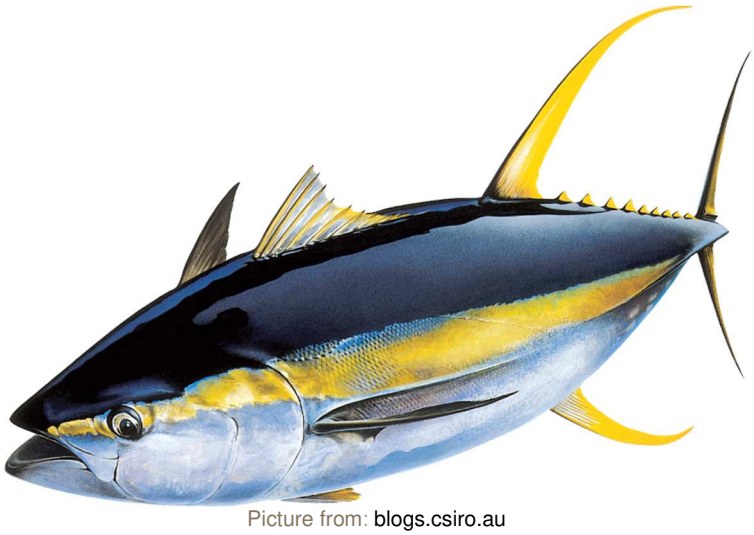
# SANT YAGO TF UNASSOCIATED PURSE SEINE ATLANTIC YELLOWFIN TUNA FISHERY

**MSC Certificate code: MSC-F-30011**



Picture from: blogs.csiro.au

# 1st Surveillance Report

## OCTOBER 2020

| | |
|---|---|
| **Conformity Assessment Body (CAB)** | Bureau Veritas Certification Holding SAS |
| **Assessment team** | Carola Kirchner, Gemma Quílez, Joseph De Alteris |
| **Fishery client** | Sant Yago Tuna fisheries, N.V. and associated companies (Atunera Sant Yago, S.A and Atunera Nacional, S.A.) and vessels (Sant Yago I and Sant Yago III) |
| **Assessment Type** | First Surveillance |

# 1 Contents

# 2 Glossary

The terms below do not contradict terms used in the MSC-MSCI Vocabulary

***Concepts and terms:***

| | |
|---|---|
| **$B_{MSY}$** | Biomass at MSY |
| **$B_{lim}$** | level of biomass that should be avoided considering that beyond such limits, the sustainability of the stock may be in danger |
| **$B_{target}$** | Management objective based on a level of biomass that should be achieved and maintained; |
| **$B_{threshold}$** | Level of biomass reflecting the precautionary approach that triggers pre-agreed management actions to reduce the risk of breaching the limits. Thresholds should be set sufficiently far away from limits so that there is low probability that the limits will be exceeded |
| **BRP** | Biological Reference Points |
| **CAB** | Conformity Assessment Body (in the case of this particular assessment the CAB is BV) |
| **CoC** | Chain of Custody |
| **COC** | Code of Conduct |
| **CPC** | Contracting Party (ICCAT) Convention |
| **CPUE** | Catch per Unit Effort |
| **ETP** | Endangered, Threatened and Protected |
| **f/v** | Fishing vessel |
| **$F_{MSY}$** | Fishing mortality at MSY |
| **$F_{target}$** | Management objective based on a fishing mortality rate that should be achieved and maintained |
| **FAD** | Fish Aggregating Device |
| **FCR** | (MSC) Fisheries Certificacion Requirements |
| **FOB** | Floating object |
| **FSC** | Free swimming school |
| **HCRs** | Harvest Control Rules. Decision rules that aim to achieve the target reference point and avoid the limit reference point by specifying pre-agreed management actions when $B_{THRESHOLD}$, $F_{TARGET}$ or $B_{LIM}$ are breached |
| **PCDR** | (MSC) Public Comment Draft Report |
| **PR** | Peer Reviewer |
| **PRI** | Point of Recruitment Impairment |
| **PRDR** | (MSC) Peer Review Draft Report |
| **MCS** | Monitoring, Control and Surveillance |
| **MPA** | Marine Protected Area |
| **MSE** | Management Strategy Evaluation |
| **MSY** | Maximum Sustainable Yield |
| **PRI** | Point where Recruitment would be Impaired |
| **Rec** | (ICCAT) Recommendation |
| **UoA** | Unit of Assessment |
| **UoC** | Unit of Certification |
| **VME** | Vulnerable Marine Ecosystem |
| **VMS** | Vessel Monitoring System |

***Institutions, organization, bodies, agreements and programmes:***

| | |
|---|---|
| **AGAC** | (Spanish) Association of Large Tuna Freezers |
| **ANABAC** | National (Spanish) Association of Ship owners of Freezer Tuna Vessels |
| **AOTTP** | Atlantic Ocean Tropical Tuna Tagging Programme |
| **BV** | Bureau Veritas |
| **COC** | ICCAT Conservation & Management Measures Compliance Committee |
| **EPBR** | ICCAT Enhanced Program for Billfish Research |
| **FAO** | Food and Agriculture Organization of the United Nations |
| **ICCAT** | International Commission for the Conservation of Atlantic Tunas |
| **ISSF** | International Seafood Sustainability Foundation |
| **MSC** | Marine Stewardship Council |
| **OPAGAC** | Organisation of (Spanish) producers of frozen tuna |

| | |
|---|---|
| **PSMA** | The (FAO) Port State Measures Agreement |
| **PWG** | Permanent Working Group for the improvement of ICCAT Statistics and Conservation Measures |
| **RFMOs** | Regional Fisheries Management Organizations (e.g. ICCAT) |
| **SY I** | f/v Sant Yago I |
| **SY III** | f/v Sant Yago III |
| **SCRS** | ICCAT Standing Committee on Research & Statistics |
| **SICA** | Central American Integration System |
| **SIRPAC** | Integrated Central American Fish and Aquaculture Register System |
| **SMTYP** | ICCAT Small Tunas Year Program |
| **SRDCP** | ICCAT Shark Research and Data Collection Programme |
| **STACFAD** | ICCAT Standing Committee on Finance & Administration |
| **SWGSM** | ICCAT Standing Working Group to enhance dialogue between fisheries scientists and managers |
| **UNCLOS** | United Nations Convention on the Law of the Sea |
| **UNFSA** | United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks |
| **TWG** | Joint (RFMOs) Management Strategy Evaluation (MSE) Technical Working Group |
| **WWF** | World Wildlife Fund |

# 3 Executive summary

The fishery got the MSC certificate on 05/03/2019. The current surveillance audit was conducted against FCP2.1 and the MSC Full Assessment Reporting Template v2.01 was used to elaborate the current report.

As summarised in **Table 5.1.1**, 6 binding conditions were raised on the following Performance Indicators (PIs): 1.1.1, 1.2.2, 2.3.1, 2.3.2, 2.3.3 and 3.2.3. Also, 1 non-binding recommedation was set regarding the need to have functions, roles and responsibilities explicitly defined and well understood between Sea Eye and AZTI.

In response to the Covid-19 pandemic, the MSC published a derogation on the 27th of March 2020 where an automatic six-month extension was to be applied to all fishery certificates and associated timelines, including deadlines for client action plans, milestones and conditions. The client decided to proceed with the dates for the site visit as planned (**Section 7.1.1**). However, the progress of conditions and milestones were modified following the MSC Guidance for this derogation (for more details see **Section 5.1.1**) from the original timeline (March 2020) to September 2020.

Therefore, all the conditions set during the initial assessment were found to be 'Ahead target', apart from Condition 2 on PI 1.2.2 which was found to be 'Behind Target' as it was determined that its milestones for Year 1 won't be met even taking the 6-month derogation into account (see Section 5.2 – Condition 2 for further details).

As a result of the current surveillance audit, the following was carried out regarding the assessment of the Conditions (see **Section 5.2** for futher details):

- PI 1.1.1 was rescored as a result of closing the condition, hence, PI 1.1.2 became not applicable (see **Section 5.4**);
- Condition against PI 1.2.2, PI 2.3.1, PI 2.3.2, PI 2.3.3 and PI 3.2.3 were assessed with no change in score.
- In addition, a new condition was raised against PI 2.1.1 SI a Bigeye tuna.

Moreover, due to new information on some species stock assessments (i.e., Yellowfin tuna (**Section 4.2.6**), Atlantic Bigeye tuna and Eastern Skipjack – **Sections 4.2.7.1.2 a** and **b**) and re-classification of one species (i.e., the shortfin mako from ETP to primary species – see **Section 4.2.7.1.2 c**), the following PIs were re-assessed although no re-score was needed: PI 1.2.3, PI 1.2.4, PI 2.1.1, PI 2.1.2 and PI 2.1.3 (see **section 5.4** for further details).

**Table 1-1** presents scores given to each MSC Principle as published at the PCR and after current surveillance audit, while **Table 1-2** presents scores for each Performance Indicator.

**Table 1-1**. Scores obtained by the fishery for each MSC Principle as published at the PCR and subsequent surveillance audits.

| **Final Principle Scores** | | |
|---|---|---|
| **Principle** | **Score (PCR)** | **Score (1SA)** |
| Principle 1 – Target Species | 82.5 | 85.8 |
| Principle 2 – Ecosystem | 83.0 | 81.7 |
| Principle 3 – Management System | 86.3 | = |

**Table 1-2**. PIs scores of the certified fishery as published at the PCR and First SA (in orange scores below 80, meaning a condition was raised for that PI).

| Principle | Component | Performance Indicator (PI) | | PCR | 1SA |
|---|---|---|---|---|---|
| One | Outcome | 1.1.1 | Stock status | 70 | **90** |
| | | 1.1.2 | Stock rebuilding | 90 | NA |
| | Management | 1.2.1 | Harvest strategy | 95 | = |
| | | 1.2.2 | Harvest control rules & tools | 65 | = |
| | | 1.2.3 | Information & monitoring | 80 | = |
| | | 1.2.4 | Assessment of stock status | 95 | = |
| Two | Primary species | 2.1.1 | Outcome | 95 | 75 |
| | | 2.1.2 | Management strategy | 95 | = |
| | | 2.1.3 | Information/Monitoring | 95 | = |
| | Secondary species | 2.2.1 | Outcome | 80 | = |
| | | 2.2.2 | Management strategy | 90 | = |
| | | 2.2.3 | Information/Monitoring | 85 | = |
| | ETP species | 2.3.1 | Outcome | 75 | = |
| | | 2.3.2 | Management strategy | 75 | = |
| | | 2.3.3 | Information strategy | 65 | = |
| | Habitats | 2.4.1 | Outcome | 80 | = |
| | | 2.4.2 | Management strategy | 85 | = |
| | | 2.4.3 | Information | 85 | = |
| | Ecosystem | 2.5.1 | Outcome | 80 | = |
| | | 2.5.2 | Management | 80 | = |
| | | 2.5.3 | Information | 80 | = |
| Three | Governance and policy | 3.1.1 | Legal &/or customary framework | 85 | = |
| | | 3.1.2 | Consultation, roles & responsibilities | 85 | = |
| | | 3.1.3 | Long term objectives | 100 | = |
| | Fishery specific management system | 3.2.1 | Fishery specific objectives | 80 | = |
| | | 3.2.2 | Decision making processes | 85 | = |
| | | 3.2.3 | Compliance & enforcement | 75 | = |
| | | 3.2.4 | Monitoring & management performance evaluation | 90 | = |

The main findings of the current surveillance audit are listed below:

## Principle 1

- A major advancement in this assessment was the development of a joint longline index using high resolution catch and effort information from the main longline fleets operating in the Atlantic.
- The stock is above or fluctuating around the MSY level; $B_{2018}/B_{MSY}$ is 1.17 (0.75-1.62).
- The fishing mortality estimate of $F_{2018}/F_{MSY}$ is 0.96 (0.56-1.5), which is just below the fishing mortality at MSY.For all models there are large uncertainties in the value of biomass and fishing mortality at any point in the history, including 2018, therefore it can be deduced that there is not a good understanding of the inherent uncertainties.
- The yellowfin stock status is not overfished (24% probability of overfished status), with no overfishing (43% probability of overfishing) taking place. Even though, there is only a 75% probablity of the stock being above the MSY level, it is estimated that there is a 10% certainty that the stock is below $B_{2018}/B_{MSY}$=0.75.

- Recently the TAC has been overcaught, because the TAC has not been allocated by gear/flag.

**Principle 2**

- The classification of the shortfin mako shark has changed from ETP to Primary species and, therefore, it is now included and analysed in this surveillance report as primary minor. However, its re-assessment has not changed any scoring.
- Two new stock assessments on two of the Primary species have been carried out by ICCAT since the certification of the fishery, i.e., the Atlantic Bigeye tuna and the Eastern Skipjack tuna. Due to the change in the stock status of the bigeye tuna, the PI 2.1.1 now scores 75 and a Condition has been opened (Condition 7).
- There are no changes to the PI 2.2.x (secondary species) scoring due to the insignificant change in the catch characteristic of the fishery for 2019, and in the supporting science for the secondary species.
- The catch of ETP species in 2019 is remarkably similar to the catch in 2018. The only notable exception is the relatively high catch of silky sharks (363) individuals in 2019, which was a result of a single set that captured more than 300 individuals, and about 78% of the captured silky sharks were released alive. Therefore, the team considers that the information for PI scores regarding ETP species has not changed significantly.
- The fishery has developed and implemented a protocol on the proper identification of FSC and FAD set types, and AZTI has implemented systems and guidelines for the collection, verification and presentation of all observer data in formats compatible with MSC catch analysis requirements for primary, secondary and ETP species (in particular marine mammals and sharks).

**Principle 2/3**

- Immediately following the certification of the fishery in 2019 that included the condition that the fishery would not hinder the recovery of marine mammals, Sant Yago issued a policy statement for vessel captains, crew and observers for the Sant Yago fleet clarifying the need to properly identify FSC sets from FAD sets. This protocol includes a formal reiteration of the company policy that prohibits the setting of a purse seine on large whales.

**Principle 3**

- In the latest ISSF Participating Company Audit Report carried out by a third party and issued on 9th March 2020 no non-conformities were found for the Client group for activities in 2019.
- The client has been working through DIPESCA and ISSF to have yellowfin tuna effective management measures at ICCAT in order to ensure catches are maintained at sustainable levels.

The assessment team concludes that **the MSC Certificate for this fishery shall remain active**, subject to the agreed annual surveillance schedule and progress on the current conditions (Conditions 2-7).

# 4 Report details

## 4.1 Surveillance information

**Table 4.1.** Surveillance information

| 1 | Fishery name |
|---|---|
| Sant Yago TF Unassociated purse seine Atlantic yellowfin tuna fishery | |
| 2 | Unit of Assessment |

| | |
|---|---|
| UoA | Target stock: Atlantic yellowfin tuna (*Thunnus albacares*)<br>Geographical Area: FAO fishing areas 34 and 47<br>Gear type: Purse seine targeting free swimming tuna schools (FSC)<br>Assessed fleet: f/v Sant Yago I and f/v Sant Yago III<br>Other elegible fishers: There are no other eligible fishers |

| **3** | **Certificate details** | | |
|---|---|---|---|
| Certificate code | MSC-F-30011 | | |
| Date certified | 05/03/2019 | Updated expiry date* | 4/09/2024 |

***Due to the MSC Covid-19 Derogation of 27 March 2020, the certificate of the fishery has been extended 6 months. Consequently, the updated date of expiry is now the 4th of September 2024.**

| **4** | **Surveillance level and type** |
|---|---|
| Level | The surveillance level determined in the PCR was that surveillance audits shall take place according to the default surveillance level (level 6) indicated in MSC FCP Table 5. However, due to the COVID-19 situation, Bureau Veritas proposed a remote audit for this 1st surveillance audit, hence, changing from Level 6 to Level 5 (see **Appendix 7.3** for more details). |
| Type | Surveillance audit was carried out off-site (see **Appendix 7.3** for more details). |

| **5** | **Surveillance number** |
|---|---|
| 1st Surveillance | X |
| 2nd Surveillance | |
| 3rd Surveillance | |
| 4th Surveillance | |
| Other (expedited etc) | |

| **6** | **Assessment team[1]** |
|---|---|
| Team leader | Gemma Quílez |
| Team members | Carola Kirchner and Joseph De Alteris |

| **7** | **Audit/review time and location** |
|---|---|
| The off-site surveillance audit was carried out on April 27-28 2020 (see **Appendix 7.1.1** for further details). | |

| **8** | **Assessment and review activities** |
|---|---|
| During the site visit, the team conducted assessment activities in accordance with FCP 7.28.15-18. In the case of the current fishery the team focused on the following: (i) checking for any relevant modifications affecting the fishery; (ii) assessing the progress against the conditions set to the fishery.<br><br>See **Appendix 7.1** for details on the people interviewed and on the stakeholder engagement strategy, and **Appendix 7.2** for details on topics discussed during the site visit and other stakeholder inputs. | |

| **9** | **Conformity Assessment Body (CAB)** |
|---|---|
| Name | Bureau Veritas Certification Holding SAS |
| Address | Valportillo Primera, 22-24, Edificio Caoba, Pol. Ind. La Granja, 28108 Alcobendas, Madrid. Spain. |
| E-mail/s | ICCMSCFisheries@es.bureauveritas.com / gemma.quilez@bureauveritas.com |

[1] See the Surveillance announcement at the MSC website for more details on how the team meets the competency criteria and the areas that they are responsible for.

| | |
|---|---|
| Contact | Macarena García |
| **10** | **Client** |
| Name | Sant Yago Tuna Fisheries, N.V. and associated companies |
| Address | |
| E-mail/s | Angeles.claro@jealsa.com |
| Phone | (+34) 660327560 |
| Contact | Ángeles Claro |

## 4.2 Background

### 4.2.1 Personnel involved in science, management or industry

No modifications were found in the personnel and institutions involved in science (ICCAT's SCRS and AZTI), nor in the client group personnel.

Regarding management personnel, DIPESCA told the team during the site visit that the person that was their representative at ICCAT (Mr. Cifuentes) had just been fired due to the recent re-structuring of the Guatemalan government. However, Mr. Marín (who was the Director of the Fisheries and Aquaculture Regulation Directorate until then) clarified that he was going to resume the position of ICCAT representative and that the technical team (who were also present at the meeting) was going to remain the same.

Nevertheless, in a later email, Mr. Marín informed the team that futher changes had been done in the government and that he had been transferred to the Ministry's Planning Directorate in the Department of Foreign Affairs. He also mentioned in his email that it will be the decision of the Vice-Minister Hugo Cabrera, Head of the Guatemalan Delegation at ICCAT, to designate the person who will take his place, He also added that Mr. Cifuentes now works for the tuna sector and, therefore, it is likely that he will continue as an ICCAT delegate, albeit now on behalf of the industry, which will allow adequate monitoring of what has been done in ICCAT to date.

At the time of writing this report, it has still not been decided who will be Guatemala's representative at ICCAT.

### 4.2.2 Certified fleet and client group

During the site visit, the team was informed that no changes had occurred in the client group (i.e., Sant Yago Tuna Fisheries, N.V. and associated companies).

### 4.2.3 Fishery management and regulatory framework

During the site visit, both, the client and the Guatemalan administration told the assessment team that the regulatory framework and fishery management were unchanged compared to last year.

Regarding ICCAT, a new recommendation (ICCAT 2019d, Rec 19-02) was implemented in June 2020 to replace ICCAT, 2016a, Rec (16-01) on a multi-annual conservation and management programme for tropical tunas. Even though this recommendation was implemented after carrying out the site visit, the team believes it is important to mention it. Rec 19-02 states the following for yellowfin tuna:

TAC for yellowfin tuna
The annual TAC for 2020 and subsequent years of the Multi-annual Programme is 110,000 t for yellowfin tuna and shall remain in place until changed based on scientific advice.
Based on the stock assessment and SCRS advice, the Commission shall adopt additional conservation measures for yellowfin tuna at the 2020 annual meeting, which may include a revised TAC, closures or allocated catch limits.

If the total catch exceeds in any year the TAC, the Commission shall consider additional management measures for yellowfin tuna.

### 4.2.4 Compliance

During the site visit the team had the chance to get feedback from the competent authorities of the flag State of the certified fleet, i.e., DIPESCA from Guatemala. The team is not aware of any allegations raised against the certified fleet by any of the coastal countries where the fleet operates under bilateral agreements.

In addition, according to the DIPESCA representatives interviewed during the site visit no sanctions have ever been raised against the assessed fleet.

In order to improve the MCS system, DIPESCA explained during the site visit that communication has been improved since last year to be able to have more accurate data. As there have been improvements in the working teams (between DIPESCA and the client), this has made the communication for ICCAT or VMS issues more agile and accurate. Now the ability to answer questions about EU regulations or ICCAT (with the scientific team) is done almost in real time.

Moreover, DIPESCA also showed to the assessment team a system they are developing to display vessel positions (VMS), fishing sets, dates or species caught on Google Earth (see **Section 7.2.1.4** for futher details).
Furthermore, the Client provided the assessment team with the latest ISSF Participating Company (Jealsa) Audit report carried out by MRAG and issued on 9th March 2020 (for activities from Q4 2018 to Q3 2019) where no non-conformities had been found for their fleet (see **Section 7.2.1.2a** for further details).

### 4.2.5 Traceability issues

During the site visit, DIPESCA told the assessment team that there have not been any changes in traceability since last year.

Moreover, the Client provided the assessment team with the latest ISSF Participating Company (Jealsa) Audit report carried out by MRAG and issued on 9th March 2020 (for activities from Q4 2018 to Q3 2019) where no non-conformities had been found (see **Section 7.2.1.2a** for further details). Specifically, regarding product traceability issues, the report states that “The company has a suitable traceability system in place that allows all product codes and produced volumes to be traced through all stages of the supply chain back to the vessel and vessel trip”.

In relation to the vessels, the MSC Chain of Custody first surveillance audit was undertaken on the 4th October 2019 in the Port of Abidjan (Ivory Coast). The certification decision was to maintain the certificate.

### 4.2.6 Scientific based information related to P1: Background

A stock assessment for yellowfin tuna was conducted in 2019 using catch and effort data through 2018, although catch reports for 2018 were incomplete at the time of the stock assessment meeting, with 42% of the total catch being estimated using the average of the previous three years, by CPC and gear type (ICCAT, 2019a).

#### *4.2.6.1 Catches*

Yellowfin tuna have been exploited by three major gears (longline, baitboat and purse seine fisheries) and by many countries throughout its range. Detailed data are available since the 1950s. Overall Atlantic catches declined by nearly half from the peak in 1990 (193,584 t) to 106,288 t estimated for 2013 but increased to an average of 140,143 t during 2016-2018 (ICCAT, 2019a). The most recent catch is given in **Figure 4.2.6.1.**

In the eastern Atlantic, purse seine catches declined between 1990 and 2007 (129,144 t to 47,961 t) but have subsequently increased to 90,250 t in 2018. Baitboat catches declined between 1990 (19,717 t) and 2018 (7,255 t). Longline catches, which were 10,253 t in 1990, declined to 5,031 t in 2018. In the western Atlantic, purse seine catches (predominantly from Venezuela) were as high as 25,749 t during the mid-1980s but have since declined to 3,008 t in 2018. Baitboat catches also declined since a peak in 1994 (7,094 t), and for 2018 were estimated to be 943 t. Since 1990, longline catches have generally fluctuated between 10,000 t and 20,000 t.

