age-structured and production model bootstrap outcomes considered.

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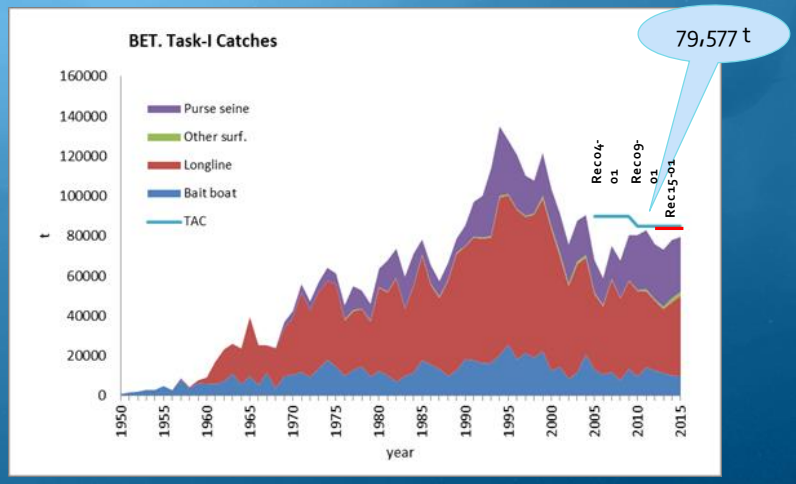
**BET Task I history**



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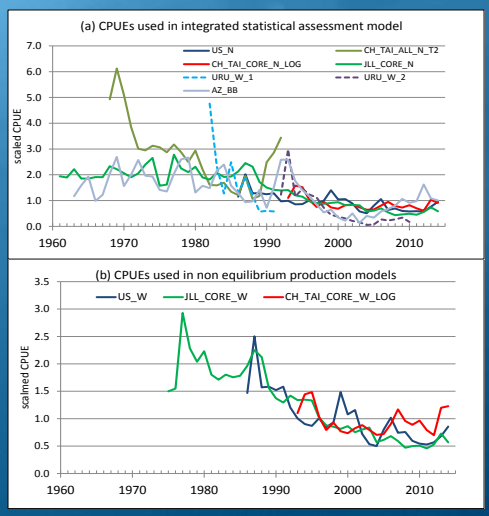
## BET CPUE Indices

- Abundance Indices used in the stock assessment

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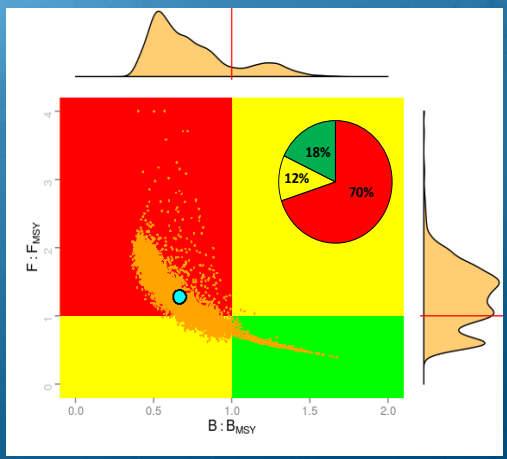
## BET Assessment
## Combined Kobe plot

**KOBE PHASE PLOT**

- ASPIC
- $SS_3$



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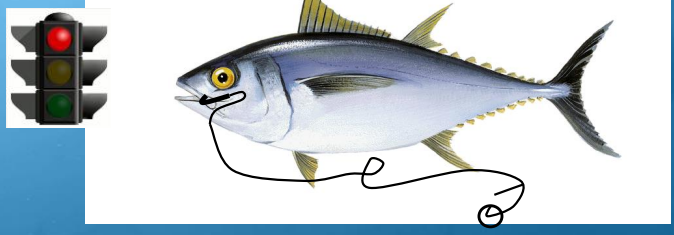
## BET Assessment

### SA Results summary



- ✓ Catch 2015 ~ 79,577 t
- ✓ Average catch 2011-2015 ~ 77,942 t
- ✓ MSY = 78,824 t. (67,725 – 85,009 t)
- ✓ $B_{2014}/B_{MSY}$ ~ 0.67 (0.48–1.20) - Overfished
- ✓ $F_{2014}/F_{MSY}$ ~ 1.28 (0.62–1.85) - Overfishing

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## BET Assessment

### KOBE II SM

- K2SM
  - ASPIC
  - SS3

**Probability of being in the green zone (B>Bmsy and F<Fmsy)**

| TAC (000 t) | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 17 | 17 | 21 | 33 | 57 | 74 | 85 | 92 | 95 | 97 | 98 | 98 | 99 | 99 |
| 40 | 17 | 17 | 18 | 22 | 31 | 40 | 51 | 60 | 67 | 73 | 78 | 81 | 84 | 87 |
| 45 | 17 | 17 | 18 | 21 | 29 | 37 | 45 | 53 | 60 | 66 | 71 | 76 | 79 | 81 |
| 50 | 17 | 17 | 18 | 20 | 27 | 34 | 41 | 48 | 53 | 59 | 64 | 69 | 72 | 76 |
| 55 | 17 | 17 | 18 | 20 | 25 | 31 | 37 | 42 | 47 | 51 | 56 | 60 | 64 | 68 |
| [illegible] | 17 | 17 | 17 | 19 | 23 | 28 | 33 | 37 | 40 | 44 | 48 | 52 | 55 | [illegible] |
| 65 | 17 | 17 | 17 | 18 | 22 | 26 | 30 | 33 | 36 | 39 | 42 | 44 | 46 | 49 |
| [illegible] | 17 | 17 | 17 | 18 | 21 | 24 | 26 | 30 | 31 | 34 | 36 | 38 | 39 | [illegible] |
| 75 | 17 | 17 | 17 | 18 | 19 | 22 | 24 | 26 | 27 | 29 | 31 | 32 | 33 | 35 |
| 80 | 17 | 16 | 16 | 16 | 18 | 19 | 21 | 22 | 23 | 25 | 26 | 27 | 28 | 29 |
| 85 | 17 | 16 | 16 | 16 | 18 | 18 | 20 | 21 | 21 | 22 | 25 | 24 | 26 | 29 |
| 90 | 17 | 15 | 15 | 15 | 16 | 16 | 17 | 19 | 19 | 19 | 19 | 18 | 18 | 19 |
| 95 | 17 | 14 | 14 | 13 | 13 | 12 | 12 | 12 | 12 | 11 | 10 | 10 | 10 | 8 |
| 100 | 17 | 12 | 11 | 10 | 8 | 7 | 6 | 6 | 5 | 4 | 6 | 5 | 4 | 3 |

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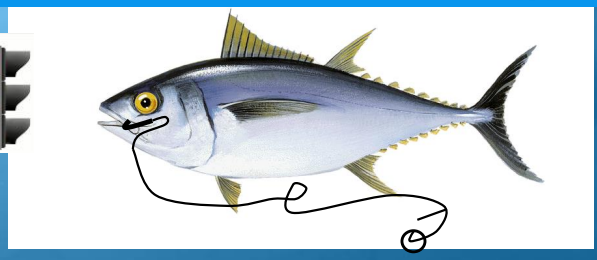
## BET Management

### Recommendation 15-01



- ✓ TAC 2016-2018 = 65,000 t;
- ✓ Capacity limit to be restricted to the 2005 BET nº vessels;
- ✓ Time/area closure to FAD fishing from 1st January to 28th February 4ºS, 5ºN, 20ºW, African coast;
- ✓ Limitations of FAD: 500 FADs active at any time by vessel;
- ✓ Non-entangling FADs.