Since 2005, catches were either below or around 110,000 t. Rec.14-01 (ICCAT, 2014a) implemented a TAC of 110,000 t for 2012 and subsequent years. The overall catches in 2012 (114,937 t), 2013 (106,288 t) and 2014 (113,414 t) were just above this TAC, but since 2015 catches have been significantly above this level (128,298 t). Also, a catch of 148,874 t was recorded in 2016, 135,865 t for 2017, and 135,689 t for 2018, all an overage of the TAC (ICCAT, 2019a). The distribution of these catches by major gear type, from 2010-2014, is shown in **Figure 4.2.6.2.**

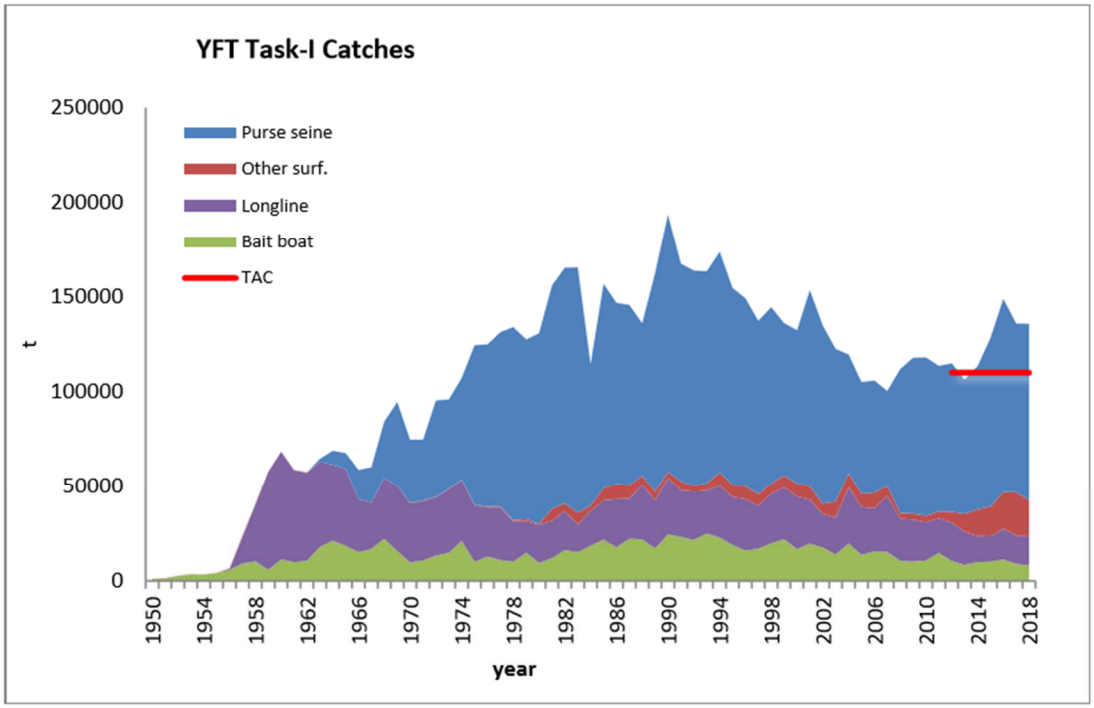



**Figure 4.2.6.1.** Yellowfin tuna total catch 1950 – 2018 by main fishing gear group.

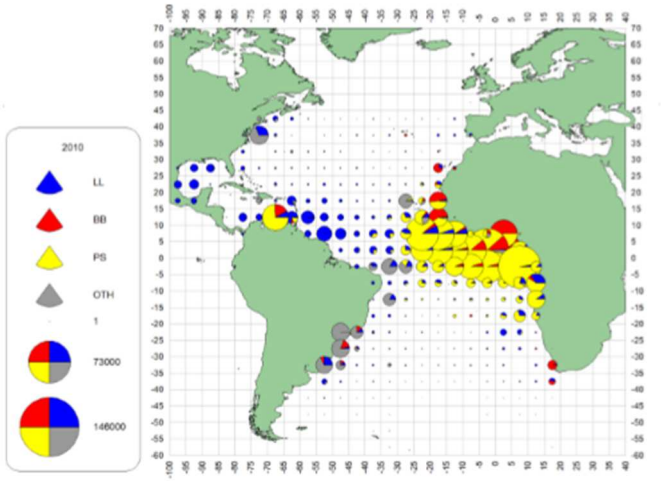


**Figure 4.2.6.2.** Catches by major gear type from 2010-2017, reproduced from (ICCAT, 2019a). LL (blue)-Longlines; BB (red)-Bait boats; PS (yellow)-Purse seines; oth (Grey) - Others. (ICCAT, 2016b)

### *4.2.6.2 Biological background*

Tagging studies of yellowfin in the Pacific and Indian Oceans suggest that natural mortality is age-specific, and higher for juveniles than for adults. Nevertheless, uncertainties remain as to the exact parameterization of the age-specific natural mortality function. An age-specific natural mortality function (e.g. Lorenzen) was developed and applied to the 2016 assessment of yellowfin tuna. The implied natural mortality based on the $t_{max}$ of 18 is 0.35 yr-1, which is lower than the 2016 assessment assumption of 0.54 yr-1 based on a $t_{max}$ of 11 years (ICCAT, 2019a).

### *4.2.6.3 Indices*

Four indices of abundance were used in various stock assessment model runs used to develop management advice (**Figure 4.2.6.3**). A major advancement in this assessment was the development of a joint longline index using high resolution catch and effort information from the main longline fleets operating in the Atlantic (Japan, US, Brazil, Korea and Chinese Taipei). The indices were developed for 3 regions, but only two were used in the assessment: the North Atlantic (Region 1), and the tropical area (Region 2). A new echosounder-based buoy associated index (BAI) index was developed and was assumed to represent the abundance of juvenile yellowfin tuna. An index of larger yellowfin tuna (>80 cm, 10 kg) in free schools for the EU purse seine fleet (EUPSFS index) was also used.

The recent average weight in European purse seine catches, which represent the majority of the landings, had declined to about half of the average weight of 1990. This decline is at least in part due to changes in selectivity associated with fishing on floating objects beginning in the 1990s, which was observed in the increased catches of small yellowfin. A declining trend in average weight and a corresponding increase in the catch of small yellowfin is also evident in eastern tropical baitboat catches. Longline mean weights and catch at size have been more variable.

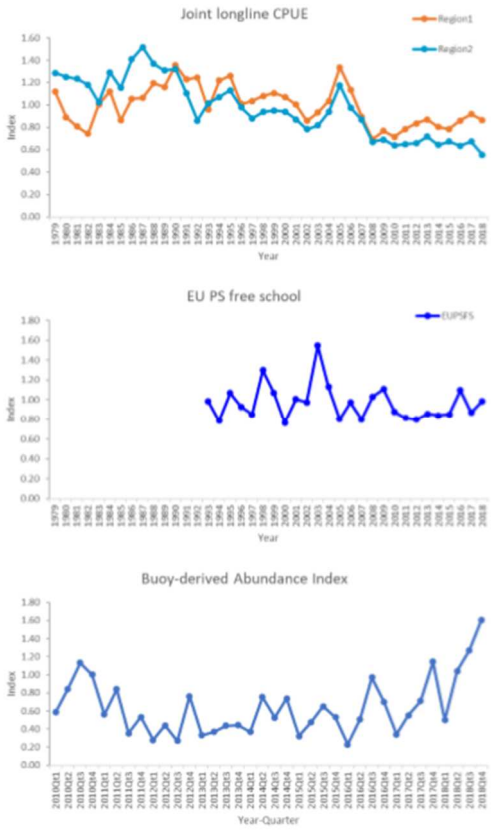


**Figure 4.2.6.3.** Annual abundance indices used for the Atlantic yellowfin tuna stock assessment reference cases. Regions 1 and 2 for joint longline mean the area of index that are northern and tropical areas, respectively. Buoy-derived abundance index was used only in Stock Synthesis and joint longline index in region 1 only for JABBA. Reproduced from (ICCAT, 2019a).

### *4.2.6.4 Stock assessment methods (ICCAT, 2019c)*

#### 4.2.6.4.1 Stock Synthesis

An initial assessment of the Atlantic yellowfin tuna stock using Stock Synthesis 3.3 (Methot and Wetzel, 2013) was conducted prior to the 2019 Yellowfin Tuna Stock Assessment Meeting as agreed in the 2019 Yellowfin Tuna Data Preparatory Meeting. The full assumptions and data inputs to this model are described in Walter et. al (2019).

The key assumptions and configurations of the initial "preliminary reference model" were as follows. The preliminary reference model was constructed as a model with 4 seasons and a timeframe from 1950 – 2018. Fleets are partitioned to represent homogenous fishing areas. However, this model does not have explicit movement between the areas and hence functions as a non-spatial, one-area model. The model starts in 1950 and assumes that the stock starts at virgin or near virgin conditions.

Natural mortality Natural mortality (M) was parameterized by age according to Lorenzen (2005), scaling to the growth curve. This was conducted internally to the model to be consistent with the growth treatment in the model by assuming a value of natural mortality of 0.35 assigned to age 5 (baseline M), consistent with the Then et al. (2018) estimator of M, and assuming a maximum age of 18. This treatment differs from the 2016 assessment where growth was scaled externally with a baseline M=0.55 based on a maximum age of 11 and scaled according the Gascuel et al. (1992) size at age.

The resulting M-at-age vector is defined below:
Age 0 Age 1 Age 2 Age 3 Age 4 Age 5 Age 6 Age 7 Age 8 Age 9+
M 1.3 0.66 0.48 0.4 0.37 0.35 0.34 0.34 0.34 0.33

Natural mortality was initially included in the grid of uncertainty, and during the data preparatory meeting two alternative values, upper and lower M vector were proposed. However, these values were considered very low and high for yellowfin biology dynamics, and therefore it was restricted to a range of values 20% above and below the baseline M (0.28 and 0.42, respectively). A likelihood profile on M suggested that all values of M greater than 0.35 were equally probable.

Following an evaluation of the growth of yellowfin recaptured in the AOTTP the Richards functional form for the growth model was elected but the values estimated internally by stock synthesis using the US/GOM age data were fixed. Parameters were fixed to avoid introducing additional instability in the model. The weight of Atlantic yellowfin tuna in kilograms was estimated from straight fork length in centimeters as: WL = (2.1527x10-5) SFL2.976 (Caverivière 1976) Fecundity was modeled as a direct function of female body weight. The maturity at length was based on Diaha et al. (2015), with 50% maturity at 115 cm SFL. The sex ratio was assumed to be 50:50 males-females. Birth date was adjusted to the first month of each season (January, April, July, October). Growth for yellowfin was estimated using recent otoliths sampling (GOM/US East Coast), that included age validation based on bomb-radiocarbon techniques. A major difference in the biological information is the new maximum age assumption of Age 18 for Atlantic yellowfin tuna, compared to the assumptions in previous assessments where maximum age was assumed to be 11. This has important implications for the estimate of natural mortality. Growth was estimated internally in stock synthesis using the US/GOM age data, assuming a Richards growth model, and a given size at minimum size of age sampling (0.38 year) of 25 cm SFL.

For the 2019 assessment, the model used 25 different fleets. Fleet structure was largely the same as in 2016 with some exceptions. First a new fleet was assigned to the emerging handline fishery off northern Brazil. Next, the longline fleet-areas were adjusted to coincide with the geographical areas of the joint longline index. This change applies to both catch by area/fleet and the size information. Time blocks were proposed based

on the Hoyle et al. (2019) influence plots which indicate a substantial shift in fleet composition, likely associated with the observed changes in selectivity. Time blocks on selectivity are as follows 1950-1979 (early shallow sets), 1980-1991 (transition to deeper sets and BET targeting), 1992-2004 (deep sets) and between 2005-2018 to coincide with the apparent change in selectivity to target larger BET.

A major advance in this assessment was the development of a joint longline index using high resolution catch and effort information from the main longline fleets operating in the Atlantic (Japan, US, Brazil, Korea and Chinese Taipei). The index was developed for 3 regions; North Atlantic, tropical area and South Atlantic based on the size distribution of the catches for these fleets. This index was linked to the Japan longline fleet composition size data for estimating selectivity, as this fleet represents the majority of the size composition in region 2 after removal of the Chinese Taipei data from 2005-2018, and because it has had consistent size sampling. The bouy associated index (BAI) index was modelled as linked to respective seasonal PS FAD fleets, which improved fit to the index. The EUPSFS index was linked to the PS EU FSC 91 season 1 where much of the catch comes from. Indices were input as annual indices, except the BAI index that maintained their seasonal information, with a mean CV=0.2 for the LL indices and 0.3 for the BAI and EUPSFS indices but allowed to vary with the interannual variability in the estimated standard error of the index. The hindcasting diagnostic indicated better predictions of CPUE trend when the model included all indices of abundance.

Length composition was input with an initial sample size equal to the ln(N) to decrease the weight of multiple samples within a fleet, season, and year combination. Preliminary results indicated that size composition data has a large influence in the model fit and results. During the meeting further downweighing of the size composition to 0.5*ln(N) resulted in similar results but showed improvement in the fits and diagnostic test results. Thus, a lambda of 0.5*ln(N) was used to weight the size composition data in all accepted runs.

A Beverton-Holt stock recruitment relation was assumed to model the number of recruits as a function of spawning stock biomass. Virgin recruitment (R0) was freely estimated and steepness (h) was fixed at a value of 0.8 for the preliminary reference model and at 0.9 for the uncertainty grid. Profiling on steepness indicated that there was insufficient information in the data to freely estimate it. Annual variation in recruitment (SigmaR) was estimated in the stock synthesis models on the basis of a likelihood profile which supported estimation. The estimated total annual recruitment was distributed across the four seasons according to seasonal allocations estimated in the model. Deviations in annual recruitment were estimated from 1979 to 2017. The lognormal bias correction (-0.5σ2) for the mean of the stock recruit relationship was applied during the period 1972 to 2017 with the recommended bias correction ramp applied to each model according to Methot and Taylor (2011). The reference model fit tended to produce unusually large recruitment peaks in 2017 and 2018, due primarily to the information from the BAI index that is treated as a recruitment index. Noting that there is no size composition data in 2018 in this model to corroborate or contrast with these high recruitment estimates, it was decided to fix the 2018 estimates of recruitment to the stock recruitment curve rather than estimate them. Not estimating the recruitment deviation for 2018 substantially improved the reference model diagnostics.

Input variance adjustments were iteratively adjusted according to recommendations in Francis (2011). A set of diagnostics were run to evaluate model performance including fits to indices of abundance, length composition residuals, retrospective analysis, hindcasting, likelihood profiling, Age Structured Production Model (ASPM) analysis, jitter analysis and sensitivity runs on influential parameters.

#### 4.2.6.4.2 Surplus production model MPB

Merino et. al (2019) presented preliminary results from fitting the biomass production model mpb (Kell, 2016) to the YFT data using catch data and the joint LL R2 index for 1979-2018 (run 1). Updating the data from what was available in the 2019 Data Preparatory meeting with the most recent catch data made available by the Secretariat caused notable changes in the perception of stock status.

Overall, the model had difficulty converging and diagnostics were relatively poor. Concerns were raised over the fact that the model appears unstable. The model finds a solution only if strict constraints are imposed on the search space for r (intrinsic growth rate) and K (carrying capacity), and when the model did find a solution, that solution does not correspond to the minimum in the likelihood profile, suggesting poor convergence. The following points were discussed: a) mpb has difficulty explaining the observed catch given the continuous decline in the CPUE, b) there are population dynamics and selectivity components that a biomass model

simply cannot accommodate. Unconstrained, the model tends to go to values of intrinsic growth rates r that are extremely low. It is therefore necessary to impose some level of constraint on the parameters. It is defensible from a biological standpoint to constrain K on the left-hand side and leave r unconstrained and expect the improvement of the estimation of r. It was also recommended to free up the $B_0$ parameter as a potential solution for improving the fit. Freeing up $B_0$ had almost no impact. Another proposal to improve the fit was to include the EUPSFS index. Adding the PS index led to a slight improvement in the pattern of residuals for the indices in the most recent years and showed more stability in the jackknife analysis, with almost no change to the hindcasting and retrospective analyses. Finally, the reference case (run 2) using two indices: Joint LL R2 and EUPSFS, was used as the base case, as this was the scenario with better diagnostics.

#### 4.2.6.4.3 Bayesian surplus production model JABBA

Sant' Ana et.al (2019) presented results from JABBA, a Bayesian surplus production model. Four scenarios were presented: a) base case (joint LL R2 with stock synthesis 2016 r prior), b) run 1 (joint LL R2 with FishLife r prior), c) run 2 (joint LL R2 + BAI with stock synthesis 2016 r prior), d) run 3 (joint LL R2 + BAI with FishLife r prior). FishLife r prior refers to a prior estimated using biological parameters available at FishLife database (www.fishbase.se/yellowfin_tuna) and size composition data used in stock synthesis in a model approach to derive surplus biomass parameters from age structure population dynamic model (Winker et al., 2018). This approach has been used in other ICCAT and tRFMOs assessments previously, with the objective of making comparable the runs between biomass surplus production models and length-age based integrated models such stock synthesis. In all scenarios, the model appeared to converge properly, though the inclusion of the BAI index worsened the diagnostics. Overall, the management quantities estimated were comparable across runs. The JABBA base case run was updated using an r prior based on the 2019 stock synthesis run results. Concern was raised that the priors may be having too much influence on the results. Even the "uninformative" prior chosen for run 5 appeared to have information due to its lognormal shape. A new run was created using the FishLife prior but with increased CV. Increasing the CV from 0.3 to 0.6 allowed the model more freedom to adapt to the data and the model converged on a value of r close to the one estimated by stock synthesis. This gave the Group confidence that the value estimated for r in the JABBA model is consistent with the information present in the integrated assessment.

Following the observation that K and r appear highly correlated and that r is consistently being estimated at a value that is lower than that indicated by the prior, a question was raised on whether there is something inherent to mbp and JABBA that causes these models to favor lower values of r. It is not known if this observed propensity to favor lower r values is a true property of the model or simply a result of the data.
It was recommended to try a sensitivity run with ASPIC, whose properties are well studied, to check if the model results in similar estimates for r. ASPIC is not able to control the estimation of r the same way as JABBA or mbp, and when used with the available indices it leads to implausibly low estimates of r.

Regarding indices, the appropriateness of using the echosounder CPUE (BAI) in a production model was questioned as it reflects only the dynamics of recruits and therefore this index was removed. The impact of adding three new indices: EUPSFS, joint LL R1 and joint LL R3 over the Joint R2 index was tested. All other indices except for the EUPSFS, showed evidence of lack of randomness of timeseries residuals. Still, anytime more than one index was used, the conflict between indices consistently translated into a positive trend in the residuals in the earlier years and a negative trend in the residuals in the most recent years. The shortcomings of each index was highlighted. Both LL and PS indices have shortcomings, such as changes in targeting, and technological advances that are difficult to properly account for. But, based on the diagnostics, the quality of the fit was best when using only the Joint LL R2 index. Two additional sensitivity runs were selected to contrast results using the stock synthesis prior vs. the FishLife prior. The JABBA runs utilizing the Venezuelan longline index (VEN LL) showed a poor fit to VEN LL index, with a residual trend in the index fit as well as an increase in RMSE for the overall model fit. The runs including the VEN LL index were not used for the uncertainty matrix.

Another issue common to all runs was the increasing trend observed in the process error over the last decade. In state-space models, like JABBA, the observation error is accounted for in the fit to the indices, but the process error component represents all other processes that are not directly controlled or observed in the data used to modelling (e.g. growth, recruitment, catchability, catch, etc.). The change in selectivity could

possibly cause this pattern in the process error. Considering this one could attempt to solve this in the production model by accounting for some autoregressive structure in q.

The results from mpb and JABBA were compared. Though the Bayesian model showed better model convergence and diagnostics, both models resulted in similar parameter estimates, giving confidence in the population dynamics being estimated.

#### *4.2.6.5 State of the stock*

A full stock assessment was conducted for yellowfin tuna in 2019, applying two production models (JABBA, MPB) and one age-structured model (Stock Synthesis) to the available catch data through 2018. The four Stock Synthesis model runs, were regarded as representing alternative recruitment, and steepness hypotheses. Likewise, the JABBA runs addressed different hypotheses about initial priors for r, and about which indices of abundance were representing the population. Finally, the base case selected for MPB estimated biomass and fishing mortality trends that varied somewhat from JABBA. The Group decided that, in order to capture this uncertainty in the population dynamics for developing the management advice, it was best to incorporate results from all of the accepted model runs.

The trend in the estimated biomass (relative to $B_{MSY}$) for all models shows a general continuous decline through time. Stock Synthesis runs suggest a few periods of large increases in spawning biomass associated with episodes of high recruitment. The model estimates that such very high recruitments have happened three times in the period 1960 to 2017. Production models show much less pronounced increases in total biomass at the equivalent times. Note, however, that for all models there are large uncertainties in the value of biomass at any point in the history, including 2018. Most model runs lead to biomasses at the end of 2018 above the level that produces MSY (**Figure 4.2.6.4**).

Estimates of historical fishing mortality (relative to $F_{MSY}$) show similar trends for all models. For most model runs, fishing mortality increased progressively until the early 1980s, it varied in level until the mid-1990s, after which it declined gradually until the mid-2000s. Since the mid-2000s, the fishing mortality has had a generally increasing trend with fluctuations until 2018. Overall the models estimate that the fishing mortality in 2018 was near the fishing mortality that would produce MSY. Again, for all models there are large uncertainties in the value of fishing mortality at any point in the history, including 2018 (**Figure 4.2.6.5**).

It is important to note that the Stock Synthesis model is the only one used that can provide estimates of recent recruitment. Recruitments were not estimated to vary from the stock-recruit relationship for 2018, due to the large uncertainty in terminal year recruitment estimates. The estimate of recruitment in 2017 is also more uncertain than for previous years, in part because there is no 2018 size frequency data to corroborate or contrast with it. Stock Synthesis models which use the buoy index suggest very high recruitment in 2017, whereas models that do not use the buoy index suggest that recruitment in 2017 was above average but not particularly high.

Equal weight was given to surplus production model and integrated assessment model results. Within surplus production models, JABBA and MPB were also given equal weight. Each run within a modeling platform (JABBA, and Stock Synthesis) were also given equal weight. For the combined results (MPB, JABBA, SS) used to develop management advice, the median estimate of $B_{2018}/B_{MSY}$ is 1.17 - and the median estimate of $F_{2018}/F_{MSY}$ is 0.96. The median MSY estimated is 121,298 t. Combining the results of all models provides a way to estimate the probability of the stock being in each quadrant of the Kobe plot in 2018 (**Figure 4.2.6.6**). The corresponding probabilities are 54% in the green (not overfished not subject to overfishing), 21% in the orange (subject to overfishing but not overfished) 2% in the yellow (overfished but not subject to overfishing) and 22% in the red (overfished and subject to overfishing). In summary, the results point to a stock status of not overfished (24% probability of overfished status), with no overfishing (43% probability of overfishing taking place).

It should be cautioned that the differences between the 2016 and 2019 assessment results are not due to stock recovery. In fact, the 2019 models indicate that the stock biomass declined between 2014 and 2018. Instead, the perceived improvement is more likely due to changes in key data inputs (M, growth, indices) and the suite of models applied (JABBA, MPB, SS).

The catch reports for 2018 were incomplete, at the time when the assessment was conducted with 42% of the total catch being estimated using the average from the previous three years by CPC and gear type. Furthermore, no size data for 2018 were available at the time of the assessment. The 2018 estimated catch assumed for the stock assessment was 131,042 t. This was revised upwards to 135,689 t after additional reporting, a 3.5% change (there still remains an estimated 5% non-reported catch, for which in general the average of the last three years has been assumed). It was not possible to rerun the stock assessment results with the new 2018 catch estimates, however a change of this magnitude is not expected to have substantial implications.

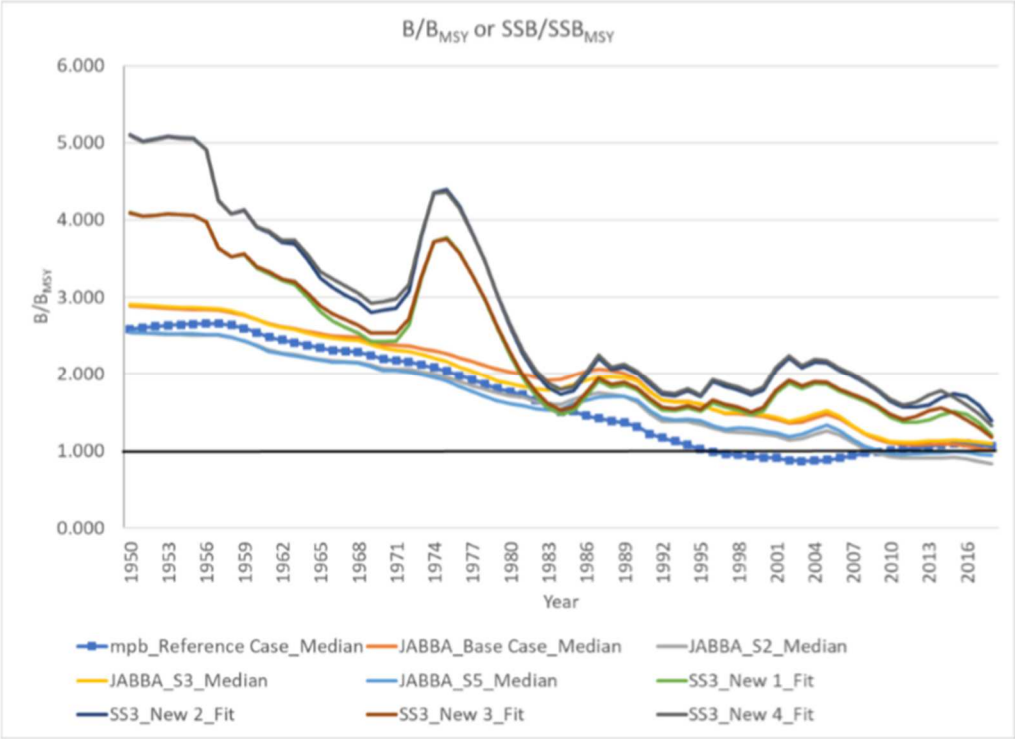



**Figure 4.2.6.4.** Trends in biomass relative to the level that produces MSY (black line) for the model runs used to develop management advice. Reproduced from (ICCAT, 2019a).

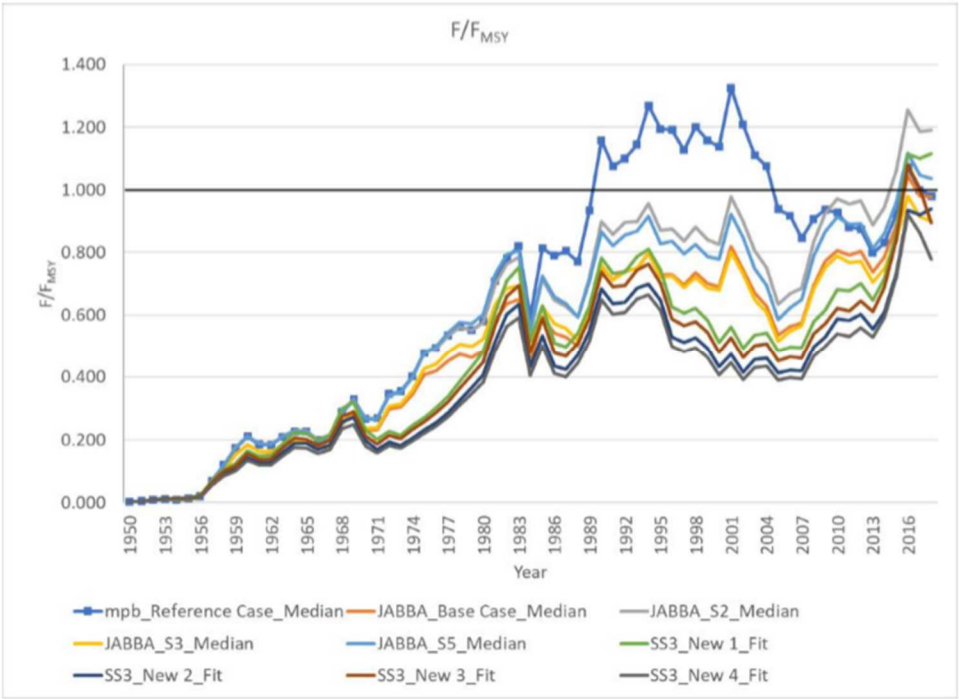


**Figure 4.2.6.5.** Estimates of relative fishing mortality ($F/F_{MSY}$) obtained for all model runs used to develop the management advice.

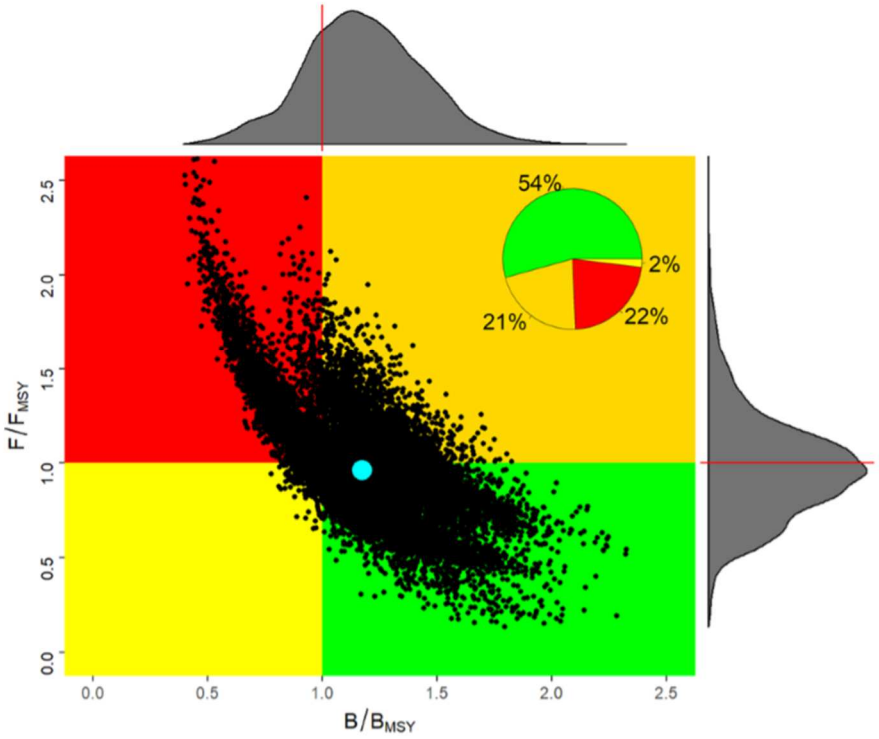



**Figure 4.2.6.6.** Kobe Phase Plot and marginal density for all models (used to develop management advice) combined. Reproduced from (ICCAT, 2019a).

### *4.2.6.6 Projections (ICCAT, 2019c)*

Each of the models (i.e. stock synthesis, MPB, and JABBA) using the following general specifications were projected.

Projection interval: The Group agreed to make projections over a 14-year interval, 2020-2033, which corresponds to two generation times of yellowfin tuna.

2019 Catch: Fixed at 131,042 t, the same catch as was estimated for 2018.

Constant catch projections were made at 0 t, and 60,000 – 150,000 t, by 10,000 t intervals: 11 catch scenarios in total.

For stock synthesis setting, - Recruitment: Based on the estimated stock recruitment relationship with no recruitment deviations.

Selectivity and fleet allocations: It is necessary to specify the selectivity pattern for projections. The appropriate pattern is model specific. Use average of the last three years of the model (2016-2018).

For stock synthesis uncertainty grid, the statistical uncertainty of catch projections were estimated using 2,500 multivariate normal (MVN) iterations for each model of the grid (run1 (Reference Case), run 2, run 3, and run 4) for each constant catch scenario. Due to the technical problem in MVN approach, the values of $F/F_{MSY}$ more than 4 or $B/B_{MSY}$ less than 0.2 were replaced to 4 or 0.2. The projections in runs 1, 2 ,3, and 4 showed that the median of MVN iterations could maintain the stock above $B_{MSY}$ level and below $F_{MSY}$ by 2033

with the constant catches less than 110,000 t, 120,000 t, and 130,000 t. However, the projections in runs 1 and 2 clearly indicate that constant catch higher than 140,000 t leads to population crash in later years.

Catch projections from the 5,000 iterations developed from the MPB-Reference Case were carried out. The projections with MPB showed that according to the median of 5000 bootstrap iterations, constant catches less than 130,000 t could maintain the stock at or above $B_{MSY}$ level and below $F_{MSY}$ through 2033.

Catch projections from 36,000 MCMC iterations were conducted for each JABBA Reference Cases (Base Case, S2, S3, and S5). The projections with JABBA in Base Case, S3, and S5 showed that according to the median of MCMC iterations, constant catches less than 130,000 t. could rebuild (S5) or maintain the stock at or above the $B_{MSY}$ level and below $F_{MSY}$ through 2033 with constant catches less than 120,000t.

Combined catch projections from 9 runs (JABBA (Base Case, S2, S3, and S5), MPB, Stock Synthesis (runs 1, 2, 3 and 4) were provided at constant catches ranging 0 t and from 60,000 to 150,000 t. In the projection results from the Stock Synthesis and JABBA models, some iterations were predicted with exceptionally small biomass ratios and extremely high F ratios indicating the potential for stock collapse. Thus, probability of biomass being less than 20% of the biomass that supports MSY was calculated for each projection year and catch scenario (**Table 4.2.6.1**). The probability increased with higher catch levels and in later projected years. The probabilities more than 1% or 10% were observed with the constant catch more than 110,000 t or 140,000 t, respectively. The highest probability was 23.3% with 150,000 t constant catch in 2033. It should be noted that the reference chosen, 20% of biomass that supports MSY, was selected for informational purposes and has not been adopted formally by the SCRS for tropical tunas.

**Table 4.2.6.1**. Estimated probabilities of biomass the Atlantic YFT stock levels < 20% of BMSY in the combined projections of JABBA (Base Case, S2, S3, and S5), MPB, Stock Synthesis (runs 1-4) in a given year for a given catch level (0, 60,000 – 150,000 t). This result was used to develop the management advice of Atlantic YFT stock.

| TAC | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 60000 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 70000 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 80000 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| 90000 | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% | 0.1% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.3% |
| 100000 | 0.0% | 0.0% | 0.1% | 0.1% | 0.2% | 0.2% | 0.3% | 0.3% | 0.4% | 0.4% | 0.5% | 0.5% | 0.6% | 0.6% |
| 110000 | 0.0% | 0.0% | 0.1% | 0.1% | 0.2% | 0.4% | 0.6% | 0.7% | 0.8% | 0.9% | 1.0% | 1.2% | 1.4% | 1.5% |
| 120000 | 0.0% | 0.0% | 0.1% | 0.3% | 0.5% | 0.7% | 1.0% | 1.2% | 1.5% | 1.8% | 2.1% | 2.4% | 2.6% | 2.9% |
| 130000 | 0.0% | 0.1% | 0.2% | 0.5% | 0.8% | 1.2% | 1.6% | 2.1% | 2.6% | 3.0% | 3.5% | 3.9% | 4.3% | 4.7% |
| 140000 | 0.0% | 0.1% | 0.3% | 0.7% | 1.2% | 1.8% | 2.6% | 3.2% | 4.0% | 4.8% | 10.4% | 12.2% | 12.9% | 13.4% |
| 150000 | 0.0% | 0.1% | 0.3% | 1.0% | 1.7% | 2.7% | 3.7% | 4.8% | 11.9% | 12.7% | 15.9% | 21.3% | 22.1% | 23.3% |

The combined projections show that 120,000 t constant catch will maintain more than 50% probability of being in green quadrant through 2033 (**Figure 4.2.6.7** and **Table 4.2.6.2**).

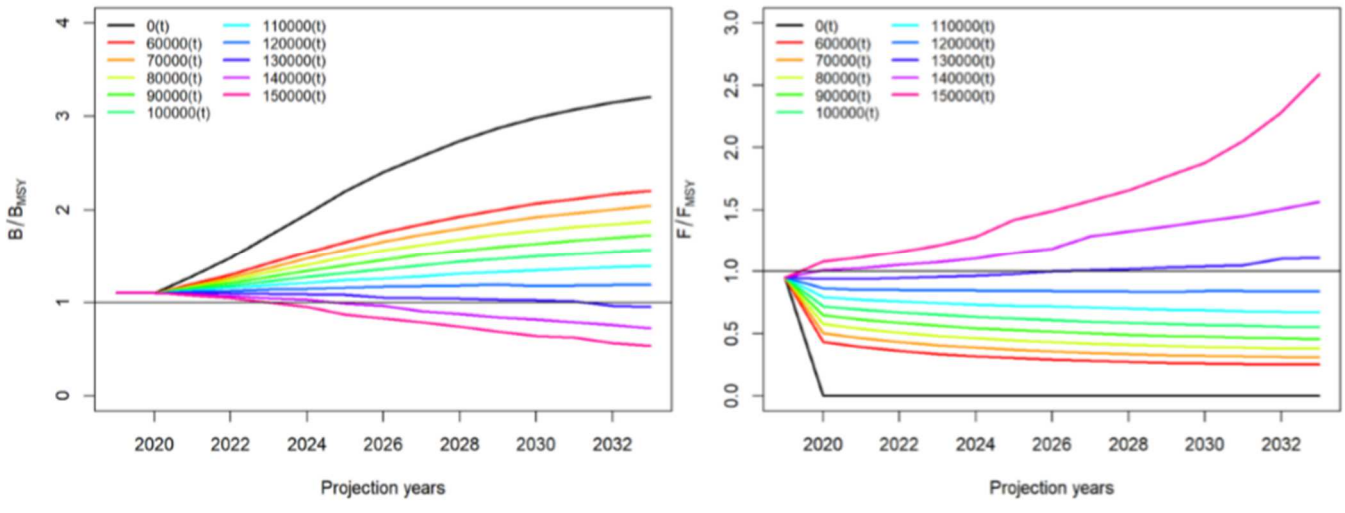



**Figure 4.2.6.7**. Trends of projected relative biomass (left panel, B/BMSY) and fishing mortality (right panel, F/FMSY) of Atlantic yellowfin stock under different TAC scenarios (0, 60000 – 150000 t) from JABBA, MPB, and SS3 using 9 runs

(JABBA (Base Case, S2, S3, and S5), MPB, Stock Synthesis (runs 1-4)). Each line represents the median of 20000 iterations by projected year. In 2019, the catch was assumed to be 131,042 t, equal to the 2018 estimated landings (ICCAT, 2019a).

**Table 4.2.6.2.** Estimated probabilities of the Atlantic YFT stock (a) being below $F_{MSY}$ (overfishing not occurring), (b) above $B_{MSY}$ (not overfished) and (c) above $B_{MSY}$ and below $F_{MSY}$ (green zone) in a given year for a given catch level (0, 60,000 – 150,000 t), based upon the combined projections of JABBA (Base Case, S2, S3, and S5), MPB, Stock Synthesis (runs 1-4). This result was used to develop the management advice of Atlantic YFT stock.

a) Probability that $F \leq F_{MSY}$

| TAC \| Year | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 60000 | 99 | 99 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 70000 | 98 | 99 | 99 | 99 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 80000 | 96 | 97 | 98 | 98 | 99 | 99 | 99 | 99 | 99 | 100 | 100 | 100 | 100 | 100 |
| 90000 | 93 | 95 | 96 | 97 | 97 | 98 | 98 | 98 | 98 | 99 | 99 | 99 | 99 | 99 |
| 100000 | 88 | 90 | 92 | 93 | 94 | 95 | 95 | 95 | 96 | 96 | 97 | 97 | 97 | 97 |
| 110000 | 81 | 84 | 85 | 86 | 87 | 87 | 88 | 88 | 89 | 90 | 90 | 90 | 90 | 90 |
| 120000 | 71 | 72 | 72 | 73 | 73 | 74 | 74 | 74 | 74 | 74 | 70 | 70 | 70 | 70 |
| 130000 | 60 | 59 | 58 | 56 | 55 | 53 | 50 | 49 | 47 | 46 | 46 | 45 | 39 | 39 |
| 140000 | 48 | 46 | 43 | 39 | 36 | 32 | 30 | 26 | 24 | 23 | 22 | 21 | 21 | 19 |
| 150000 | 39 | 35 | 30 | 25 | 22 | 17 | 15 | 13 | 13 | 12 | 11 | 10 | 10 | 8 |

b) Probability that $B \geq B_{MSY}$

| TAC \| Year | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 64 | 84 | 95 | 99 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 60000 | 64 | 75 | 85 | 92 | 96 | 97 | 98 | 99 | 99 | 99 | 100 | 100 | 100 | 100 |
| 70000 | 64 | 74 | 83 | 90 | 94 | 96 | 97 | 98 | 98 | 99 | 99 | 99 | 100 | 100 |
| 80000 | 64 | 72 | 79 | 86 | 91 | 94 | 96 | 97 | 97 | 98 | 98 | 99 | 99 | 99 |
| 90000 | 64 | 70 | 77 | 82 | 87 | 90 | 92 | 94 | 95 | 96 | 97 | 97 | 98 | 98 |
| 100000 | 64 | 68 | 73 | 78 | 82 | 85 | 87 | 89 | 91 | 92 | 93 | 94 | 94 | 95 |
| 110000 | 64 | 67 | 69 | 72 | 75 | 77 | 79 | 81 | 83 | 84 | 85 | 86 | 86 | 87 |
| 120000 | 64 | 65 | 65 | 67 | 68 | 68 | 69 | 70 | 71 | 71 | 68 | 69 | 69 | 69 |
| 130000 | 65 | 63 | 62 | 61 | 60 | 59 | 56 | 56 | 55 | 53 | 52 | 51 | 46 | 45 |
| 140000 | 64 | 61 | 59 | 56 | 54 | 49 | 46 | 40 | 37 | 34 | 31 | 29 | 27 | 25 |
| 150000 | 64 | 60 | 55 | 50 | 45 | 37 | 32 | 27 | 23 | 20 | 18 | 13 | 12 | 8 |

c) Probability that $F \leq F_{MSY}$ and $B \geq B_{MSY}$

| TAC \| Year | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 64 | 84 | 95 | 99 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 60000 | 64 | 75 | 85 | 92 | 96 | 97 | 98 | 99 | 99 | 99 | 100 | 100 | 100 | 100 |
| 70000 | 64 | 74 | 83 | 90 | 94 | 96 | 97 | 98 | 98 | 99 | 99 | 99 | 100 | 100 |
| 80000 | 64 | 72 | 79 | 86 | 91 | 94 | 96 | 97 | 97 | 98 | 98 | 99 | 99 | 99 |
| 90000 | 64 | 70 | 77 | 82 | 87 | 90 | 92 | 94 | 95 | 96 | 97 | 97 | 98 | 98 |
| 100000 | 64 | 68 | 73 | 77 | 82 | 85 | 87 | 89 | 90 | 92 | 93 | 94 | 94 | 95 |
| 110000 | 64 | 66 | 69 | 72 | 75 | 77 | 79 | 81 | 82 | 83 | 84 | 85 | 86 | 86 |
| 120000 | 63 | 63 | 64 | 65 | 65 | 66 | 66 | 67 | 67 | 68 | 65 | 65 | 66 | 66 |
| 130000 | 58 | 57 | 56 | 54 | 52 | 50 | 47 | 46 | 45 | 44 | 43 | 42 | 38 | 38 |
| 140000 | 48 | 45 | 42 | 38 | 35 | 31 | 29 | 26 | 24 | 22 | 21 | 20 | 20 | 19 |
| 150000 | 39 | 34 | 30 | 25 | 21 | 17 | 15 | 13 | 12 | 12 | 11 | 10 | 9 | 7 |

### *4.2.6.7 Management recommendations*

The Atlantic yellowfin tuna stock was estimated to be not overfished, and no overfishing was occurring. Maintaining catch levels at the current TAC of 110 000 t is expected to maintain healthy stock status through 2033 (ICCAT, 2019a). **Table 4.2.6.3** below summarises main outputs from the fishery advice and most relevant management measures in effect.

**Table 4.2.6.3**. Management measures and stock status for Atlantic Yellowfin tuna. Source: ICCAT 2019a

**ATLANTIC YELLOWFIN TUNA SUMMARY**

| Estimates | Mean (90% confidence intervals) |
|---|---|
| Maximum Sustainable Yield (MSY) | 121,298 t (90,428 - 267,350 t)[1] |
| 2018 Yield | 135,689 t |
| Relative Biomass[2]: $B_{2018}/B_{MSY}$ | 1.17 (0.75 - 1.62) |
| Relative Fishing Mortality: $F_{2018}/F_{MSY}$ | 0.96 (0.56 - 1.50) |

2018 Total Biomass[3] 729,436 t

Stock Status (2018) Overfished: No[4]
Overfishing: No[5]

[Rec. 16-01]
- No fishing with natural or artificial floating objects during January and February in the area encompassed by the African coast, 20º W, 5ºN and 4ºS.
- TAC of 110,000 t (since Rec. 11-01).
- 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
- Specific limits on FADs, non-entangling FADs required

1) Minimum and maximum values of 90%LCI and 90%UCI among all runs by the Stock Synthesis, JABBA, and MPB
2) SSB (Stock Synthesis) or exploited biomass (production models)
3) Mean of the central estimates of the SS, JABBA and MPB models
4) (24% probability of overfished status)
5) (43% probability of overfishing taking place)

### 4.2.7 Scientific based information related to P2

The UoA certified in 2019 (see PCR available at: https://fisheries.msc.org/en/fisheries/sant-yago-tf-unassociated-purse-seine-atlantic-yellowfin-tuna-fishery/@@assessments), included only purse seiners targeting free-swimming free schools (FSCs). However, at the time when the fishery was certified these FSCs included sets on large whales. As a consequence of a condition opened during the certification of the fishery regarding this issue, this was changed in 2019 and all the new data collected and analysed during this surveillance audit do not include any fishing operation sets on large whales (see **section 5.2 – Condition 3** for further details). Instead, sets on large whales are now included in associated sets (FADs).

From now onwards, in this surveillance report the team will refer to unassociated sets or free-swimming schools as FSC, and associated sets as FADs.

The following observer catch data were provided by AZTI for the two vessels in the Sant Yago fleet, i.e., Sant Yago I and Sant Yago III, for 2018 and 2019. Both vessels have 100% observer coverage provided by Sea Eye. Sea Eye is a consultancy based in Côte d'Ivoire specialized in these kind of services. Sea Eye works in close cooperation with AZTI, which is the entity in charge of receiving and checking the observer data before being sent to the SCRS / ICCAT Secretariat.

**Tables 4.2.7.1**, **4.2.7.2**, and **4.2.7.3** reflect the 2018 data (included in the PCR) that were revised and corrected by AZTI. These data now exclude sets on large whales as a consequence of Condition 3 set in the PCR (see **section 5.2 – Condition 3**). These revised catch data are comparable to the catch data used in the initial assessment report (see the PCR available at: https://fisheries.msc.org/en/fisheries/sant-yago-tf-unassociated-purse-seine-atlantic-yellowfin-tuna-fishery/@@assessments).

On the other hand, the 2019 observer data (**Tables 4.2.7.4**, **4.2.7.5**, and **4.2.7.6**) are new data that reflect observed catches for the first year following the assessment report, and are included in the catch analysis for the 1st annual surveillance audit of the Sant Yago unassociated purse seine Atlantic yellowfin tuna fishery. A comparison of the data in Tables X1, X2, and X3 and Tables X4, X5, and X6 demonstrate that the characteristics of the Sant Yago unassociated yellowfin purse seine fishery has not changed substantially in 2019, the first year since the fishery was MSC certified. The number of positive sets in the FADs remains similar between 2018 and 2019, being slightly less than 200 per vessel; and the number of sets in the FSC (MSC certified) remains similar at about 115 total for both vessels in the MSC certified fishery. The catches of the primary tuna species also remain similar between 2018 and 2019 for the two set types. The MSC certified FSC fishery catches mostly yellowfin tuna, while the FAD fishery catches mostly skipjack tuna.