## *Bigeye tuna OVERVIEW*

- Current TAC is 65,000 t. for 2016 [Rec. 15-01];
- BET catch in 2015 was 79,577 t (including discards);
- Last stock assessment was in 2015. Neither new stock assessment nor new analysis were undertaken in 2016.
- Given the available information the SCRS does not change to the advice provided in 2015 regarding the implications of various catch levels.

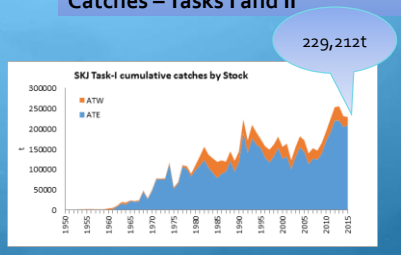
## SKIPJACK Fisheries indicators

### Data – Tasks I and II

- Last assessment 2014
- Historical record in 2013 with 255,730 t
- Total catches in 2015 (preliminary estimate) = 229,212 t (without local market fish)
  - 91 % in ATE and 19% ATW
    - ATE : 86% PS, 12% BB, 2% others
    - ATW 10% PS, 88% BB, 2% others
- Represent a sharp rise compared to 2005-2009 average (155,157 t) → + 44 to 64% (2012 &2013)

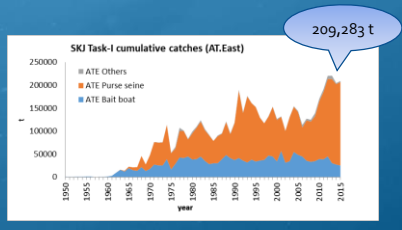
## Fisheries indicators

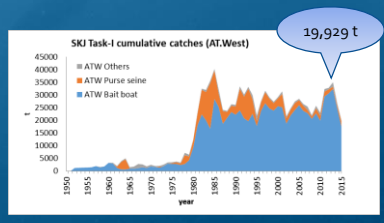
### Catches – Tasks I and II




- Decline in catch since the early 1990s (due to a decrease in nominal fishing effort and/or to a moratorium effect), followed by a new strong increase in the recent years (2013 historic record)

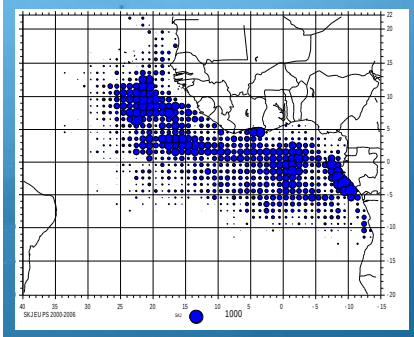
- Catchability of SKJ increased in the early 1990s due to FADs fishing



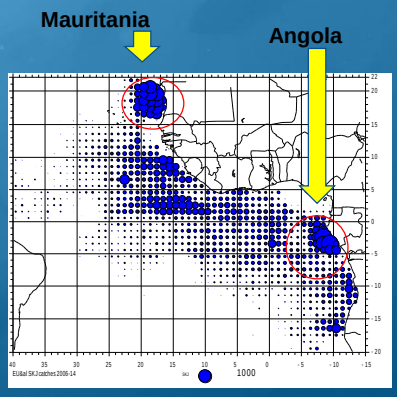



## Fisheries indicators

SKJ catches during the period 1970-2014 (CATDIS file).



EU PS fleet

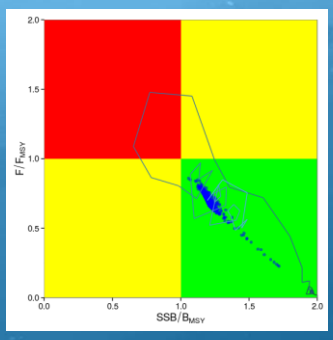



2000-2006

2007-2014

## State of the stock

State of the stock




Kobe plot West

| | East Atlantic | West Atlantic |
|---|---|---|
| Maximum Sustainable Yield (MSY) | Probably higher than previous estimates (143,000-170,000) | Around 30,000-32,000 t |
| Current yield (2015) | **209,283 t** | **19,929 t** |
| Current Replacement Yield | Unknown | Somewhat below 32,000 t |
| Relative Biomass ($B_{2013}/B_{MSY}$) | Likely >1 | Probably close to 1.3 |
| Mortality due to fishing ($F_{2013}/F_{MSY}$) | Likely <1 | Probably close to 0.7 |
| Management measures in force | Rec. 15-01 | None |