The tuna catch distribution of the MSC certified FSC fishery for 2018 and 2019 (**Table 4.2.7.7**) indicates that the overall tuna catch distribution of the fishery has not substantively changed between 2018 and 2019. Yellowfin tuna, the target (P1), represents about 60% of the tuna catch, while bigeye and skipjack (P2 species) represent 15 and 20% of the tuna catch, respectively. The remaining 1% of the tuna catch is other tuna species. A comparison of the entire observed catch of all species in 2018 and 2019 for the entire Sant Yago fleet is shown in **Table 4.2.7.8**. Again, the overall catch distribution of the fishery is remarkably stable between 2018 and 2019. It is interesting to note that total bycatch in tons decreased in 2019 by about 40%, from 107.6 tons in 2018 to 64.2 tons in 2019. The distribution and fate of the non-tuna bycatch of the Sant Yago fleet in 2019 is shown in **Table 4.2.7.9**, and again the bycatch distribution is similar to that presented for the 2018 in the assessment report. The only notable exception is the relatively high catch of silky sharks (363) individuals in 2019, and AZTI explained in the site visit call that this was a result of a single set that captured more than 300 individuals, and about 78% of the captured silky sharks were released alive. The 2014-2017 data included 302 sets and reported 294 silky sharks captured, for about 1 silky shark per set on average. The 2018 data reported 159 silky sharks captured in 118 sets, but there were also 95 other *Carcharhinidae* sharks captured that were not identified to species level, so the average catch of silky sharks was at a maximum 1.5 sharks per set, and possibly as low as about 1 per set. The 2019 data included 131 postive sets, and if the single, anomalous catch of 300 silky is excluded, then the average catch per set of silky sharks is less than 0.5 per set, and if all data is considered, the the average catch per set is about 2.8 per set. Based on this analysis, the team believes that the average catch of silky sharks remained essentially unchanged, but should be reviewed carefully in future audits for evidence of any pattern. One puzzling observation in the initially provided data was the reported retention of 15 sea turtles in 2019, whereas previous data for 2018 indicated 100% were released alive. After consulting with AZTI, it was confirmed that this was an error in the data provided to the team and that all the sea turtles retained were in fact released alive. The information was corrected by AZTI, and the corrected data is included in this report.

**Table 4.2.7.1.** Number of sets on FADs and FSC in the Sant Yago fishery in 2018.

| 2018 | | | Sets on FADs | | Sets on FSC | |
|---|---|---|---|---|---|---|
| Vessel | N fishing trips | N observed fishing trips | Positive sets | Null sets | Positive sets | Null sets |
| Sant Yago I | | 11 | 198 | 1 | 82 | 14 |
| Sant Yago III | | 8 | 189 | 4 | 29 | 10 |

**Table 4.2.7.2.** Summary of observed unassociated (FSC) tuna catch and fate in the Sant Yago fishery in 2018.

| 2018 | FSC SETS (excluding those with whales) | | | | | |
|---|---|---|---|---|---|---|
| Species | Retained | | Discarded | | Fate | |
| | t | t/1000t | t | t/1000t | Alive | Dead |
| YFT | 1343 | 564 | 0 | 0.0 | 0% | 100% |
| BET | 265 | 111 | 0 | 0.0 | 0% | 100% |
| SKJ | 775 | 325 | 0 | 0.0 | 0% | 100% |
| FRI | 30 | 13 | 0 | 0.0 | 0% | 100% |
| LTA | 0 | 0 | 0 | 0.0 | 0% | 100% |

**Table 4.2.7.3.** Summary of observed associated (FAD) tuna catch and fate in the Sant Yago fishery in 2018.

| 2018 | FADs (including those with whales) | | | | | |
|---|---|---|---|---|---|---|
| Species | Retained | | Discarded | | Fate | |
| | t | t/1000t | t | t/1000t | Alive | Dead |
| YFT | 976 | 95 | 0 | 0.00 | 0% | 100% |
| BET | 2904 | 283 | 0.54 | 0.05 | 0% | 100% |
| SKJ | 6373 | 622 | 34.7 | 3.38 | 0% | 100% |
| FRI | 292 | 28 | 54 | 5.27 | 0% | 100% |
| LTA | 40 | 4 | 22 | 2.15 | 0% | 100% |

**Table 4.2.7.4.** Number of tuna sets on FADs and FSC in the Sant Yago fishery in 2019.

| 2019 | | | Sets on FADs | | Sets on FSC | |
|---|---|---|---|---|---|---|
| | N fishing trips | N observed fishing trips | Positive sets | Null sets | Positive sets | Null sets |
| Sant Yago I | | 8 | 193 | 0 | 67 | 14 |
| Sant Yago III | | 9 | 197 | 3 | 64 | 22 |

**Table 4.2.7.5.** Summary of observed FSC tuna catch and fate in the Sant Yago fishery in 2019.

| 2019 | FSC | | | | | |
|---|---|---|---|---|---|---|
| Species | Retained | | Discarded | | Fate | |
| | t | t/1000t | t | t/1000t | Alive | Dead |
| YFT | 1951 | 653 | 0 | 0.0 | 0% | 100% |
| BET | 438 | 147 | 0 | 0.0 | 0% | 100% |
| SKJ | 600 | 201 | 0 | 0.0 | 0% | 100% |
| FRI | 19 | 6 | 0 | 0.0 | 0% | 100% |

| | | | | | | |
|---|---|---|---|---|---|---|
| **LTA** | 12 | 4 | 0 | 0.0 | 0% | 100% |

**Table 4.2.7.6.** Summary of observed FADs tuna catch and fate in the Sant Yago fishery in 2019.

| **2019** | **FADS** | | | | | |
|---|---|---|---|---|---|---|
| **Species** | **Retained** | | **Discarded** | | **Fate** | |
| | t | t/1000t | t | t/1000t | Alive | Dead |
| **YFT** | 1326 | 165 | 4.2 | 0.52 | 0% | 100% |
| **BET** | 1828 | 227 | 0.2 | 0.02 | 0% | 100% |
| **SKJ** | 4906 | 609 | 106.7 | 13.24 | 0% | 100% |
| **FRI** | 223 | 28 | 15 | 1.86 | 0% | 100% |
| **LTA** | 92 | 11 | 1 | 0.12 | 0% | 100% |

**Table 4.2.7.7.** Comparison of the observed tuna catch distribution for FSC sets in 2018 and 2019 by the Sant Yago fleet.

| **FSC sets** | **2018** | | | **2019** | | |
|---|---|---|---|---|---|---|
| **Species** | **Retained** | **Discarded** | **% of total tuna catch** | **Retained** | **Discarded** | **% of total tuna catch** |
| **YFT** | 1343 | 0 | 56% | 1951 | 0 | 65% |
| **BET** | 265 | 0 | 11% | 438 | 0 | 15% |
| **SKJ** | 775 | 0 | 32% | 600 | 0 | 20% |
| **Others** | 30 | 0 | 1% | 31 | 0 | 1% |
| Total | 2413 | 0 | | 3020 | | |

**Table 4.2.7.8.** Comparison of the observed catch distribution for FSC sets in 2018 and 2019 by the Sant Yago fleet including bycatch of tuna and non-tuna species.

| | **Tons** | |
|---|---|---|
| | **2018** | **2019** |
| **All catches** (including retained, released & discarded bycatch) | 2490.6 | 3053.2 |
| **Landings** (all retained catches) | 2413.7 | 3025.2 |
| **Production** (YFT+SKJ+BET landed) | 2383.0 | 2989.0 |
| **Total bycatch** | 107.6 | 64.2 |
| Sharks and rays | 76.1 | 26.9 |
| Target tunas | 0.0 | 0.0 |
| Other tunas | 30.0 | 31.0 |
| Billfishes | 0.7 | 4.8 |
| Other bony fishes | 0.5 | 0.8 |
| Turtles | 0.3 | 0.8 |

**Table 4.2.7.9.** Distribution and fate of observed bycatch for FSC sets in 2019 of the Sant Yago tuna fishery.

| | | Total weight | N ind | % total catch | Fate (proportion in weight) | | |
|---|---|---|---|---|---|---|---|
| | | tons | | | Retained | Released alive | Released dead |
| Rays | Dasyatidae | 0.00 | 0 | 0.000 | | | |
| | Dasyatys (Pteroplatytrygon) violacea | 0.01 | 2 | 0.000 | | 1.00 | |
| | Manta birostris | 0.05 | 1 | 0.002 | | | 1.00 |
| | Mobula japanica (rancureli) | 0.00 | 0 | 0.000 | | | |
| | Mobula mobular | 0.45 | 3 | 0.015 | | 1.00 | |
| Requiem sharks | Carcharhinidae sp. | 0.65 | 13 | 0.021 | | 0.77 | 0.23 |
| | Carcharhinus falciformis | 24.22 | 363 | 0.793 | | 0.78 | 0.22 |
| | Carcharhinus obscurus | 0.05 | 2 | 0.002 | | 1.00 | |
| Mako sharks | Isurus oxyrinchus | 0.12 | 2 | 0.004 | 0.67 | | 0.33 |
| Hammerhead sharks | Sphyrna zygaena | 0.13 | 2 | 0.004 | | 1.00 | |
| | Sphyrna lewini | 0.75 | 21 | 0.025 | | 0.68 | 0.32 |
| Blue shark | Prionace glauca | 0.44 | 6 | 0.014 | | 1.00 | |
| Whale shark | Rhincodon typus | 0.00 | 0 | 0.000 | | | |
| Billfishes | Istiophorus albicans | 3.22 | 112 | 0.105 | 1.00 | | |
| | Makaira nigricans | 1.21 | 9 | 0.040 | 1.00 | | |
| | Xiphias gladius | 0.34 | 1 | 0.011 | 1.00 | | |
| Other bony fishes | Acanthocybium solandri | 0.02 | 2 | 0.001 | 1.00 | | |
| | Canthidermis maculata | 0.00 | | 0.000 | | | |
| | Caranx crysos | 0.00 | | 0.000 | | | |
| | Coryphaena equiselis | 0.00 | | 0.000 | | | |
| | Coryphaena hippurus | 0.35 | 122 | 0.011 | 1.00 | | |
| | Echeneis naucrates | 0.00 | 3 | 0.000 | | 1.00 | |
| | Elagatis bipinnulata | 0.00 | 0 | 0.000 | | | |
| | Kyphosus sectatrix | 0.00 | 0 | 0.000 | | | |
| | Lobotes surinamensis | 0.00 | 0 | 0.000 | | | |
| | Masturus lanceolatus | 0.00 | 0 | 0.000 | | | |
| | Mola mola | 0.38 | 5 | 0.012 | | 1.00 | |
| | Naucrates ductor | 0.00 | 0 | 0.000 | | | |
| | Seriola rivoliana | 0.00 | 0 | 0.000 | | | |
| Turtles | Dermochelys coriacea | 0.38 | 1 | 0.012 | | 1.00 | |
| | Caretta caretta | 0.06 | 2 | 0.002 | | 1.00 | |
| | Lepidochelys olivacea | 0.41 | 13 | 0.013 | | 1.00 | |

#### *4.2.7.1 Primary species*

As described in the PCR (available at: https://fisheries.msc.org/en/fisheries/sant-yago-tf-unassociated-purse-seine-atlantic-yellowfin-tuna-fishery/@@assessments), the potential primary species for this fishery were listed in Table 3-17, and it comprised 3 different tunas species (skipjack tuna, bigeye tuna and albacore), 4 billfishes (swordfish, Atlantic sailfish, blue marlin and Atlantic white marlin) and 1 shark (blue shark). These species fishery management is based on biological reference points as a result of stock assessments performed by the ICCAT SCRS.

During the initial assessment, the shortfin mako shark was classified as ETP, however after further consideration, the assessment team has determined that it is more appropriate to reclassify shortfin mako sharks as a primary minor species. For a species to be considered as an ETP under MSC Fisheries Standard v.2.01, it has to be included in one of the binding international agreements as stated in SA 3.1.5.2. The shortfin mako shark (*Isurus oxyrinchus*) is not included in Appendix 1 of CITES, nor in any binding agreement under CMS. This species is only included in Appendix II of the CMS and in the Shark Memorandum of Understanding, which are not legally binding and therefore, the team classified the Shortfin mako shark (*Isurus oxyrinchus*) as primary species under MSC standard SA 3.1.3 and not as ETP. This decision was also aligned with the way other tuna fisheries are considering this species.

##### 4.2.7.1.1 Main or Minor subcomponents

According to observed 2019 catch data, both skipjack and bigeye tuna account for more than 5% of the total volume of the UoC catches. Therefore, these two species are the only species classified as 'main' subcomponents. The remaining primary catch species are assessed as 'Minor' subcomponents including shortfin mako shark.

- 2 subcomponent as main primary: skipjack (East Atlantic stock) and bigeye tuna
- 11 subcomponents as minor primary: albacore (Stocks N & S), swordfish (Stocks N & S), Atlantic sailfish, blue marlin, Atlantic white marlin, blue shark (stocks N & S), and shortfin mako shark (stocks N & S).

The classification of main and minor primary subcomponents remains the same as in the PCR, except for the shortfin mako shark whose classification changed from ETP to Primary and therefore, it is now included and analysed in this surveillance report as primary minor.

##### 4.2.7.1.2 New Primary species stock assessments

The assessment team checked which primary species stocks have been re-assessed by ICCAT since the certification of the fishery, and found that the following three primary species have undergone new stock assessments:

***a) Atlantic Bigeye tuna (information was extracted from ICCAT, 2017b, 2019a)***

Biology

Bigeye tuna are distributed throughout the Atlantic Ocean between 50ºN and 45ºS, but not in the Mediterranean Sea. This species swims at deeper depths than other tropical tuna species and exhibits extensive vertical movements.

Bigeye tuna exhibit clear diurnal patterns: they are found much deeper during the daytime than at night. Spawning takes place in tropical waters when the environment is favourable. From nursery areas in tropical waters, juvenile fish tend to diffuse into temperate waters as they grow. Catch information from surface gears indicate that the Gulf of Guinea is a major nursery ground for this species. Dietary habits of bigeye tuna are varied and prey organisms like fish, molluscs, and crustaceans are found in their stomach contents. Bigeye

tuna exhibit relatively fast growth: about 105 cm fork length at age three, 140 cm at age five and 163 cm at age seven. Bigeye tuna over 200 cm are relatively rare. Bigeye tuna become mature around 100 cm at between 3 and 4 years old. Young fish form schools mixed with other tunas such as yellowfin tuna and skipjack. These schools are often associated with drifting objects, whale sharks and sea mounts. This association weakens as bigeye tuna grow. Bigeye tuna are assumed to be an Atlantic-wide single stock, however, the possibility of other scenarios, such as north and south stocks, should not be disregarded.

Catches

The stock has been exploited by three major gears (longline, bait boat and purse seine fisheries) and by many countries throughout its range and ICCAT has detailed data on the fishery for this stock since the 1950s. Scientific sampling at landing ports for purse seine vessels from the EU and associated fleets has been conducted since 1980 to estimate bigeye tuna catches (**Figure 4.2.7.1**). The size of fish caught varies among fisheries: medium to large fish for the longline fishery, small to large for the directed bait boat fishery, and small for other bait boat and for purse seine fisheries.

Bigeye tuna is now a primary target species for most of the longline and some bait boat fisheries, but this species has always been of secondary importance for the other surface fisheries. In the purse seine fishery, unlike yellowfin tuna, bigeye tuna are mostly caught while fishing on floating objects such as logs or manmade fish aggregating devices (FADs). During 2012-2017, landings of bigeye in weight caught by longline fleets represent 48%, while purse seine fleets represent 34% and bait boat and other surface fleets represent 18% of the total. In 2018, landings of bigeye in weight caught by longline represent 44%, while purse seiner and baitboat plus other surface fleets represent 39% and 17%, respectively (ICCAT 2019a).

The total annual catch) increased up to the mid-1970s reaching 60,000 t and fluctuated over the next 15 years. In 1992, catch reached 100,000 t (**Figure 4.2.7.1**) and continued to increase, reaching an historic high of about 135,000 t in 1994. Since then, reported and estimated catch continuously declined and fell to 59,192 t in 2006. From the low level of 2006, catches have increased again and reached 79,524 t in 2015. Catches have averaged since then 77,646 t in the period 2015-2018. The preliminary catch estimated for 2018 was 73,366 t (there still remains an estimate 2.4% non-reported catch, for which in general the average of the last three years has been assumed). The agreed TAC of 65,000 t imposed since 2016 has been exceeded every year. (ICCAT, 2019a).

After the historic high catch in 1994, all major fisheries exhibited a decline in catch while the relative share by each fishery in total catch remained relatively constant until 2008. These reductions in catch were related to declines in fishing fleet size (longline) as well as decline in CPUE (longline and bait boat). Although the general trend of decreasing catches continued for longline and bait boat, the purse seiner catches increased, as did the relative contribution of purse seine in the total catches in the period 2010-2017. The number of active purse seiners declined by more than half from 1994 until 2006, but then increased as some vessels returned from the Indian Ocean to the Atlantic and since 2014, the number of purse seine vessels has remained stable. Other surface fisheries, from CPCs with no specific catch limits under Rec. 16-01, also have increased the catches in recent years from around 1,000 t in 2011 to around 7,000 t in 2017, mainly due to the development of the new Brazilian handline vessel associated-school fishery (UoA).

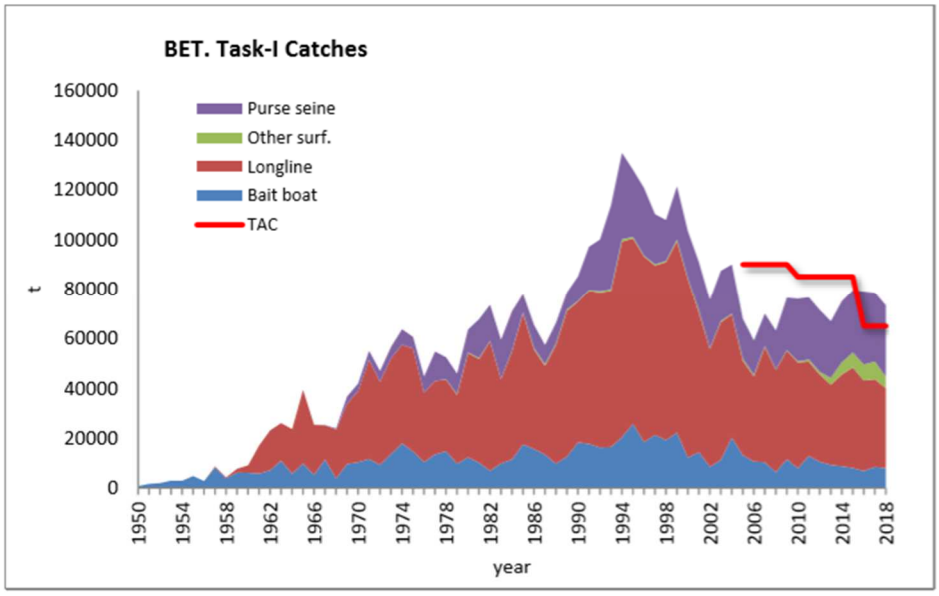



**Figure 4.2.7.1**. Atlantic bigeye tuna (Thunnus obesus) Task I cumulative catches (t) by gear type between 1950 and 2018, (ICCAT, 2019a)

Significant catches of small bigeye tuna continue to be channelled to local West African markets, predominantly in Abidjan, and sold as "faux poisson" in ways that make their monitoring and official reporting challenging. Monitoring of such catches has recently progressed through a coordinated approach that allows ICCAT to properly account for these catches and thus increase the quality of the basic catch and size data available for assessments. The largest fraction of the 2017 catches, were reported officially by CPCs (including overall "faux poisons" estimates for 2015, 2016 and 2017) and replaced all prior carry overs made by this Group, (ICCAT, 2018c). Monitoring of such catches has recently progressed through a coordinated approach that allows ICCAT to properly account for these catches and thus increase the quality of the basic catch and size data available for assessments. Currently those catches are included with those from the main purse seine fleet in the ICCAT Task I data used for the assessments (ICCAT, 2019a).

Mean average weight of bigeye tuna decreased prior to 2004 but has remained relatively stable at around 10 kg for the last decade. This mean weight, however, is quite different for the different fishing gears in recent years, around 55 kg for longliners, around an average of 10 kg for baitboats, and 6 kg for purse seiners. Since 2000, several longline fleets have shown increases in the mean weight of bigeye tuna caught, with the average longline-caught fish increasing from 40 kg to 60 kg between 2000 and 2008. During the same period, purse seine-caught bigeye tuna had average weights between 5 and 6 kg. Average weight of bigeye tuna caught in free schools is more than double the average weight of those caught around FADs. Since 1991, when bigeye catches were identified separately for FADs for EU and other CPCs purse seine fleets, the majority of bigeye tuna are caught in sets associated with FADs; particularly since the mid-2000s (60%-80%). Similarly, baitboat-caught bigeye tuna weighed between 6 and 10 kg up to 2011, but with greater inter-annual variability in average weight compared to longline or purse seine caught fish, while it increased to around 18 kg in 2014 to decrease to 10 kg again since then (ICCAT, 2018c)

Fishing indices

The main change from the previous assessment was the development and use of a single Joint Longline standardized abundance index instead of each individual CPCs standardized CPUE indices used in the 2015 assessment; some of them showing conflicting trends. The joint longline standardized index was constructed using operational detailed data of longline major fleets (Japan, Korea, United States and Chinese Taipei) from 1959-2017 (**Figure 4.2.7.2a**).

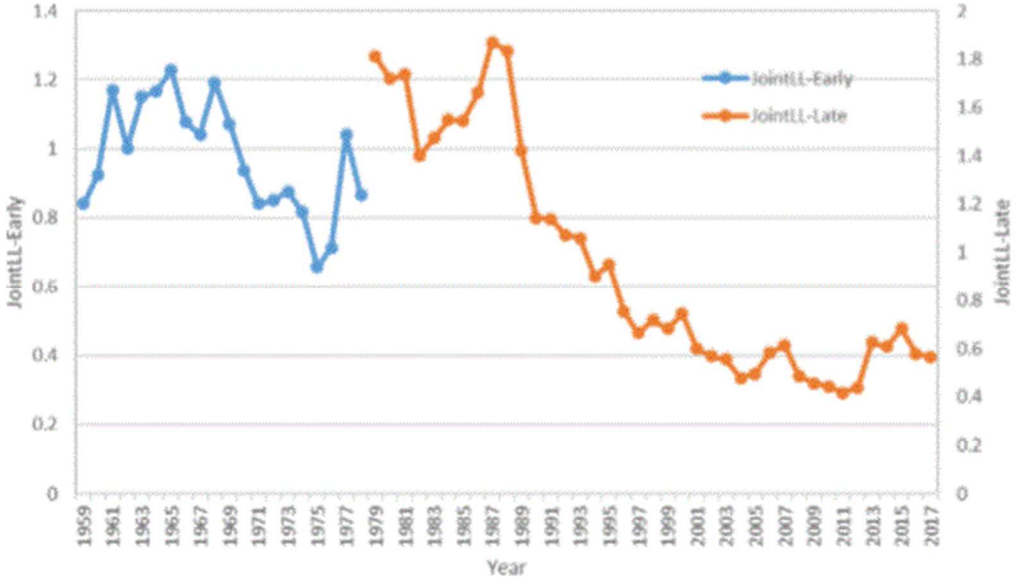



**Figure 4.2.7.2a** Joint Longline index (1959-1978 without vessel identification and 1979-2017 with vessel identification included in the standardization) used in the integrated stock assessment models and the production assessment models. Note that the second time period of the split index is on the second y-axis (ICCAT, 2018c).

It was concluded that the joint index was an improvement over fleet-specific indices because of the integrated temporal and spatial coverage it afforded to index stock biomass, and because it minimizes data conflicts in the stock assessment models. The joint index uses the vessel effect that accounts for different fishing efficiency of each vessel to produce the standardized index. The selectivity used to model the index should reflect the selectivity of the combined fleets used to produce the index. The use of the index in the stock assessment model requires an assumption of its selectivity (size composition), which should reflect the selectivity of the combined fleets used to produce the index. However, given the modelled shift in the selectivity of Chinese Taipei since 2003, size composition data from Chinese Taipei was not used to estimate selectivity of the joint index in the stock assessment to maintain continuity of the time series.

Moreover, a number of standardized indices of abundance were developed for selected fleets for which data were available at finer spatial and/or temporal resolution for the assessment. These indices represented data from six different fleets: five longline fleets (Japan, Uruguay, Brazil, Chinese Taipei, USA) and one baitboat fleet (EU-Spain operating off Dakar) which were used in different stock assessment methods as sensitivity runs (**Figure 4.2.7.2b**).

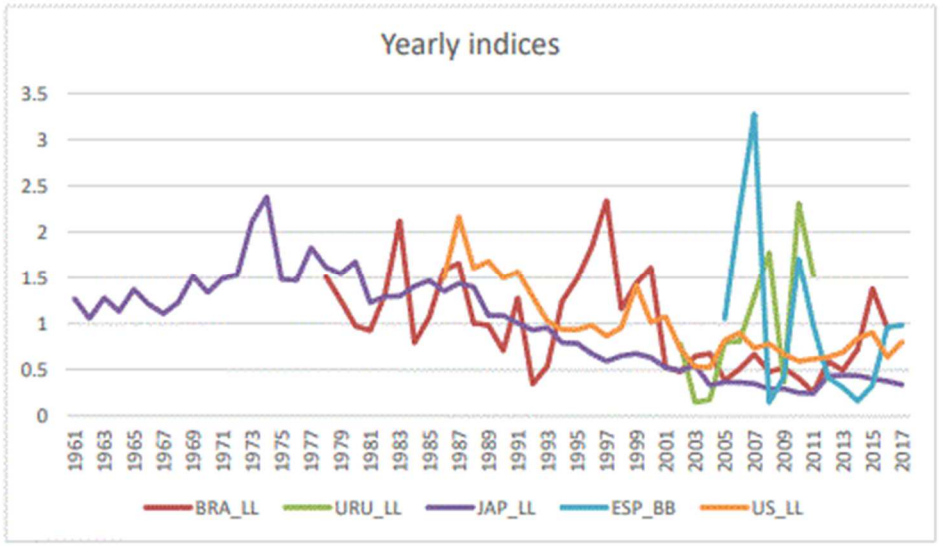



**Figure 4.2.7.2b**. Annual relative indices of abundance for bigeye tuna. (ICCAT, 2018d)

Stock assessment

Stock status evaluations for Atlantic bigeye tuna used in 2018 several modelling approaches, ranging from non-equilibrium (MPD) and Bayesian statespace (JABBA) production models to integrated statistical assessment models (Stock Synthesis). The results of different model formulations considered to be plausible representations of the stock dynamics were used to characterize stock status and the uncertainties in the status evaluations.

The Stock Synthesis integrated statistical assessment model allows the incorporation of more detailed information, both for the biology of the species as well as fishery data, including the size data and selectivity by different fleet and gear components. As Stock Synthesis allows modelling of the changes in selectivity of different fleets as well as to investigate the effect of the length/age structure of the catches of different fisheries in the population dynamic, productivity and fishing mortality, it was the agreed model to be used for the management advice. The Stock Synthesis uncertainty grid includes 18 model configurations that were investigated to ensure that major sources of structural uncertainty were incorporated and represented in the assessment results. Although the results of two production models, non-equilibrium and Bayesian state-space, are not used for management advice they supported the Stock Synthesis stock assessment results.

Results of the uncertainty grid of Stock Synthesis runs show a long-term decline in SSB with the current estimate being at the lowest level in the time series (**Figure 4.2.7.3**) and increasing trend of fishing mortality (average F on ages 1-7) starting in the early 1990s, with the highest fishing mortality at 1994 and has remained high since then (**Figure 4.2.7.3**).

The SS3 uncertainty grid, despite a broad range of assumptions regarding stock productivity (steepness) and model parameterization, shows trajectories of increasing F decreasing B towards the red area of the Kobe plot ($F > F_{MSY}$ and $SSB < SSB_{MSY}$), overfishing starting in around 1994 and an overfished stock at around 1996-1997, and being in the red quadrant of the Kobe plot since then (**Figure 4.2.7.4**). According to the results of the SS3 uncertainty grid, Atlantic bigeye stock is currently overfished ($SSB/SSB_{MSY}$ =0.59, ranging from 0.42 to 0.80) and undergoing overfishing ($F/F_{MSY}$ = 1.6, ranging from 1.14 to 2.12) with very high probability (99%) (**Figure 4.2.7.4**).

The current MSY may be below what was achieved in past decades because overall selectivity has shifted to smaller fish. Calculations of the time-varying benchmarks from SS3 uncertainty grid show a long-term increase n $SSB_{MSY}$ and a general long term decrease in MSY.

The Committee is confident that uncertainty of the stock assessment results has decreased from previous stock assessments. This is likely the result of the use of the improved joint LL index, the confirmation that catches continue to exceed TACs, and the use of a single model platform for the provision of the management advice.

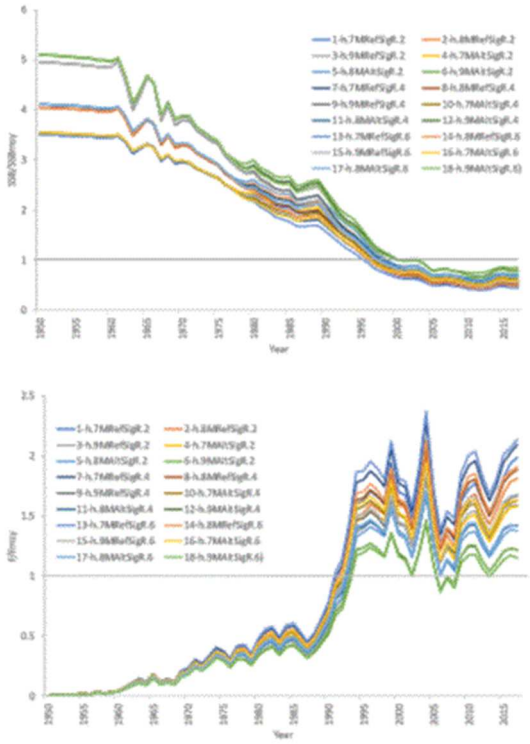


**Figure 4.2.7.3**. Trajectories of SSB/SSBMSY and F/FMSY estimated from the 18 Stock Synthesis uncertainty grid runs for Atlantic bigeye tuna. For each run the benchmarks are calculated from the year-specific selectivity and fleet allocations.

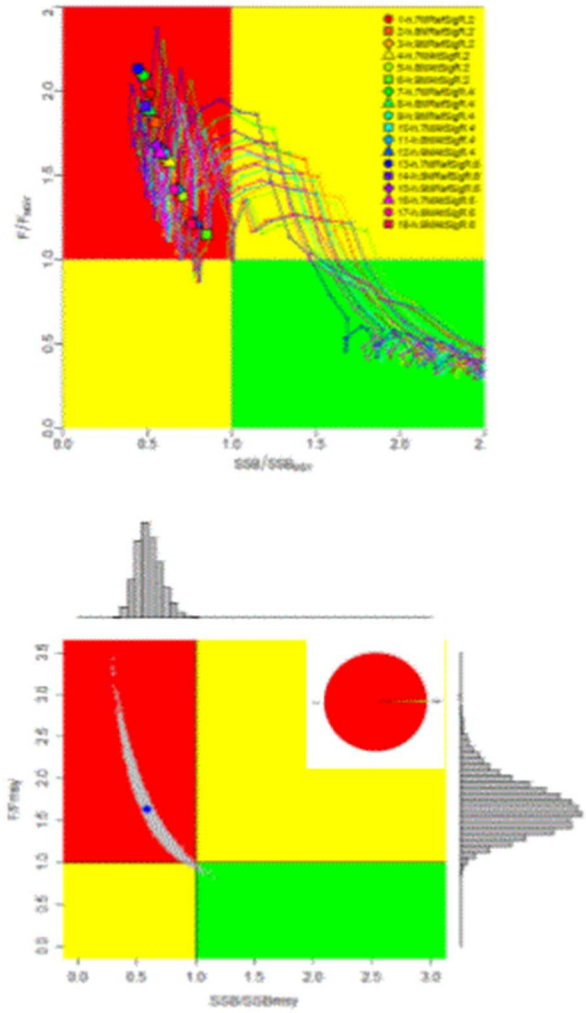


**Figure 4.2.7.4.** Stock Synthesis: (a) Kobe phase plot for the deterministic runs of the 18 Stock Synthesis uncertainty grid runs for Atlantic bigeye tuna. For each run the benchmarks are calculated from the year specific selectivity and fleet allocations. (b) Kobe plot of SSB/SSBMSY and F/FMSY for stock status of Atlantic bigeye tuna in 2017 based on the log multivariate normal approximation across the 18 uncertainty grid model runs of Stock Synthesis with an insert pie chart showing the probability of being in the red quadrant (99.5 %), green quadrant (0.2 %), and in yellow (0.3 %). Blue square is the median and marginal histograms represent distribution of either $SSB/SSB_{MSY}$ or $F/F_{MSY}$.

Outlook

Projections were conducted for the uncertainty grid Stock Synthesis for a range of fixed catches from 35,000 to 90,000 t for 15 years (which corresponds to 2 generation times of bigeye) from 2019-2033.
For some of the projections, the modelled stock could not sustain higher constant catches over several years in the long term (**Table 4.2.7.1**). In such cases, projections were adjusted to prevent this undesirable projection behaviour and made it possible to produce Kobe 2 Strategic Matrices. The results of projections of the Stock Synthesis are provided in the form of K2SM with probabilities that overfishing is not occurring ($F<=F_{MSY}$), stock is not overfished ($SSB>=SSB_{MSY}$) and the joint probability of being in the green quadrant of the Kobe plot (i.e. $F<= F_{MSY}$ and $SSB>= SSB_{MSY}$) (**Table 4.2.7.2**).

It was noted in 2018 that the modelled probabilities of the stock achieving levels consistent with the Convention objective of the projected time period in 2028 and 2033 was 28% and 44%, respectively, for a future constant catches of 65,000 t, which is the TAC established in Rec. 16-01. Projections with current TAC level is not expected to end overfishing ($F<F_{MSY}$) with 50% probability until 2032. Higher probabilities of rebuilding require longer timeframes and/or larger reduction of current catches (**Table 4.2.7.2**). It was also noted that the modelled probabilities of the stock being in the green quadrant at the end of the projected time period in 2033, as well as the probability to end overfishing by 2033, was 1% for a future constant catch at

current levels of around 78,482 t. Moreover, when projecting at current catch level 56% of the model runs resulted in SSB levels below 10% of $SSB_{MSY}$ by 2032 (**Table 4.2.7.1**).

**Table 4.2.7.1**. Percent of the model runs that resulted in SSB levels <= 10% of $SSB_{MSY}$ during the projection period in a given year for a given catch level (in 1000 t) for Atlantic bigeye tuna.

| Catch | Perc0.1 2024 | Perc0.1 2025 | Perc0.1 2026 | Perc0.1 2027 | Perc0.1 2028 | Perc0.1 2029 | Perc0.1 2030 | Perc0.1 2031 | Perc0.1 2032 | Perc0.1 2033 |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 37.5 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 40 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 42.5 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 45 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 47.5 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 50 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 52.5 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 55 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 57.5 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 60 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 62.5 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 65 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 6% |
| 67.5 | 0% | 0% | 0% | 0% | 0% | 0% | 6% | 17% | 17% | 17% |
| 70 | 0% | 0% | 0% | 0% | 0% | 11% | 17% | 17% | 17% | 22% |
| 72.5 | 0% | 0% | 0% | 0% | 11% | 17% | 17% | 28% | 33% | 33% |
| 75 | 0% | 0% | 0% | 11% | 17% | 28% | 33% | 33% | 33% | 33% |
| 77.5 | 0% | 0% | 6% | 17% | 28% | 33% | 33% | 33% | 56% | 56% |
| 80 | 0% | 0% | 17% | 33% | 33% | 33% | 44% | 61% | 67% | 67% |
| 82.5 | 0% | 6% | 22% | 33% | 39% | 61% | 61% | 67% | 67% | 78% |
| 85 | 0% | 17% | 33% | 39% | 61% | 67% | 67% | 78% | 78% | 83% |
| 87.5 | 0% | 28% | 39% | 50% | 61% | 67% | 78% | 83% | 83% | 94% |
| 90 | 11% | 33% | 50% | 61% | 67% | 78% | 83% | 94% | 94% | 100% |

The Atlantic bigeye tuna stock was estimated to be overfished and that overfishing was occurring in 2017. Maintaining the catches at 2016 - 2018 levels (around 77,000 t.) in the future, which exceeded the TAC of 65,000 t by 20%, the probability of achieving Convention objectives by 2033 ($B>B_{MSY}$, $F<F_{MSY}$) is expected to reduce to around 1% (ICCAT, 2019a).

**Table 4.2.7.2**. Probability of Not Overfished (SSB >= $SSB_{MSY}$) and Overfishing not occurring (F <= $F_{MSY}$)

| Catch | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 0 | 3 | 11 | 26 | 46 | 62 | 77 | 88 | 94 | 97 | 99 | 100 | 100 | 100 | 100 |
| 37.5 | 0 | 3 | 10 | 24 | 41 | 58 | 73 | 82 | 90 | 95 | 98 | 99 | 100 | 100 | 100 |
| 40 | 0 | 2 | 9 | 21 | 37 | 53 | 67 | 78 | 87 | 93 | 96 | 98 | 99 | 100 | 100 |
| 42.5 | 0 | 2 | 9 | 19 | 33 | 49 | 62 | 73 | 81 | 89 | 94 | 96 | 98 | 99 | 100 |
| 45 | 0 | 2 | 8 | 17 | 30 | 43 | 56 | 67 | 76 | 84 | 90 | 94 | 96 | 98 | 99 |
| 47.5 | 0 | 2 | 7 | 15 | 26 | 37 | 50 | 60 | 70 | 78 | 84 | 90 | 93 | 96 | 98 |
| 50 | 0 | 2 | 6 | 13 | 22 | 33 | 44 | 55 | 63 | 70 | 77 | 84 | 88 | 92 | 94 |
| 52.5 | 0 | 2 | 5 | 11 | 20 | 28 | 37 | 47 | 55 | 62 | 70 | 76 | 80 | 85 | 89 |
| 55 | 0 | 2 | 5 | 10 | 17 | 25 | 32 | 40 | 48 | 55 | 61 | 67 | 72 | 76 | 80 |
| 57.5 | 0 | 2 | 4 | 9 | 14 | 20 | 26 | 35 | 40 | 47 | 52 | 56 | 62 | 67 | 70 |
| 60 | 0 | 2 | 4 | 7 | 12 | 17 | 23 | 29 | 35 | 39 | 44 | 49 | 52 | 55 | 59 |
| 62.5 | 0 | 1 | 3 | 6 | 10 | 14 | 19 | 24 | 29 | 33 | 37 | 41 | 44 | 48 | 51 |
| 65 | 0 | 1 | 3 | 5 | 8 | 12 | 16 | 19 | 24 | 28 | 31 | 35 | 38 | 42 | 44 |
| 67.5 | 0 | 1 | 2 | 4 | 7 | 9 | 12 | 16 | 19 | 24 | 28 | 32 | 34 | 36 | 37 |
| 70 | 0 | 1 | 2 | 3 | 5 | 8 | 10 | 12 | 17 | 20 | 26 | 27 | 27 | 28 | 29 |
| 72.5 | 0 | 1 | 2 | 3 | 4 | 6 | 8 | 11 | 15 | 19 | 18 | 19 | 20 | 19 | 19 |
| 75 | 0 | 1 | 2 | 3 | 4 | 5 | 7 | 10 | 14 | 13 | 13 | 12 | 9 | 6 | 4 |
| 77.5 | 0 | 1 | 2 | 2 | 3 | 4 | 6 | 9 | 10 | 10 | 6 | 4 | 1 | 1 | 1 |
| 80 | 0 | 1 | 1 | 2 | 3 | 3 | 5 | 8 | 6 | 3 | 1 | 0 | 0 | 0 | 0 |
| 82.5 | 0 | 1 | 1 | 1 | 2 | 3 | 5 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 85 | 0 | 0 | 1 | 1 | 1 | 3 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 87.5 | 0 | 0 | 1 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Effect of current regulations

During the period 2005-2008 an overall TAC was set at 90,000 t. The TAC was later lowered (ICCAT, 2009, Rec. 09-01 and later modified by ICCAT, 2014b, Rec. 14-01) to 85,000 t. Estimates of reported catch for 2009-2015 have been always lower than 85,000 t. The TAC was again reduced to 65,000 t in Recommendation 15-01 (ICCAT, 2015a) which entered into force in 2016 and the catches in 2016 - 2018 have exceeded the TAC by 20% (i.e. catches around 77,000 t.), which contributed to a further decline in stock size since the 2015 assessment. Note that because this TAC does not affect all countries that can catch bigeye tuna, in theory the total catch removed from the stock could exceed the TAC. Management measures and stock status for Atlantic bigeye tuna is given in **Table 4.2.7.3**.

Concern over the catch of small bigeye tuna partially led to the establishment of spatial closures to surface fishing gear in the Gulf of Guinea (ICCAT, 2004, Rec 04-01, ICCAT, 2008, Rec 08-01, ICCAT, 2011, Rec 11-01, ICCAT 2014a, Rec 14-01, ICCAT 2015a, Rec 15-01). The Committee examined trends on average bigeye tuna catches by areas as a broad indicator of the effects of such closures as well as changes in juvenile bigeye and yellowfin catches due to the moratorium. The efficacy of the area-time closure agreed in Rec. 15-01 was evaluated by examining fine-scale (1ºx1º) skipjack, yellowfin, and bigeye catch by month distributions. After reviewing this information, the Committee concluded that the moratorium has not been effective at reducing the mortality of juvenile bigeye tuna, and any reduction in yellowfin tuna mortality was minimal, largely due to the redistribution of effort into areas adjacent to the moratorium area and increase in number of fishing vessels.

**Table 4.2.7.3**. Management measures and stock status for Atlantic bigeye tuna (ICCAT, 2019a).

| ATLANTIC BIGEYE TUNA SUMMARY | |
|---|---|
| Maximum Sustainable Yield | 76,232 t (72,664-79,700 t)[1] |
| Current (2018) Yield | 73,366 t[2] |
| Relative Spawning Biomass ($SSB_{2017}/SSB_{MSY}$) | 0.59 (0.42-0.80)[1] |
| Relative Fishing Mortality ($F_{2017}/F_{MSY}$) | 1.63 (1.14-2.12)[1] |
| Stock Status (2017) | Overfished: Yes[3]<br>Overfishing: Yes[3] |
| Conservation & management measures in effect: | Rec. 16-01, Rec. 18-01<br>– Total allowable catch for 2016-2019 was set at 65,000 t for Contracting Parties and Cooperating non-Contracting Parties, Entities or Fishing Entities.<br>– Be restricted to the number of their vessels notified to ICCAT in 2005 as fishing for bigeye tuna.<br>– Specific limits of number of longline boats; China (65), Chinese Taipei (75), Philippines (5), Korea (14), EU (269) and Japan (231).<br>– Specific limits of number of purse seine boats; EU (34) and Ghana (17).<br>– No fishing with natural or artificial floating objects during January and February in the area encompassed by the African coast, 20º W, 5ºN and 4ºS.<br>– No more than 500 FADs active at any time by vessel.<br>– Use of non-entangling FADs. |

[1] Combined result of SS3 18 uncertainty grid. Median and 10 and 90% percentile in brackets.
[2] Reports for 2018 reflect most recent data but should be considered provisional.
[3] Probability of overfished > 99%, probability of overfishing > 99%.

*b) Eastern Skipjack tuna (extracted from ICCAT, 2017b, ICCAT, 2019a)*

Biological background

Skipjack tuna is a gregarious species that is found in schools in the tropical and subtropical waters of the three oceans. Skipjack is the predominant species found under fish aggregation devices (FADs) where it is caught in association with juvenile yellowfin tuna, bigeye tuna and with other species of epipelagic fauna. Skipjack is a species showing an early maturity (around first year of life), high fecundity and spawns opportunistically throughout the year in warm waters above 25º C. Skipjack is also thought to be a faster-maturing and shorter lived species than yellowfin tuna. Skipjack has a 2stanza growth, with fast growth during the pre-recruitment phase (from birth to 40cm) and an average growth for larger individuals between equatorial and temperate growth rates. Different natural mortality equations were used for fish sized below and above 15cm.

Stock structure and mixing

Because of limited movements observed from tagging data, there is a very low probability of mixing between skipjack distributed in the North and South Atlantic (ICCAT 2014b).

Catches

Following the historic record in 2013 (259,016 t), the total catches of skipjack throughout the Atlantic Ocean (including catches of faux poissons landed in Côte d'Ivoire) remain high, reaching 305,300 t in 2018 (there still remains an estimate 4.2% non-reported catch, for which in general the average of the last three years has been assumed, **Figure 4.2.7.5**). This represents a very sharp rise compared to the average catches of the five years prior to 2010 (152,643 t). It is possible, however, that the catches of a segment of the Ghanaian purse seine fleet, transshipped on carriers, have escaped the fishery statistics collection process before 2011. In addition, following the expert missions carried out in Ghana which have shown the existence of bias in the sampling protocol which aims to correct the multi-species compositions of the catches reported in the logbooks, Ghanaian Task I and II statistics have been reviewed in several stages (1973-2005). The review for the period 2006-2014 had shown that the skipjack catches reported by Ghana were underestimated by around 28%, which gives an average of 12,000 t/year. Therefore, all of these historical data have consequently been corrected.

The numerous changes that have occurred in the skipjack fishery since the early 1990s (e.g. the progressive use of FOBs and the latitudinal expansion and the westward extension of the fishing area) have brought about an increase in skipjack catchability and in the proportion of biomass exploited. Currently, the major fisheries are the purse seine fisheries, particularly those of Belize, Curaçao, EU-France, EU-Spain, Ghana, Senegal, Panama, and Cabo Verde, followed by the baitboat fisheries of EU-Portugal, EU-Spain, Ghana, and Senegal. The preliminary estimates of catches made in 2018 in the East Atlantic amounted to 282,427 t, which is an increase of about 85% as compared to the average of 2005-2009 (**Figure 4.2.7.6**). It should be noted that there has been a sharp increase in the skipjack catches by the European purse seiners, probably due to the high selling price of this species from 2011 to mid-2013. This increase in catches is accompanied by changes in fishing strategies since the proportion of skipjack catches using floating objects has continued to increase. This is the result to some extent of the sharp reduction in seasonal fishing by European purse seiners on free schools after 2006 off the coast of Senegal and of the emergence as from 2012 of atypical fishing off FOBs since it involves single species schools composed of large individuals off the coast of Mauritania. Some changes in fishing zones and strategies has been observed in EU PS at different time-frame due to non-renewal of fishing agreements between EU and some CPCs. These changes in fishing strategy can take place differently in the purse seine fleets, including in fleets that operated similarly in the past (**Figure 4.2.7.7**) and are therefore difficult to integrate into stock assessment models.

The unreported catches of some purse seiners were estimated by comparing the monitored landings in West African ports and cannery data to the catches reported to ICCAT. Estimates of the unreported catches of these purse seiners have increased since 2006 and may have exceeded 20,000 t for the three main species of tropical tunas. The Committee expressed the need for the countries and the industry concerned in the region to cooperate to estimate and report these catches accurately to ICCAT. Recent progress in the

transmission and review of data submitted to the ICCAT Secretariat has enabled the Committee to partially include these catches and the associated sizes in the skipjack assessment. The magnitudes of these estimates of IUU catch, however, are likely to influence the assessments and the perception of stock status.

The average rate of discards of skipjack on FADs by European purse seiners operating in the eastern Atlantic has been estimated based on board observer programmes to be 42 kg per t of skipjack landed. Furthermore, the amount of small skipjack (average size 37 cm FL) landed in the local market of Abidjan in Côte d'Ivoire as "faux poisson" has been estimated at 235 kg per t of skipjack landed (i.e. an average of 6,641 t/year between 1988 and 2007 for the European or associated purse seiners). However, the latest estimates indicate values close to 10,000 t/year between 2005 and 2014 for all purse seiners operating in the eastern Atlantic (skipjack representing around 30% of the total "faux poisson": the species composition in 2014 has not been taken into account because it seems less accurate than in previous years). The Committee regularly incorporates these estimates into the reported historical catches for the EU purse seiners since 1982, as well as in the catch-at-size matrix.
Species composition and catch at size from Ghanaian baitboats and purse seiners, has been thoroughly reviewed during the past few years. This review led to new estimates of Task I and Task II catch/effort and size data for the period 1973-2013. Task II estimations for the period 2006 to 2014 (made by the Secretariat during 2016, Ortiz and Palma, 2017) were updated in order to include the last three years (2015 to 2017) using the same methodology as in 2016. **Figure 4.2.7.8** illustrates the distribution of skipjack catches in the Atlantic for bait boat between 1950 and 2014 and for purse seiners by fishing mode (free schools vs. FADs) between 1991 and 2014.