## *Skipjack tuna OVERVIEW*

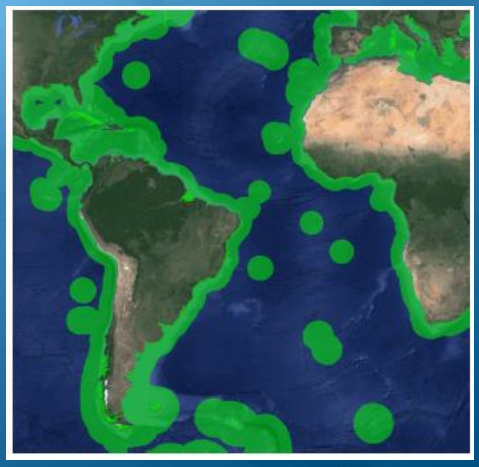
- SKJ preliminary catch in 2015 was 209,283 (East) and 19,929 (West)
- Last stock assessment was in 2014. Neither new stock assessment nor new analysis were undertaken in 2016.
- Given the available information the SCRS does not change the advice provided in 2014

## AOTTP

- AZTI Consortium actively tagging in East
- Contracted consortium to start tagging in the SW in 2017
- Training (courses in Azores, Dakar, Abidjan, Tema,Canaries)
- Recovery and awareness activities underway
- Reported to the EU end of June
- Database up and running
- Data collection smartphone Apps up and running
- Almost 20,000 fish tagged
- More than 80 internal tags deployed
- More than 2,000 fish recovered
- 3 internal tag recovered
- delay with psat tagging

## Obtained access to many EEZs

Morocco
Mauritania
Senegal
Cabo Verde
Guinea-Bisseau
Republic of Guinea
Sierra Leone
Liberia
Cote d'Ivoire
Ghana
Sao Tome and Principe
Gabon
Benin
Togo
Angola



## Established recovery teams in West Africa

Involved West African scientists in tagging

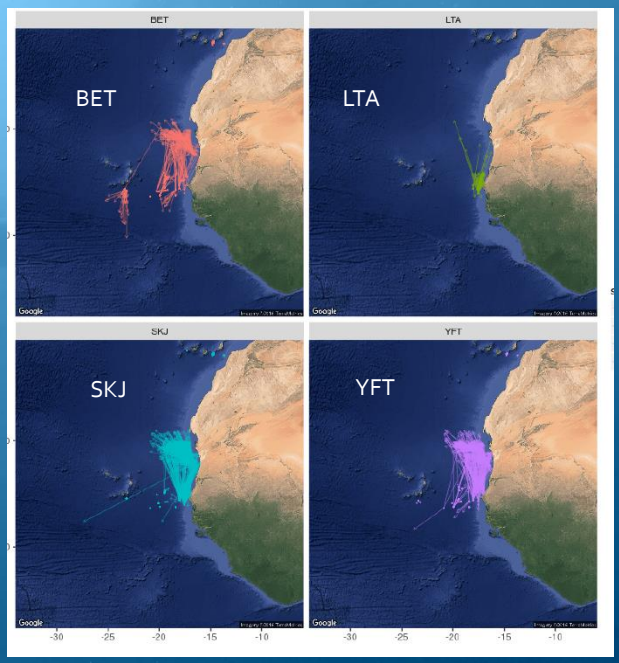
by 03-11-2016

Total released
19,686

BET 6,973
SKJ 8,798
YFT 3,527
LTA 357

Total recaptured
2,709

BET 654 (9.4 %)
LTA 69 ( 19.3%)
SKJ 1191 (13.5 %)
YFT 730 (20.7%)