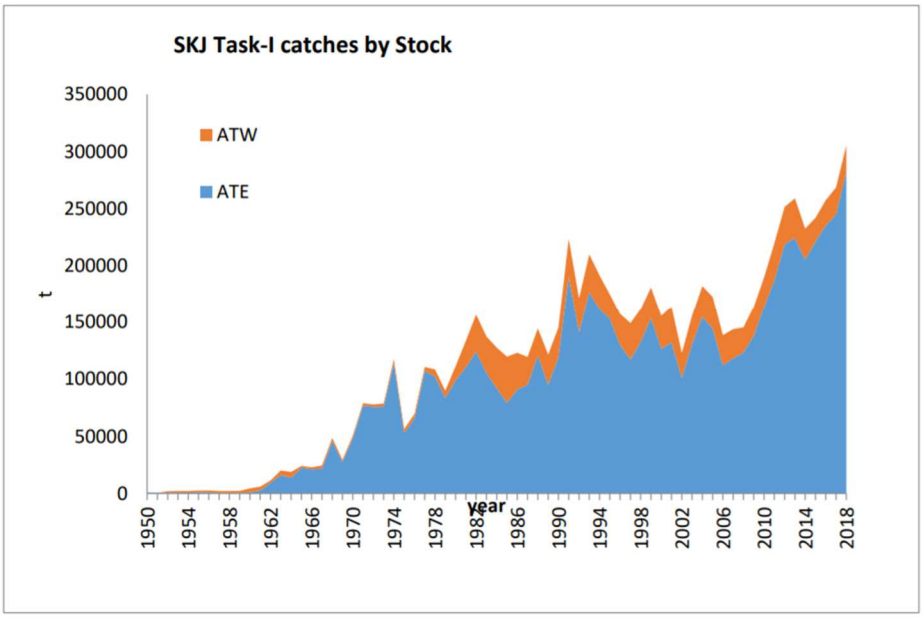



**Figure 4.2.7.5**. Total skipjack catches (t) in the Atlantic and by stock (East and West) between 1950 and 2018. It is possible that skipjack catches taken in the eastern Atlantic in recent years were not reported or were under-estimated in the logbook correction of species composition based on multi-species sampling carried out at the ports. The 2018 figure is still preliminary.

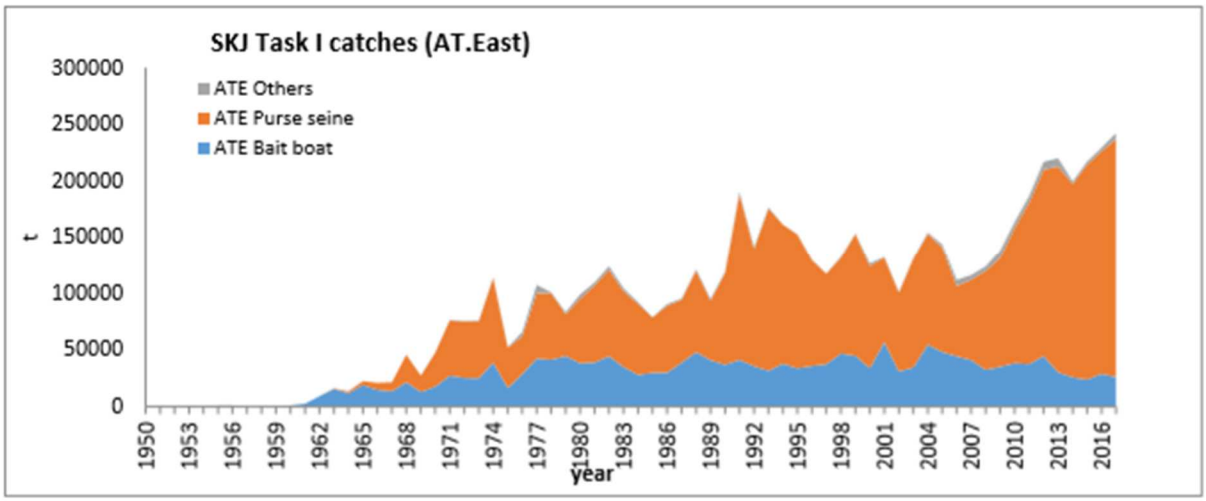



**Figure 4.2.7.6**. Skipjack catches in the eastern Atlantic, by gear (1950-2016), after correction of Ghana's data by species from 1996 to 2014.

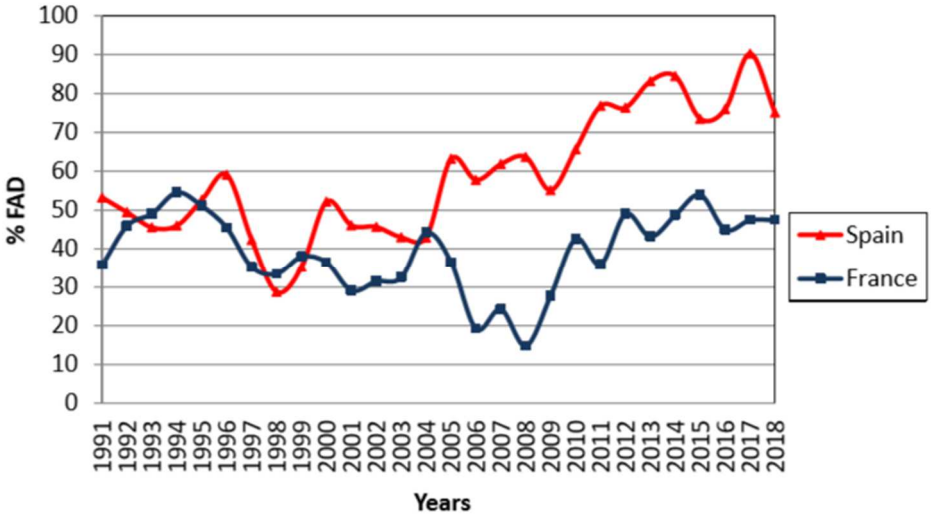



**Figure 4.2.7.7.** Changes in the proportion of total catches under FOBs made by French and Spanish purse seiners (1991-2018). The increase in the percentage of catches under FOBs coincides with the shift from the Senegal area, known for its seasonal fishing on free schools (see Figure 1), and with the increase of skipjack prices.

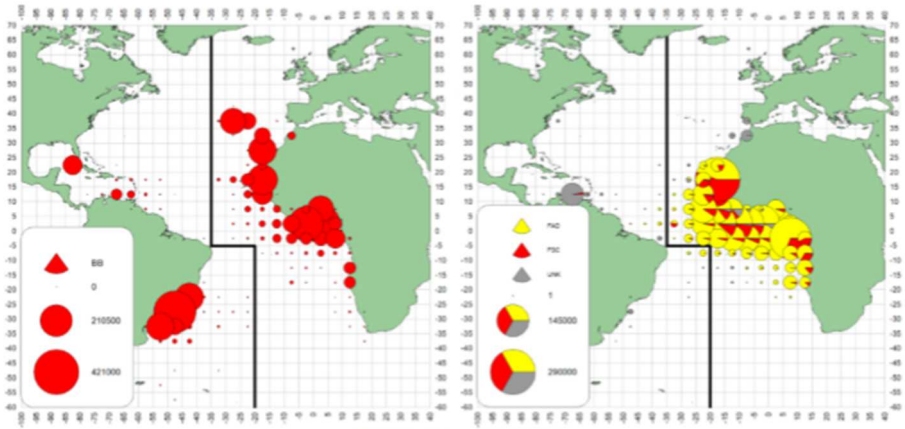


**Figure 4.2.7.8.** Distribution of skipjack catches in the Atlantic for bait boat (left panel) between 1950 and 2014 and for purse seiners (right panel) by fishing mode (free schools vs. FADs. UNK is considered to be mainly free schools in the Western and mainly FAD in the Eastern Atlantic) between 1991 and 2014.

Fishing dynamics

It is difficult to discriminate a fishing effort between free schools (composed of large yellowfin tunas) and FAD fishing (targeting skipjack) in the East Atlantic because the fishing strategies can change from one year to the next and in addition, the sea time devoted to activities on FADs and the assistance provided by supply vessels are difficult to quantify. It is recognized that the use of data series on the yearly progression of the sale prices of tropical species by commercial category enables identification of the years when skipjack is most targeted by the purse seiners (which seems to be the case in the past few years). Nominal purse seine effort, expressed in terms of carrying capacity, has decreased regularly since the mid-1990s up to 2006. However, after this date, several European Union purse seiners have transferred their effort to the East Atlantic, due to piracy in the Indian Ocean, and a fleet of new purse seiners have started operating from Tema (Ghana), whose catches are probably underestimated. All this has contributed to the growth in carrying capacity of the purse seiners, which is gradually nearing the level observed in the early 1990s, **Figure 4.2.7.9**.

The nominal effort of baitboats has remained stable for over 20 years. By 2010, overall carrying capacity of the purse seine fleet had increased significantly, to about the same level as in the 1990s, and has increased by nearly 50% since. The above number (**Figure 4.2.7.9**) do not include all purse seine vessels currently fishing for tropical tunas in the Atlantic. The total number of purse seine vessels (estimated by the Committee) targeting tropical tunas in the eastern Atlantic has increased in the last five years by 18%, from 49 in 2014 to 58 in 2018. FOB based fishing has accelerated even more rapidly than free school fishing.

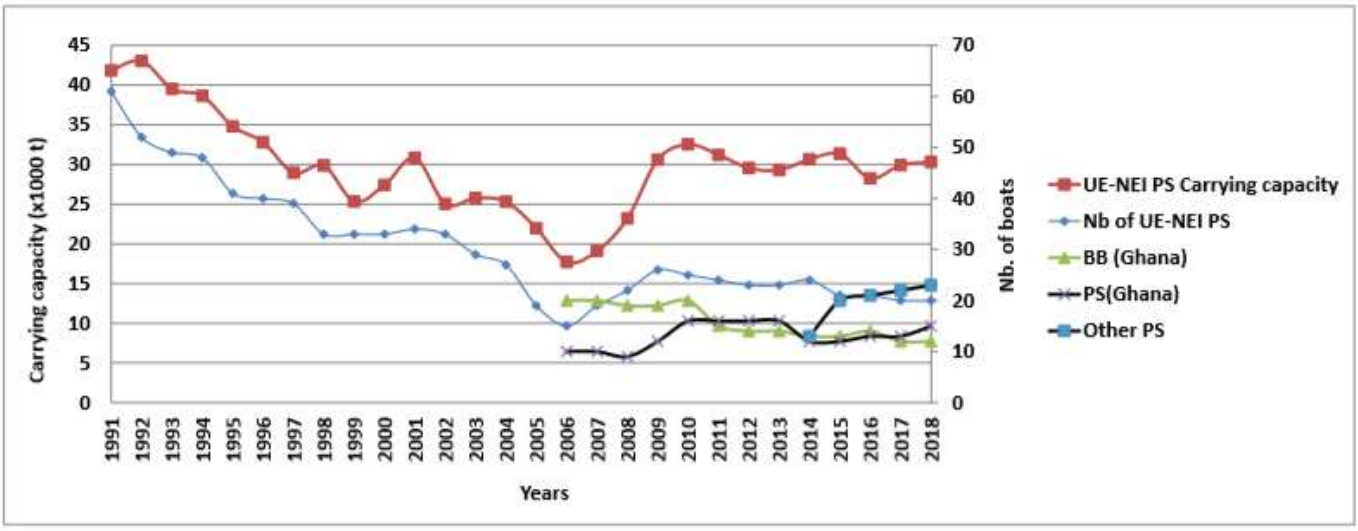



**Figure 4.2.7.9.** Changes over time in the carrying capacity, corrected by the annual percentage of time at sea, (left axis) for the overall purse seiners and baitboats (2006-2018) operating in the eastern Atlantic. The carrying capacity and number of vessels (right axis) include boats for the European purse seiners, Ghanaian fleets, and other CPCs. This figure does not reflect all the purse seine and baitboats operating in the Eastern Atlantic particularly for recent years.

It is recognised that the increase in fishing power linked to the introduction of technological innovation on board the vessels as well as to the development of fishing using floating objects has resulted in an increase in the efficiency of the various fleets, since the early 1980s. In order to take into account the effect of the technological changes in skipjack catchability, an annual yearly growth of 3% is generally assumed as the working hypothesis, although an analysis carried out fixing the MSY and K at the values estimated in the previous stock assessment would suggest an increase in catchability between 1 and 13% per year.

Moreover, the estimates on growth in bigeye catchability, whose juveniles are also captured using FADs, would indeed indicate a value of 2.5% per year before 1991 and 6 to 8% thereafter. However, it is not known whether these estimates only reflect technological changes, or the availability of fish as well, resulting from the expansion of the surface area exploited over the years, reaching its historic high in 2013 and which corresponds to the expansion of the fishery toward the West Central Atlantic or more recently to the level of the North and South latitudes.

Stock assessment

Skipjack tuna has been considered a difficult species to assess, mainly due to the fact that the annual recruitment is a large proportion of total biomass and that it is difficult to characterize the effect of fishing on the population with standard fisheries data and stock assessment methods. The uncertainties in the stock structure and the difficulties to estimate PS CPUE that could be considered as being proportional to SKJ biomass, are additional to these basic uncertainties.
This structural problem is mainly due to the development of fish-aggregating devices (FADs) that are playing a major role in the current SKJ fisheries, when the multiple changes in these FAD fisheries remain poorly understood. Unfortunately, SKJ catches by LL fisheries are so low that the catch rates thought not to be particularly reflective of SKJ abundance, as is the case with all other tuna stocks (ICCAT 2014b). Two standardized fishery indices from the EU-purse seine fishery: an index which accounts for skipjack caught in free schools off the coast of Senegal up to 2006 and the second index which characterises fish captured off FADs and in free schools in the equatorial area were developed (**Figure 4.2.7.10**). The increase in CPUE of the European purse seiners in the late 1990s is partly the consequence of the increase in the catches of positive sets under FADS. Furthermore, the regular increase in the skipjack yields of the bait boats based in Senegal may only be the result of an increase in catchability linked to the adoption of the so-called “bait boat associated school” fishing towards the mid-1980s. No marked trend has been observed for the Canary Islands bait boats, nor for the peripheral fishery of the Azorean bait boat fishery.

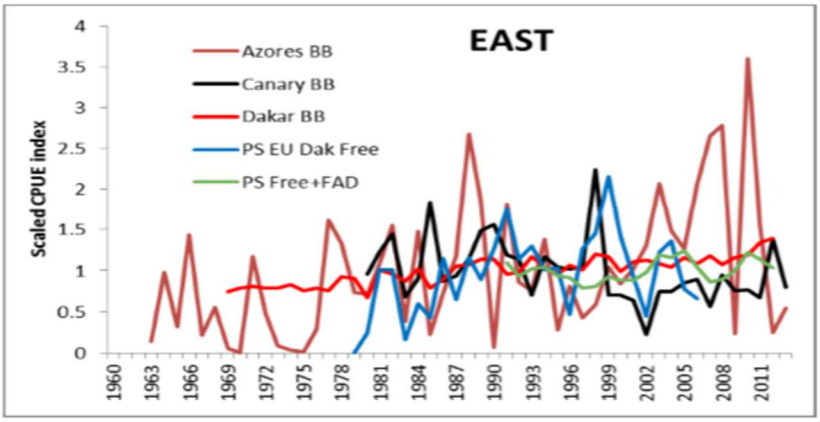



**Figure 4.2.7.10.** Relative abundance indices for the Eastern skipjack stock. Each index has been adjusted to its own average level given that to resolve problems regarding scaling, the indices for purse seine have been adjusted to the same level as the Azorean bait boat series.

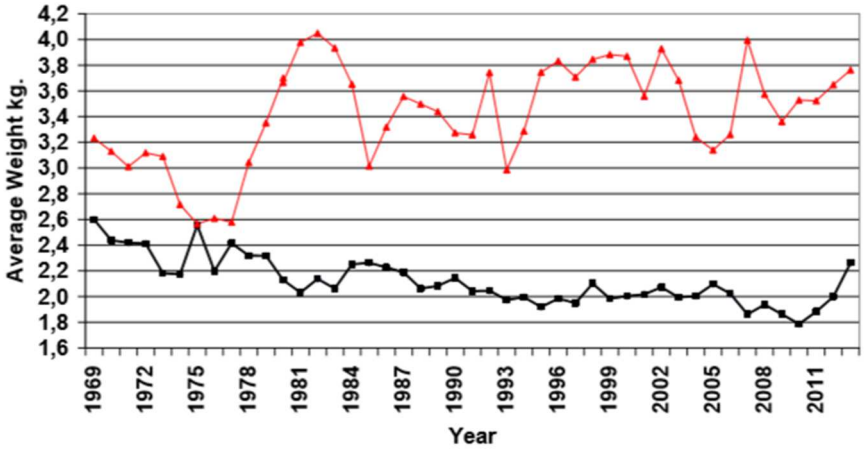



**Figure 4.2.7.11**. Changes in the average weight of skipjack in the eastern (black) and western Atlantic (red).

Regardless of the model used: 2 surplus biomass production models (one non-equilibrium conventional model, and one Bayesian model), a model based only on catch and a mortality estimation model based on

the average sizes of fish captured, it was not possible to provide a reliable estimate of the maximum sustainable yield and therefore nor provide advice on the state of the eastern stock. This applies in the Bayesian case, (1) after testing different working hypotheses on the a priori distribution of the input parameters of the surplus production model (i.e. the growth rate and the carrying capacity), and on the impact of the growth of the catchability coefficient on the CPUE of each fleet, and (2) after performing a retrospective analysis in the case of the catch-only based model. The absence of definition of a fishing effort associated with FADs for the purse seiners, the difficulty of taking into account changes in catchability, the lack of marked contrast in the datasets despite the historical development of the fishing pressure and the fact that the catches and the CPUEs have increased in parallel in recent years are constraints for effective use of the classic stock assessment methods. It is difficult to estimate the MSY in conditions of continuous growth of catches without having reliable indicators on the response of the stock to these increases. These indicators may be improved by including CPUE series, fishing mortality estimates from tagging programmes or other indicators on the exploitation of this species.

Even a precautionary diagnosis on the state of the stock in the absence of quantification by an adequate approach, indicates no evidence of a fall in yield, or in the average weight of individuals captured (**Figure 4.2.7.11**). The estimated value of the MSY, according to the catch-only assessment model, has tended to increase in recent years but at a growth rate that is lower than that observed for the catches for the same period. However, according to this model, although it is unlikely that the eastern skipjack stock is overexploited, current catches could be at, even above, the MSY.

The most recent assessment of the stock of skipjack in the East Atlantic was done in 2014, using data until 2013. Two alternative models were used to analyse the Eastern Atlantic skipjack stock; a catch only model and a Bayesian Surplus Production (BSP) model. The results of the Bayesian surplus production models show that the values of the posterior distribution mean for the $Bcur/B_{MSY}$ can be in the range of 1.55 to 1.79 for the five different model scenarios and the $Fcur/F_{MSY}$ can be from 0.22 to 0.49. Even, in the light of the clear uncertainties in the assessments, it is very likely that the Eastern Atlantic Skipjack stock is not overfished, nor does overfishing take place (ICCAT 2014b).

Even if not much confidence is being put into the Production model results (**Figure 4.2.7.12**), it can reliably be said that no indicator indicates that the stock is overfished, as all the estimates point to a lightly exploited stock. Hence, the high recent landings, even if above MSY, are unlikely to reduce the stock below $B_{MSY}$ for several years, at which time the response of landings and CPUE indicators to several years of high landings could be re-evaluated (ICCAT 2014b).

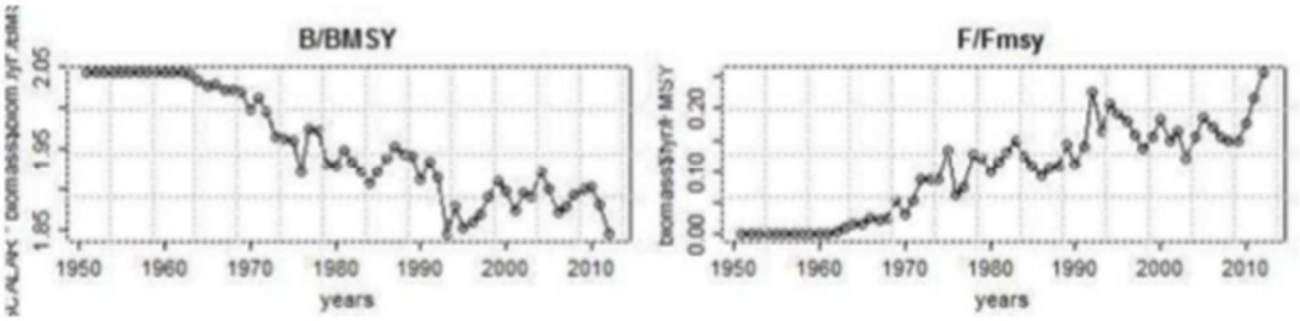



**Figure 4.2.7.12**. The current biomass relative to the Biomass at maximum sustainable yield and current fishing mortality relative to the fishing mortality as MSY until 2013.

Effect of current regulations

There is currently no specific regulation in place for skipjack tuna. Several time/area regulatory measures on banning fishing on FADs [ICCAT, 1998. Rec. 98-01, ICCAT, 1999. Rec. 99-01, ICCAT, 2014a, Rec. 14-01 and ICCAT, 2016a, Rec. 16-01] or on complete closure to surface fleets ICCAT, 2004, [Rec. 04-01] have however been implemented in the East Atlantic but the intended aim was to protect yellowfin and bigeye tuna juveniles.

The new Recommendation [ICCAT 2016a, Rec. 16-01] establishes a moratorium on FAD fishing in the area that extends from to 4ºS and 5ºN latitude and from African coast to 20ºW longitude during the months of January and February, entered into force in 2016.

Management recommendations

Despite the absence of evidence that the eastern stock is overexploited, but considering (1) the lack of quantitative findings for the eastern stock assessment, and (2) pending the submission of additional data (including on FADs and on the ongoing AOTTP) which are necessary to improve the stock assessment it was recommended that the catch and effort levels do not exceed the level of 2012-2013 catch or effort. In addition, awareness should be stressed that by increasing harvests and fishing effort for skipjack can lead to involuntary consequences for other species that are caught in combination with skipjack in certain fisheries (particularly juveniles of yellowfin and bigeye*). For the West Atlantic, the Committee recommends that the catches should not be allowed to exceed the MSY. **Table 4.2.7.4.** summarises management measures and main stock assessment results for the East Atlantic skipjack tuna.

**Table 4.2.7.4.** Management measures and stock status for East Atlantic skipjack tuna.

| ATLANTIC SKIPJACK SUMMARY TABLE | | |
|---|---|---|
| | **East Atlantic** | **West Atlantic** |
| Maximum Sustainable Yield (MSY) | | Around 30,000-32,000 t |
| Current yield (2018[1]) | 282,427 t | 22,873 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 |
| Stock Status | | |
| Overfished: | Not likely | Not |
| Overfishing: | Not likely | Not |
| Management measures in force | Rec. 16-01 | None |

[1] Reports of catches for 2018 should be considered provisional.

### *c) Atlantic Shortfin mako (*Isurus oxyrinchus*)*

One stock of shortfin mako *Isurus oxyrinchus* has been considered to exist in the North Atlantic (e.g. Kohler et al., 2002) as genetic studies found no evidence to separate east and west populations in the Atlantic, but indicate differences between the North Atlantic and the South Atlantic and other oceans (Heist et al., 1996; Schrey and Heist, 2002).

Shortfin mako was listed as 'Near Threatened' until 2008 when it was up listed to 'Vulnerable' both globally and regionally in the North Atlantic in the IUCN Red List. Since 2015 it is listed as 'Endangered' globally (Rigby et al., 2019b), 'Critically Endangered' in the Mediterranean (Walls and Soldo, 2016) and 'Data Deficient' at European level (Walls et al., 2015).

Regarding possible cumulative impacts, there are no MSC-certified or under assessment fisheries targeting this species. In addition, in the UoA, shortfin mako catches reported in 2019, were 2 individuals representing 0,004% of the total catch and 1 individual in 2018 (see **Table 3-15 PCR**), representing only 0.001% of the total catch.

North Atlantic Shortfin mako (( ICCAT, 2017d)

The North Atlantic Shortfin mako stock was assessed by ICCAT in 2017 using several methods: Production models (BSP, JABBA), other models (CMSY), and Stock Synthesis models. For the North Atlantic stock, scenarios with the BSP2-JAGS estimated that the stock was both overfished ($B_{2015}/B_{MSY}$=0.63 to 0.85) and that overfishing was occurring ($H_{2015}/H_{MSY}$=1.93 to 3.58). The JABBA model indicated that the stock was both overfished ($B_{2015}/B_{MSY}$=0.57 to 0.76) and that overfishing was occurring ($H_{2015}/H_{MSY}$=3.75 to 4.37), resulting in a 92.6 – 99.9% probability of being in an overfished state and still experiencing overfishing. Estimates obtained with the final SS3 run predicted that the stock was probably overfished ($SSF_{2015}/SSF_{MSY}$=0.95, where SSF is spawning stock fecundity) and that overfishing was occurring ($F_{2015}/F_{MSY}$=4.38, CV=0.11) with a probability of 56.1% of being overfished and experiencing overfishing. The combined probability from all the models of being in an overfished state while still experiencing overfishing was 90%. The models agree that the northern stock was overfished and was undergoing overfishing.

South Atlantic Shortfin mako (ICCAT, 2017d)

For the South Atlantic stock, scenarios with the BSP2-JAGS estimated that the stock was not overfished ($B_{2015}/B_{MSY}$=1.69 to 1.75) but that overfishing may be occurring ($F_{2015}/F_{MSY}$=0.86 to 1.07). For the BSP2-JAGS model, estimates from the 2 runs indicated a 0.3-1.4% probability of the stock being overfished and overfishing occurring (red quadrant in Kobe plot), a 29-47.4% probability of the stock not being overfished but overfishing occurring, or alternatively, the stock being overfished but overfishing not occurring. In the JABBA model Kobe plot the South Atlantic stock trajectory reveals a clockwise pattern moving from an underexploited state to a recovery as a result of decreasing biomass under sustainable fishing, which is followed by a short period of overfishing, which is implausible.The models results were therefore not considered for management advice. Model estimates obtained for the CMSY model indicate that the stock could be overfished ($B_{2015}/B_{MSY}$= 0.65 to 1.12) and that overfishing is likely occurring ($F_{2015}/F_{MSY}$=1.02 to 3.67). The combined model results indicate a probability of 19% that the stock is both overfished and experiencing overfishing .The Group considers the stock status results for the South Atlantic to be highly uncertain. Despite this uncertainty, it is not possible to discount that in recent years the stock may have been at, or already below, $B_{MSY}$ and that fishing mortality is already exceeding FMSY.

After reviewing the recent ICCAT stock assessment reports, the team notes that no significant changes in supporting science or the stock status for the above species (apart from bigeye tuna) has occurred since the fishery certification in 2019. According to FCP v2.1 7.28.15.1b the CAB shall “rescore the PI following scoring processes set out in Section 7.17”. Due to the change in the stock status of the bigeye tuna, the PI 2.1.1 now scores 75 and a Condition has been opened (Condition 7) (see **Section 5.4** for futher details).

#### *4.2.7.2 Secondary species*

Based on the assessment report review of P2 species summarized in Table 3-17, 8 species (9 stocks) were classified as primary, all the other species, which are not considered as ETP species (see next section) were classified as ‘Secondary’ components. The resulting comprehensive list includes a total of 40 species: 3 rays, 1 shark, 6 tunas and tuna-like species, 2 billfishes and 28 other bony fishes. According to all the different sources of information consulted, catches for all the abovementioned species would fall below the threshold to be considered ‘Main’ subcomponents. Therefore, all 40 secondary elements were classified as ‘Minor’ subcomponents for the purpose of this assessment, and therefore are not addressed any further. Hence, given the insignificant change in the catch characteristic of the fishery for 2019, and in the supporting science for the secondary species, there are no changes to the P2, PI 2.2.x scoring.

#### *4.2.7.3 ETP species*

Section 3.4.4 of the PCR (available at: https://fisheries.msc.org/en/fisheries/sant-yago-tf-unassociated-purse-seine-atlantic-yellowfin-tuna-fishery/@@assessments) provides a detailed rationale for the determination of those species considered to be ETP for this fishery. Table **¡Error! No hay texto con el estilo especificado en el documento.**-1 of that report listed the ETP species encountered by the UoC in two consecutive observed periods, The new 2019 catch data for Sant Yago fishery as shown in **Table 4.2.7.5** of this report have been incorporated into the Table 3-21 from the PCR so as to make a comparison between the UoC ETP interactions in the initial assessment period (2018) and in the first year of the MSC certified fishery (2019). Again, the catch of ETP species in 2019 is remarkably similar to the catch in 2018. As noted above in section 4.2.7.1 of this report, shortfin mako shark is no longer classified as an ETP species, but has been reclassified as Primary, Minor species.

Therefore, the team considers that the information for PI scores regarding ETP species has not changed significantly.

**Table 4.2.7.5.** Comparison of Sant Yago fleet interactions with ETP species in 2018 (from the PCR) and 2019 (first year new data since the fishery certification).

| | | | 2018 | | 2019 | |
|---|---|---|---|---|---|---|
| | | | **N ind** | **%** | **N ind** | **%** |
| **Group** | **Common name** | **SPECIES** | **FSC** | **Alive** | **FSC** | **alive** |
| Rays | Pelagic stingray | *Dasyatys (Pteroplatytrygon) violacea* | - | - | 2 | 100 |
| | Smoothtail mobula | *Mobula japanica* | 1 | 100 | - | - |
| | Spinetail mobula | *Mobula mobular* | 6 | 67 | 3 | 100 |
| | Chilean devil ray | *Mobula tarapacana* | - | - | - | - |
| | Giant manta | *Manta birostris* | 1 | 100 | 1 | 0 |
| Sharks | - | *Carcharhinidae* | 95 | 19 | 13 | 77 |
| | - | *Carcharhindus spp.* | | | 2 | 100 |
| | Silky shark | *Carcharhinus falciformis* | 159 | 86 | 363 | 78 |
| | Oceanic whitetip shark | *Carcharinhus longimanus* | 2 | 100 | - | - |
| | Smooth hammerhead | *Sphyrna zygaena* | - | - | 2 | 100 |
| | Scalloped hammerhead | *Sphyrna lewini* | 22 | 82 | 21 | 68 |
| | Shale shark | *Rhincodon typus* | 1 | 100 | - | - |
| Cetaceans | Risso's dolphin | *Grampus griseus* | - | - | - | - |
| | Byrde's whale | *Balaenoptera edeni* | - | - | - | - |
| | Fin whale | *Balaenoptera physalis* | - | - | - | - |
| | Humpback whale | *Megaptera novaeangliae* | - | - | - | - |
| | Unidentified baleen whale | *Mysticeti sp.* | - | - | - | - |
| Sea turtles | Kemp's Ridley turtle | *Lepidochelys kempii* | - | - | | - |
| | Olive Ridley turtle | *Lepidochelys olivacea* | 10 | 100 | 13 | 100 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Loggerhead turtle | *Caretta caretta* | - | - | 2 | 100 |
| | Green turtle | *Chelonia mydas* | - | - | | |
| | Leatherback Turtle | *Dermochelys coriacea* | 1 | 100 | 1 | 100 |

## 4.3 Version details

Details on the version of the fisheries program documents used for this assessment are presented in table 2.4, as required in the 'MSC Surveillance Reporting Template v2.01'.

**Table 4.3.1** Fisheries program documents versions.

| Document | Version number, date of publication (and date effective) |
|---|---|
| MSC Fisheries Certification Process | Version 2.1, 31 August 2018 (28 February 2019) |
| MSC Fisheries Standard | Version 2.01, 31 August 2018 |
| MSC General Certification Requirements | Version 2.4.1, 7 May 2019 (28 September 2019) |
| MSC Surveillance Reporting Template | Version 2.01, 28 March 2019 (28 March 2019) |

# 5 Results

## 5.1 Surveillance results overview

### 5.1.1 Summary of conditions

In accordance with the MSC Covid-19 Derogation published on the 27th of March 2020 and following the MSC fisheries CAB guidance for derogation, BV has updated the condition deadlines and milestones in this Surveillance report. As a result, the fishery milestones and conditions deadlines have been extended 6 months from the original timeline (March 2020) to September 2020.

All the conditions set during the initial assessment were found to be 'Ahead target', apart from Condition 2 on PI 1.2.2 which was found to be 'Behind Target' as it was determined that its milestones for Year 1 won't be met even taking the 6-month derogation into account (see Section 5.2 – Condition 2 for further details).

As summarised in **Table 5.1.1**, 6 binding conditions were raised on the following Performance Indicators (PIs): 1.1.1, 1.2.2, 2.3.1, 2.3.2, 2.3.3 and 3.2.3.

As a result of the current surveillance audit the following was carried out regarding the assessment of the Conditions (see **Section 5.2** for futher details):

- PI 1.1.1 was rescored and closed, hence, PI 1.1.2 became not applicable (see **Section 5.4**);
- Condition against PI 1.2.2, PI 2.3.1, PI 2.3.2, PI 2.3.3 and PI 3.2.3 were assessed with no change in score.
- In addition, a new condition was raised against PI 2.1.1 BET.

Moreover, due to new information on some species stock assessments (i.e., Yellowfin tuna (**Section 4.2.6**), Atlantic Bigeye tuna and Eastern Skipjack – **Sections 4.2.7.1.2 a** and **b**) and re-classification of one species (i.e., the shortfin mako from ETP to primary species – see **Section 4.2.7.1.2 c**), the following PIs were re-assessed although no re-score was needed: PI 1.2.3, PI 1.2.4, PI 2.1.1, PI 2.1.2 and PI 2.1.3 (see **section 5.4** for further details).

**Table 5.1.1** Summary of conditions.

| Condition number | Condition | Performance Indicator (PI) | Status | PI original score | PI revised score |
|---|---|---|---|---|---|
| 1 | The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing<br>SI(b) The stock is at or fluctuating around a level consistent with MSY | 1.1.1 | **Ahead target and closed** | 70 | 90 |
| 2 | There are well-defined and effective harvest control rules (HCRs) in place. | 1.2.2 | **Behind target milestones reviewed** | 65 | NA |
| 3 | The UoA meets national and international requirements for the protection of ETP species. The UoA does not hinder recovery of ETP species (SI(b) Direct effects, element: marine mammals) | 2.3.1 | **Ahead target** | 75 | NA |
| 4 | The UoA has in place precautionary management strategies designed to:<br>• meet national and international requirements;<br>• ensure the UoA does not hinder recovery of ETP species. | 2.3.2 | **Ahead target** | 75 | NA |
| 5 | Relevant information is collected to support the management of UoA impacts on ETP species, including:<br>• Information for the development of the management strategy;<br>• Information to assess the effectiveness of the management strategy; and Information to determine the outcome status of ETP species. | 2.3.3 | **Ahead target** | 65 | NA |
| 6 | Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with. | 3.2.3 | **Ahead target** | 75 | NA |

## 5.1.2 Total Allowable Catch (TAC) and catch data

**Table 5.1.2** TAC for Yellowfin tuna as established by ICCAT Rec 16-01 and most recent UoA/UoC annual catch data (data provided by the client). Catch data are provided from logbooks estimations and also from final landing data (weighted at the entrance of the processing plant). Only catches from FSC sets were included.

| **Year 2018** | |
|---|---|
| TAC/Catch limit? **(*)** | **110,000 t** |

| | |
|---|---|
| UoA/UoC share of TAC | **NA(**)** |
| Total green weight catch by UoC | **2,162 t** |
| **Year 2019** | |
| TAC/Catch limit? **(*)** | **110,000 t** |
| UoA/UoC share of TAC | **NA(**)** |
| Total green weight catch by UoC | **1,840 t** |

**(*)** As established by ICCAT Rec 16-01
**(**)** There is no further quota allocation

**Table 5.1.3** shows total catches (as estimated in the logbooks) from the two assessed fishing vessels between 2012 and 2019 (including both landings from FSC and FOB sets). Catches from 2012-2017 were obtained from the PCR report and have been updated in the current surveillance report with the data from 2018 and 2019 provided by the client. The 3 tropical tunas (skipjack, yellowfin, and bigeye) account for almost 100% of the total volume caught (99.20%). The skipjack tuna accounts for over half of the volume caught (56.05%), followed by the yellowfin tuna (32.55%) and the bigeye tuna (10.60%). Other species reported at the logbooks are the albacore and the frigate tuna, but between these two species they account for 0.80% of the total volume caught.

**Table 5.1.3**. Total estimated catches (in tons) of the Sant Yago I and Sant Yago III vessels between 2012 and 2019. Data including FSC and FOB sets. Source: Prepared by the client based on the logbooks from the two assessed vessels.

| Common name | Scientific name | 2012* | 2013* | 2014** | 2015 | 2016 | 2017 | 2018 | 2019 | % |
|---|---|---|---|---|---|---|---|---|---|---|
| **Yellowfin tuna** | *Thunnus Albacares* | 2,912.75 | 4,402.82 | 2,915,325 | 4,733.00 | 3,688.00 | 4,632.00 | 3,054.00 | 2,971.00 | **36.40%** |
| **Skipjack tuna** | *Katsuwonus Pelamis* | 4,497.54 | 4,275.75 | 5,919,202 | 7,422.00 | 7,020.00 | 7,692.00 | 7,580.00 | 6,062.00 | **57.57%** |
| **Bigeye tuna** | *Thunnus Obesus* | 369.37 | 140.00 | 600,618 | 473.00 | 571.00 | 1,552.00 | 3,462.00 | 2,377.00 | **5.79%** |
| **Albacore** | *Thunnus Alalunga* | - | 6.00 | - | 1.00 | - | 4.00 | - | 1.00 | **0.02%** |
| **Frigate tuna** | *Auxis thazard thazard* | - | - | - | - | 136.00 | - | 326.00 | 245.00 | |
| | ***TOTAL*** | **7,779.66** | **8,824.58** | **9,435.15** | **12,629.00** | **11,415.00** | **13,880.00** | **14,422.00** | **11,656.00** | |

*(*) Data between 2011 and 2013 correspond exclusively to f/v Sant Yago I; (**) f/v Sant Yago III started operating in 06/04/2014*

Species composition of the catches varies significantly depending on the type of fishing operation, although in both cases the 3 tropical tunas comprised for almost 100% of the volume caught. **Table 5.1.4**, elaborated out of data from the fishing logbooks of the assessed vessels, shows that in the FSC sets yellowfin tuna comprised over 60% of the total catches, followed by skipjack tuna which comprised almost 25% and bigeye tuna (almost 14%). However, this ratio was inverted in the case of FOB sets, with skipjack tuna accounting for over 60% of the volume followed by bigeye tuna (almost 25%) and yellowfin tuna (almost 12%).

**Table 5.1.4**. Estimated atches (as recorded in the logbooks) for the two assessed vessels in 2018-2019, segregated by type of set (FSC vs, FOB). Source: SYI and SYIII Logbooks.

| Common name | Scientific name | FSC catches (t) | FOB catches (t) | % Spp FSC | % Spp FOB |
|---|---|---|---|---|---|
| **Yellowfin tuna** | *Thunnus Albacares* | 3,638.00 | 2,387.00 | 60.35 % | 11.89% |
| **Skipjack tuna** | *Katsuwonus Pelamis* | 1,494.00 | 12,148.00 | 24.78% | 60.55% |
| **Bigeye tuna** | *Thunnus Obesus* | 833.00 | 5,006.00 | 13.82% | 24.95% |
| | *Total* | *5,965.00* | *19,541.00* | | |

**Figure 5.1.2** shows that most of the catches of skipjack (89.05%) and bigeye (85.73%) tuna correspond to FOB sets. Even though this is not the case for yellowfin tuna (i.e., 39.62% correspond to FOB sets), the ratio is more balanced in this species and a significant percentage of its catches corresponds to FSC sets (60.38%).

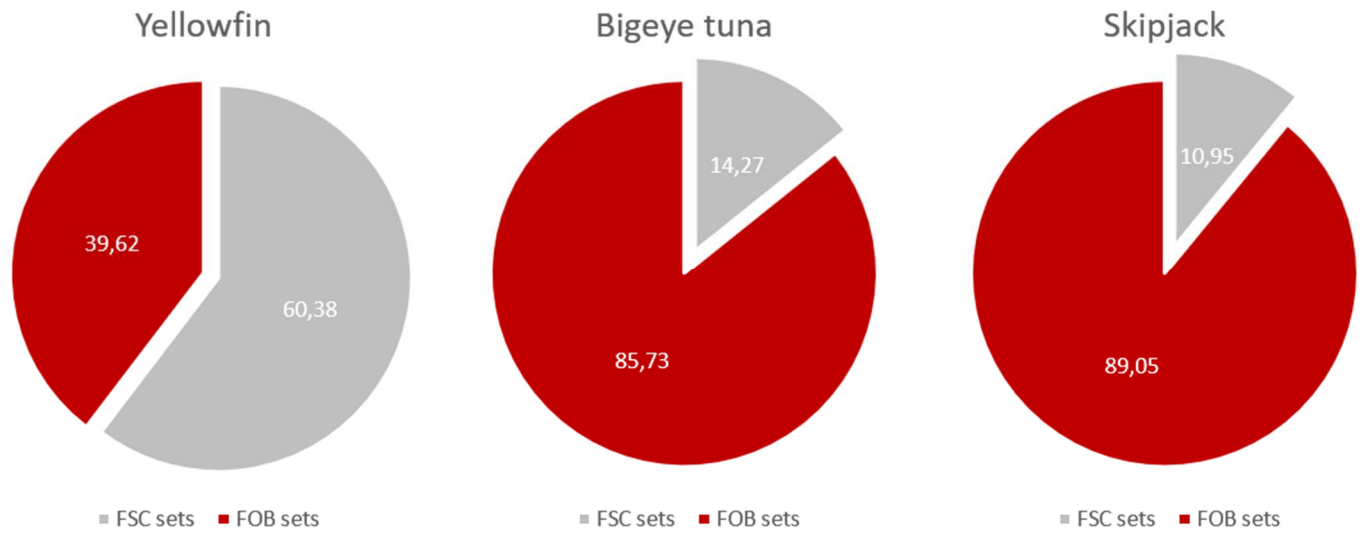



**Figure 5.1.2**. Percentage of the catches of each of the commercial species according to type of sets (FSC in red vs. FOB in grey). Source: SYI and SYIII Logbooks

### 5.1.3 Recommendations

***Recommendation 1***

Until 2017 it was the IEO the institution in charge of reporting the observer data to ICCAT, as part of the agreement signed with OPAGAC, which came to an end in 2017. Since then the client has been hiring a private firm (Sea Eye) to run the observer program, supervised by AZTI, which verifies the implementation of the OPAGAC/ANABAC code of good practices. However, at the moment of preparing the PCR it was still not clear which institution was going to be responsible for reporting the observer data to ICCAT. It was, therefore, recommended that functions, roles and responsibilities were explicitly defined and well understood regarding this topic.

**Table 5.1.3 – Recommendation 1**

| | |
|---|---|
| Performance Indicator | No specific Performance Indicator. The recommendation was set for the P2 in general. |
| Justification | Until 2017, the IEO was the institution in charge of reporting the observer data to ICCAT, as part of the agreement signed with OPAGAC, which came to an end in 2017. Since then the client has been hiring a private firm (Sea Eye) to run the observer program, supervised by AZTI, which verifies the implementation of the OPAGAC/ANABAC code of good practices. However, at the moment of preparing the PCR it was still not clear which institution was going to be responsible for reporting the observer data to ICCAT. |
| Recommendation | It was recommended that functions, roles and responsibilities were explicitly defined and well understood regarding which institution (Sea Eye or AZTI) was going to be responsible for reporting the observer data to ICCAT. |
| Progress on Recommendation (Year 1) | Prior to the site visit, the assessment team received a reply via email from Sea Eye detailing that the institution responsible for reporting the data to ICCAT is AZTI (see **Section 7.2.1.1**). This reply was later confirmed by AZTI during the site visit (see **Table 7.2.1**). |
| Status | Closed |

| | |
|---|---|
| Additional information | No additional information is required. |