## Responses to Commission's requests

| | |
|---|---|
| 18.1 | Evaluate the efficacy of the area/time closure referred to in paragraph 24 for the reduction of catches of juvenile bigeye and yellowfin, [Rec. 14-01] paragraph 26 |
| 18.2 | Revise the provisional limits laid down in paragraph 16 in relation with the limitation of FADs, [Rec. 15-01] paragraph 17 |
| 18.3 | Revise the appropriate coverage level of scientific observers pursuant to Recommendation 10-10. Rec [15-01] paragraph 40 |

## Responses to Commission's requests

Evaluate the efficacy of the area/time closure referred to in paragraph 24 for the reduction of catches of juvenile bigeye and yellowfin, [Rec. 14-01] paragraph 26

Since this time area closure would not be applicable until January 2017, the anticipated effect was estimated based on examination of 2002-2015 fishery data and assuming no change on fleet behaviour, the effects could be :

Major reduction of the Ghanaian catches, because the closed area will reduce most of the traditional Ghanaian fishing zones .The complete closure of the Ghanaian fishery during two months would reduce the catch of small bigeye associated to FADs at an approximate level of 1,700 t from an average reference level of 2006-2012.

- A reduction of 1,300 t. of small bigeye associated to FAD catches from an average reference level of 2006-2012 could be expected from most other purse seiners. However, this figure could be smaller if theses purse seiners redistribute their effort to the areas outside the closure south of 4°S where FAD catches have been quite important in recent years.

The Committee considered this analysis as preliminary and further work is recommended for 2017 and 2018.

## Responses to Commission's requests

Revise the provisional limits laid down in paragraph 16 in relation with the limitation of FADs, [Rec. 15-01] paragraph 17

According to the data currently available, the Committee is unable to provide conclusions on any limit of FAD usage. To progress towards a better assessment framework the Committee recommends adopting a common and harmonized approach to gather information based on minimum data collection requirement and comparable common terminology describing fishing activities on FADs.

With this purpose, the Committee suggests adopting the three tables annexed to the SCRS report that contain a description of the type of data and codes to be used to collect information on FAD fishing activities.

## Responses to Commission's requests

Revise the appropriate coverage level of scientific observers pursuant to Recommendation 10-10. Rec [15-01] paragraph 40

The SCRS:

- Suggests that current level of scientific observers (5%) seems to be inappropriate to provide reasonable estimates of total by-catch and recommends increasing the minimum level to 20% . Furthermore the SCRS should study further to determine the level of coverage appropriate to meet management and scientific objectives.
- Notes that the current mandatory level of 5% may not have been implemented by many of the fleets and underlined the need for achieving it.
- Notes that some fleets are currently implementing voluntary observer programmes (both human and electronic) that cover 100% of the fishing trips.

## MSE Recommendations

- The Group recommends an MSE evaluation to explore the implications of management in a multi-species context.
- The Group noted that MSE requires a broad range of expertise and regular dialogue between SCRS and Commission

# Additional recommendations and work plan activities

- Electronic monitoring systems (EMS): SCRS considers that it would be useful to ensure that the different systems available conform to harmonized installation, data collection and reporting protocols, so as to ensure compatibility. The Committee recommends that tropical tuna purse seine fleets or CPCs wishing to voluntarily implement EMS follow the guidelines described in document SCRS/2016/180.

- Recommends that a project is developed between Ghanaian and IRD scientists in 2017 in order to complete the development of the T3+ software necessary for the overall treatment of Ghanaian statistics.

- Fund an activity between Côte d'Ivoire, EU-France and Senegal and the ICCAT Secretariat to review an update of Task I and Task II data so that it can be adopted and transmitted to ICCAT by the appropriate CPCs.