## 5.2 Conditions

### Condition 1

**Table 5.2.1 – Condition 1**

| | |
|---|---|
| Performance Indicator | **PI 1.1.1 -Target species status (Yellowfin tuna): The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing**<br><br>**SI(b) The stock is at or fluctuating around a level consistent with MSY** |
| Score | 70 |
| Justification | It is difficult to determine whether the stock is fluctuating around the level consistent with MSY, as so many different stock assessment methods are used. The general trend, however, indicates that the stock was estimated to be below the MSY level since 2001 and is now recovering towards the MSY level (ICCAT, 2006). However, the stock is not yet at a level consistent with MSY. SG80 is not met. |
| Condition | By the end of the certification period the target stock shall be at or fluctuating around its target reference point ($B_{MSY}$). |
| Milestones | Considering that the SCRS has scheduled the next yellowfin stock assessment for 2019, it is likely that stock status will have been updated by the end of the certification period.<br><br>1) **Between the first and third surveillance audits, the client will present the CAB with evidence that data updates are carried out each year within the assessment body (led by the tropical tuna species group within the SCRS), and will provide proof that changes in the fishery, including shifts in relative abundance are monitored on a regular basis.**<br>2) By the fourth surveillance audit/ re-certification, it is required that the client presents evidence that the yellowfin stock has fully recovered to target MSY levels.<br><br>These milestones provide incremental steps in achieving the condition. Only when the final step is complete will the team be able to revise the score. By the fourth surveillance audit/ re-certification, the required minimum score is 80. |
| Consultation on condition | The SCRS Science Strategic Plan 2015-2020 set as a main goal the evaluation of precautionary management reference points and robust harvest control rules (HCRs) through management strategy evaluations (MSE). As a result, ICCAT, 2015b, Rec 15-07 provided guidelines on the development of Harvest Control Rules and of Management Strategy Evaluation for each stock, inter alia, northern albacore, Bluefin tuna, North Atlantic swordfish, and tropical tunas. The SCRS initiated this commitment with northern albacore, through ICCAT, 2017c, Rec 17-04, which sets out an explicit HCR for Albacore Tuna with pre-determined management responses to the status of the stock.<br>The Commission requests to the SCRS related to MSE on tropical tunas are already explicit in [ICCAT, 2016a, Rec. 16-01]. This includes to provide performance indicators for yellowfin, skipjack and bigeye tuna with the perspective to develop management strategy evaluations for tropical tunas. At the latest meeting of the SCRS held in Madrid between 1-5 October 2018, it was recognized that some preliminary steps have been made towards the development of MSE to support a robust advice framework for the Atlantic tropical tuna stocks (ICCAT 2018a). Some of these steps will be undertaken by a consortium of researchers that have been contracted by ICCAT. These steps include (i) the planification of Operating Models for bigeye, yellowfin and skipjack, (ii) the identification of multi-specific Management Procedures that could potentially be applied, and (iii) the investigation on communication tools. Item (i), and |

| | |
|---|---|
| | (iii) have been mainly progressed through the work of the consortium. Initial discussion on item (ii) took place at the panel 1 Commission meeting in July.<br>The tropical tuna WG had limited discussion on MSE during the bigeye stock assessment session meeting in July and the Species WG meeting in September (ICCAT 2018a, pg261). It is foreseen that such discussion will continue and be more focused so that the MSE development is supported by a broad consultation and dialogue between the contractors and other experts from the Atlantic tropical tunas Species Group.<br>The challenge of running so many MSE for different stocks has been identified by the SCRS, the RFMO MSE Working Group and SWGSM. The SCRS recommends slowing down the existing roadmap for MSE processes and that also proposed that the MSE processes within ICCAT be made more consistent among the different species. The SCRS also recommends that the MSE processes adopt a standard set of principles that should guide and facilitate the coordination process. The Committee did agree to a new road map and request feedback from the Commission on the relative priority of each MSE. The new road map for the development of MSE and HCRs details the necessary steps (different meetings, stock assessments and external reviews) which culminate in 2022 with the adoption by the Commission of an interim management procedure for tropical tunas in 2022 (ICCAT 2018a).<br>The Committee recommends the procurement of additional funds to support the continued development of the MSE for Tropical tunas. Specifically, the Committee supports extending the current contract to support "Phase 2 and 3" activities. Funds requested for this activity in 2019 amount to €140,000.<br><br>The track record therefore indicates that the on-going activities of the SCRS following the Commission mandate are already consistent with the achievement of this Condition. Further, it demonstrates that necessary progress to achieve conditions does not require any of the following: (i) extra investment of time or money of the SCRS or the Commission; (ii) changes to management arrangements or regulations; (iii) re-arrangements of research priorities by the SCRS or the Commission.<br><br>Therefore, despite the condition is relying upon the involvement, funding and resources of the Commission, the CAB considers it achievable by the client and realistic in the period specified. |
| Progress on Condition (Year 1) | A full stock assessment was conducted for yellowfin tuna in 2019, applying two production models (JABBA, MPB) and one age-structured model (Stock Synthesis) to the available catch data through 2018. The four Stock Synthesis model runs, were regarded as representing alternative recruitment, and steepness hypotheses. Likewise, the JABBA runs addressed different hypotheses about initial priors for r, and about which indices of abundance were representing the population. Finally, the base case selected for MPB estimated biomass and fishing mortality trends that varied somewhat from JABBA. In order to capture this uncertainty in the population dynamics for developing the management advice, it was best to incorporate results from all of the accepted model runs.<br><br>Equal weight was given to surplus production model and integrated assessment model results. Within surplus production models, JABBA and MPB were also given equal weight. Each run within a modeling platform (JABBA, and Stock Synthesis) were also given equal weight. For the combined results (MPB, JABBA, SS) used to develop management advice, the median estimate of $B_{2018}/B_{MSY}$ is 1.17 (0.75-1.62)- and the median estimate of $F_{2018}/F_{MSY}$ is 0.96 (0.56-1.5). The median MSY estimated is 121,298 t (90,428t – 267,350 t). These relate to 90% confidence intervals. Combining the results of all models provides a way to estimate the probability of the stock being in each quadrant of the Kobe plot in 2018 (**Figure 4.2.6.6**). The corresponding probabilities are 54% in the green (not overfished not subject to overfishing), 21% in the orange (subject to overfishing but not overfished) 2% in the yellow (overfished but not subject to overfishing) and 22% in the red (overfished and subject to overfishing). In summary, the results point to a stock status of not overfished (24% probability of overfished status), with no overfishing (43% probability of overfishing taking place).<br><br>No explicit reference point where recruitment is impaired is used in ICCAT as yet, therefore the default reference point of $0.5B_{MSY}$ is used as proxy indicator (MSC-MSCI Vocabulary, 2014, pg377, GSA 2.2.3.1). It is estimated that there is a 10% probability that the stock is below $B_{2018}/B_{MSY}=0.75$.<br><br>The general trend indicated by the various stock assessment results (**Section 4.2.6**), indicates that the stock is above or fluctuating around the MSY level; $B_{2018}/B_{MSY}$ is 1.17 (0.75-1.62), therefore the stock is at or fluctuating around a level consistent with MSY (see **Figure 4.2.6.4**) |

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| | (ICCAT, 2019a). However, the Kobe plot indicates that there is only a 75% certainty that the stock is above the MSY level, therefore there is not a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years**.** |
| Status | A full stock assessment was conducted for yellowfin tuna in 2019. The general trend indicated by the various stock assessment results (**Section 4.2.6**), indicates that the atlantic yellowfin tuna stock is above or fluctuating around the MSY level and therefore the condition for this PI is closed. PI 1.1.1 has been rescored under Section 5.4. Also, PI 1.1.2 (rebuilding of the stock) is no longer applicable.<br><br>The condition deadline and milestones are subject to a 6-month extension in accordance with Covid-19 Derogation 27 March 2020 from the original timeline (March 2020) to September 2020 (see **Section 3** for further details), therefore the condition status is 'ahead target' following the MSC CAB guidance. |
| Additional information | It should be cautioned that the differences between the 2016 and 2019 assessment results are not due to stock recovery. In fact, the 2019 models indicate that the stock biomass declined between 2014 and 2018. Instead, the perceived improvement is more likely due to changes in key data inputs (M, growth, indices) and the suite of models applied (JABBA, MPB, SS). However, the stock is estimated to be above the MSY level with a probability of 75%, therefore this condition is closed.<br><br>A new recommendation (ICCAT 2019d, Rec 19-02) has been implemented in June 2020 to replace ICCAT, 2016a, Rec (16-01) on a multi-annual conservation and management programme for tropical tunas. It states the following for yellowfin tuna:<br><br><u>TAC for yellowfin tuna</u><br>The annual TAC for 2020 and subsequent years of the Multi-annual Programme is 110,000 t for yellowfin tuna and shall remain in place until changed based on scientific advice.<br>Based on the stock assessment and SCRS advice, the Commission shall adopt additional conservation measures for yellowfin tuna at the 2020 annual meeting, which may include a revised TAC, closures or allocated catch limits.<br>If the total catch exceeds in any year the TAC, the Commission shall consider additional management measures for yellowfin tuna. |

## Condition 2

**Table 5.2.2 – Condition 2**

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| Performance Indicator | **PI 1.2.2. -There are well defined and effective harvest control rules (HCRs) in place**<br><br>**SI (a) Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY.**<br>**SI(c) Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.** |
| Score | 65 |
| Justification | With the overage of catch in 2016, it is clear that the TAC is not sufficiently monitored and the appropriate enforcement is not in place. There is no explicit allocation of yellowfin catch to ICCAT CPCs that would both reduce the likelihood of overages (by increasing accountability), and facilitate a strategy to respond in terms of subsequent catch restrictions. A full MSE has not been done for YFT, therefore well-defined HCRs are not in place that would ensure that the exploitation rate is reduced as the PRI is approached, therefore SG80 is not been met for SI(a).<br>Available evidence clearly shows that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCR. However, there is no formula in place |

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| | that would reduce the exploitation rate if the TAC was exceeded. Even though ICCAT has extensive experience in the implementation of TACs and limits on effort, and CPCs have previously proven the ability to implement catch limits and fishing effort, in this case there is no evidence that ICCAT reacted timeously to the overage. ICCAT, 2016a, Rec 2016-01 states that the Commission shall review the relevant conservation and management measures if the total catch exceeds the TAC for yellowfin tuna, but this has not as yet happened, therefore SG80 is not met for SI(c). |
| Condition | By the end of the certification period the fishery shall (i) have well defined HCRs in place that ensure that the exploitation rate is reduced as the PRI is approached, and (ii) shall provide available evidence indicating that the tools in use are appropriate and effective in keeping the stock fluctuating around a target level consistent with (or above) MSY |
| Milestones | Recognizing that ICCAT is the body responsible for the development and implementation of control rules, to address the condition the assessment team requires the client to work with DIPESCA and with other appropriate groups to strongly encourage ICCAT to develop and implement control rules for Atlantic Yellowfin stock.<br><br>**1) At the first annual audit and at each subsequent surveillance audit until the adoption of control rules, the fishery client will submit evidence that it is working actively through DIPESCA and with other appropriate groups to promote the adoption by ICCAT of well-defined harvest control rules as well as to promote the development or adaptation of appropriate tools for Atlantic Yellowfin Tuna. This includes a summary of the actions taken by the client, the Guatemalan government, and other members of ICCAT to achieve this outcome.**<br><br>2) Prior to recertification, the SG80 scoring requirements must be met in full for both scoring issues: (a) ICCAT must adopt explicit harvest control rules for the Atlantic Yellowfin Tuna stock, and, (c) ICCAT must have evidence that the tools are appropriate and effective in achieving the exploitation levels required under the harvest control rules for the Atlantic Yellowfin Tuna stock. The client will submit evidence that this is the case. At this point, the fishery should score at least 80 for PI 1.2.2.<br><br>On an annual basis, and according to the road map agreed by the SCRS in its latest meeting (ICCAT, 2018a), milestones would be the following:<br>**Year 1: Finalize reference set of Operating Models (mathematical-statistical models used to described the fishery in simulation trials), complete their conditioning and start development of candidate management procedures (CMP); Conduct independent peer review of MSE code.**<br>Year 2: SCRS to finalize evaluation of CMPs and proposal for determination of exceptional circumstances<br>Year 3: Conduct final independent review of Tropical tunas MSE process and develop final advice for the Commission; Commission to adopt an interim management procedure<br>Year 4: The adopted set of HCRs for the Atlantic yellowfin tuna (as part of the Tropical Tunas MSE) will be incorporated into the fisheries management system in 2022.<br>The two parts of this condition are strictly linked, even though the technical issues differ, a fully functioning harvest control rule requires appropriate tools to implement it. Thus, concurrent progress is expected so that this condition and milestones can be met. These milestones provide incremental steps in achieving the condition. Only when the final step is complete will the team be able to revise the score for the complete indicator. By the fourth annual audit the required minimum score is 80 for PI 1.2.2. |
| Reviewed milestones | At each surveillance audit until the adoption of control rules, the fishery client will submit evidence that it is working actively through DIPESCA and with other appropriate groups to promote the adoption by ICCAT of well-defined harvest control rules as well as to promote the development or adaptation of appropriate tools for Atlantic Yellowfin Tuna. This includes a summary of the actions taken by the client, the Guatemalan government, and other members of ICCAT to achieve this outcome.<br><br>According to the road map agreed by the SCRS in its latest meeting (ICCAT, 2019a) and taking into consideration the report of the SCRS meeting on Process and Protocol held in Madrid, Spain, 20-22 February 2020 (ICCAT,2020) which is pending approval from the Commission and due to the milestones of the first year being 'Behind target', the milestones were reviewed as follows: |

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| | Year 2 (2021):<br>1. SCRS to conduct skipjack stock assessment (timing to be determined)<br>2. SCRS to continue development of Operating Models (OMs) for the three tropical tuna species<br>3. SCRS to conduct bigeye data preparatory meeting (timing to be determined)<br>4. SCRS to conduct bigeye stock assessment (timing to be determined)<br>5. COMM (SWGSM/PA1) to review MSE progress, preliminary candidate MP results, and provide feedback to SCRS either intersessionally or during the Annual Meeting<br>6. COMM (PA1) to finalize operational management objectives and performance indicators at the Annual Meeting<br><br>Year 3 (2022):<br>1. SCRS to continue MSE development, including developing and evaluating candidate MPs<br>2. SCRS to propose criteria for determining exceptional circumstances<br>3. COMM (SWGSM/PA1) to develop guidance on a range of appropriate management responses should exceptional circumstances be found to occur<br>4. COMM to review candidate MPs at the Annual Meeting<br><br>Year 4 (2023):<br>1. SCRS to complete MSE, incorporating feedback from Commission through SWGSM/PA1<br>2. SCRS to provide final advice to the Commission on criteria for determining exceptional circumstances<br>3. SCRS to initiate independent peer review of MSE code and process<br>4. COMM (SWGSM/PA1) and SCRS to refine MP(s) and to review and finalize, as needed, guidance on a range of appropriate management responses should exceptional circumstances be found to occur<br>5. COMM to:<br>a) review and endorse guidance developed intersessionally on management responses in the case of exceptional circumstances, and<br>b) adopt interim MP(s) at the Annual Meeting, including TACs, where applicable<br><br>This schedule is intended to guide the development of harvest strategies for priority stocks identified in Rec. 15-07 (North Atlantic albacore, North Atlantic swordfish, eastern and western Atlantic bluefin tuna, and tropical tunas). It provides an aspirational timeline that is subject to revision by the Commission, and should be considered in conjunction with the stock assessment schedule that is revised annually by the SCRS.<br><br>It is worth noting that in 2019 SCRS meeting, the discussions focused mostly on the activities of 2020. Therefore, planning beyond 2020 should be considered preliminary (ICCAT, 2019a). |
| Client action plan | The client is promoting the development and implementation of stock management measures by ICCAT through the following channels:<br><br>**Participation in ISSF:** since 2010 information has been sent to the representatives of the EU and Spain in the annual meetings of ICCAT alerting them of the management needs, such as:<br><br>• implementation of management measures specific to each tuna population accord with the scientific recommendations,<br><br>• allocation of catch limits of YF by fishing gear and / or flag,<br>• strengthening fisheries management to ensure compliance with catch limits.<br>• request better management of FADs through compliance with requirements on non-entangling FADs and promote the use of biodegradable FADs, as well as address immediately the gaps that exist in the reporting of data from FADs.<br><br>• strengthen monitoring and control systems such as ship monitoring systems (VMS).<br>• Increase the coverage of observers on large-scale longline vessels and purse seiners to support data collection.<br><br>Starting on October 2018, the Company will send these demands in addition to the representatives of the EU and the Spanish Fisheries Authorities, as well as the representatives of the Government of Guatemala in those ICCAT meetings. |

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| | **Participation in OPAGAC**: the company will continue with the collaboration through their partners (OPAGAC and ISSF), regarding management needs within ICCAT making them available to the representatives of the EU and Spain at ICCAT meetings.<br><br>In the coming years, the Company will continue transmitting to the representatives of the Government of Guatemala at the ICCAT meetings (as of October 2018), the recommendations agreed upon in OPAGAC.<br><br>Therefore, from Sant Yago Tuna Fisheries, N.V. and the Jealsa-Rianxeira group:<br><br>• Will continue to collaborate with our representatives in the ICCAT meetings (ISSF, OPAGAC) to transfer the MSC certification requirements related to Yellowfin stock status and the need for HCRs, so that they can ensure compliance with the plan. Work already established by the SCRS in this regard.<br><br>• Will continue collaborating with the scientific teams of the ICCAT, providing them with information on both catches and sales to contribute to a better collection of data.<br><br>• Will continue to have on-board observers who report information to AZTI and they prepare the reports that Dipesca sends to ICCAT.<br>• Will continue to report the position of our vessels (VMS) to the Spanish fishing authorities as well as the state of the flag and the coastal states of which we have licenses, to promote transparency and information gathering.<br><br>The Company will report annually to BV all the actions carried out. |
| Consultation on condition | The SCRS Science Strategic Plan 2015-2020 set as a main goal the evaluation of precautionary management reference points and robust harvest control rules (HCRs) through management strategy evaluations (MSE). As a result, ICCAT, 2015a, Rec 15-07 provided guidelines on the development of Harvest Control Rules and of Management Strategy Evaluation for each stock, inter alia, northern albacore, Bluefin tuna, North Atlantic swordfish, and tropical tunas. The SCRS initiated this commitment with northern albacore, through ICCAT, 2017c, Rec 17-04, which sets out an explicit HCR for Albacore Tuna with pre-determined management responses to the status of the stock.<br>The Commission requests to the SCRS related to MSE on tropical tunas are already explicit in [ICCAT, 2016a, Rec. 16-01]. This includes to provide performance indicators for yellowfin, skipjack and bigeye tuna with the perspective to develop management strategy evaluations for tropical tunas. At the latest meeting of the SCRS held in Madrid between 1-5 October 2018, it was recognized that some preliminary steps have been made towards the development of MSE to support a robust advice framework for the Atlantic tropical tuna stocks (ICCAT 2018a). Some of these steps will be undertaken by a consortium of researchers that have been contracted by ICCAT. These steps include (i) the planification of Operating Models for bigeye, yellowfin and skipjack, (ii) the identification of multi-specific Management Procedures that could potentially be applied, and (iii) the investigation on communication tools. Item (i), and (iii) have been mainly progressed through the work of the consortium. Initial discussion on item (ii) took place at the panel 1 Commission meeting in July.<br>The tropical tuna WG had limited discussion on MSE during the bigeye stock assessment session meeting in July and the Species WG meeting in September (ICCAT 2018a). It is foreseen that such discussion will continue and be more focused so that the MSE development is supported by a broad consultation and dialogue between the contractors and other experts from the Atlantic tropical tunas Species Group.<br>The challenge of running so many MSE for different stocks has been identified by the SCRS, the RFMO MSE Working Group and SWGSM. The SCRS recommends to slow down the existing roadmap for MSE processes and that also proposed that the MSE processes within ICCAT be made more consistent among the different species. The SCRS also recommends that the MSE processes adopt a standard set of principles that should guide and facilitate the coordination process. The Committee did agree to a new road map and request feedback from the Commission on the relative priority of each MSE. The new road map for the development of MSE and HCRs details the necessary steps (different meetings, stock assessments and external reviews) which culminate in 2022 with the adoption by the Commission of an interim management procedure for tropical tunas in 2022 (ICCAT 2018a).<br>The Committee recommends the procurement of additional funds to support the continued development of the MSE for Tropical tunas. Specifically, the Committee supports extending the current contract to support "Phase 2 and 3" activities. Funds requested for this activity in 2019 amount to €140,000. |

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| | The track record therefore indicates that the on-going activities of the SCRS following the Commission mandate are already consistent with the achievement of this Condition. Further, it demonstrates that necessary progress to achieve conditions does not require any of the following: (i) extra investment of time or money of the SCRS or the Commission; (ii) changes to management arrangements or regulations; (iii) re-arrangements of research priorities by the SCRS or the Commission.<br>Therefore, despite the condition is relying upon the involvement, funding and resources of the Commission, the CAB considers it achievable by the client and realistic in the period specified. |
| Progress on Condition (Year 1) | The client wrote to three different members of the Guatemalan government (DIPESCA) so that they could prepare the governments position for the ICCAT meeting. They also included the ISSF's 2019 position statement on their priorities in the region, which the Client wholly endorses.<br><br>Regarding this condition, the Client asked DIPESCA to consider ISSF's 2019 position statetment and, specifically, the following top priorities (among others) for ICCAT:<br><br>1. Adopt stock specific tuna management measures that are consistent with SCRS advice; adopt complementary measures for reducing the mortality of bigeye and yellowfin tuna in the purse seine fishery; fully allocate the bigeye and yellowfin catch limits by gear and/or flag; and, adopt provisions to ensure compliance<br><br>2. Ensure sufficient funding so that management strategy evaluation for tropical tunas continues. Advocate for urgent action on the development of harvest strategies, including the adoption of harvest control rules due to if harvest control rules are not adopted by 2022 for yellowfin and skipjack (western), current MSC certifications for these stocks will be suspended.<br><br>For their part, DIPESCA has been putting pressure at ICCAT (see Condition 6 for further details) to have yellowfin tuna effective management measures in order to ensure catches are maintained at sustainable levels.<br><br>Regarding ICCAT, the main objective of ICCAT's Tropical Tunas MSE Process Project is to support the development of a robust advice framework consistent with the Precautionary Approach (PA) for the Atlantic tropical tuna stocks. For this, in the first phase (July-December 2018) they have started the design of the MSE framework, including its main three components (Operating Models (OM), management Procedures (MP) and Observation Error Model (OEM)) (Merino et al., 2020). The MSE framework will be developed in following phases of the project. All components of the MSE are being and will be defined through a broad consultation and dialogue with experts in the Atlantic tropical tuna fisheries.<br><br>The objective of the first phase of this project has been to initiate the design of an MSE framework to support a robust advice framework for the Atlantic tropical tuna stocks consistent with the Precautionary Approach. For this, the main tasks have been to develop a workplan for the MSE simulation framework, to initiate its implementation and to engage with ICCAT experts in meetings and a specific workshop (Merino et al., 2020).<br><br>In this first phase (Merino et al., 2020), a series of SCRS papers and presentations have been completed and a three-day workshop was carried out to discuss progress and potential developments. Overall, a suitable methodology has been identified and potential paths of development have been outlined. During the six months of this project a series of SCRS papers (4) and presentations (2) have been produced with preliminary implementations of the MSE and with alternatives of the development for each of its components. These documents represent the deliverables of this project and include a design document that details the object oriented design of the MSE model (SCRS/2018/112), a plan for development for Eastern Atlantic skipjack (SCRS/P/2018/052), plans for designing Operating Models (OMs) consistent with decisions of the tropical tuna groups (SCRS/2018/146), a proposal for potential Management Procedures (MP) (SCRS/2018/147), a proposal for a Shinny demonstrator to facilitate communication with stakeholders (SCRS/P/2018/053) and a discussion paper with options for the Observation Error Model (SCRS/2019/015).<br><br>All the technical progress made during the project was presented and discussed in a specific workshop held in Pasaia (Spain) on the 11-13th of December. This workshop, together with |

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| | the bigeye assessment session (Pasaia, 16-20th July) and the Species WG meeting (24-28th September) was the way to liase and communicate with ICCAT experts in the fields of stock assessment methods, tropical tunas and MSE. The Passaia workshop was attended by twelve scientists (five from the project consortium, the three Chairs of the Atlantic tropical tuna stocks, two experts in MSE and tropical tunas and two participants from ICCAT Secretariat). During the workshop, the potential development of the tropical tunas MSE was outlined (Merino et al., 2020).<br><br>The work of the first stage of the project included five tasks that have been completed as specified below (Merino et al., 2020):<br><br>1) To work with the tropical tuna Species Group and its Rapporteurs, the SCRS Chair and ICCAT Secretariat to develop the detailed workplan for implementation of the tropical tuna MSE work plan.<br><br>2) Initiate design and implementation of the MSE framework under the guidance of the tropical tuna Species Group and its Rapporteurs, the SCRS Chair and the ICCAT population dynamics expert (or any other specialist designated by the ICCAT Secretariat).<br><br>3) Participate in expert workshops to develop and specify and program uncertainties, scenarios and robustness tests to be considered in the MSE.<br><br>4) Liase with members of the tropical tuna Species Group to ensure the technical integration of new assessment methods and structural uncertainties within the Operating Model and MSE framework.<br><br>5) Liase with the tropical tuna scientists, the ICCAT Secretariat and other data providers to ensure compatibility of formats and quality control of input data sets. This has been an important component of the work advanced so far.<br><br>In addition, within this MSE process, AZTI has employed a PhD student to evaluate tropical tunas' MSE. This will support ICCAT's MSE process. However, due to the COVID-19 situation, the start of the contract has been postponed from March to September 2020.<br><br>According to the report of the SCRS meeting on Process and Protocol held in Madrid, Spain, 20-22 February 2020 (ICCAT, 2020), which is pending adoption by the Commission, the latest MSEs roadmap approved by the Commission at its Annual meeting held in November 2019 was presented to the Group. The updated schedule reflects the recommendation of the Commission to slow the overall process, giving priority to the N-ALB and bluefin tuna MSE process. There were inquiries regarding the tropical tunas MSE workplan status, the Chair of the SCRS clarified that under the MSE roadmap adopted it was agreed to continue the development of the tropical tunas MSE but at reduced speed, taking into consideration the complexity of this MSE process and the advantage of the recent stock assessments of BET, YFT and scheduled SKJ. In addition, it was noted that under the ICCAT biannual budget approval schedule, stopping completely the tropical tunas MSE development will delay this process for several years. It was noted the importance of continuing the development of the tropical tunas MSE, both in technical aspects and management objectives, given the importance of these fisheries and the current status of some of the stocks.<br><br>However, considering the road map agreed by the SCRS in its 2018 meeting (ICCAT 2018a), and even though there has been progress on the MSE process (as explained above), ICCAT has not been able to finalize the reference set of Operating Models (mathematical-statistical models used to describe the fishery in simulation trials), completed their conditioning or started the development of candidate management procedures, and no independent peer review of MSE code was conducted.<br><br>As explained in **Section 4.2.6**, a new assessment for yellowfin was performed in 2019 and therefore a new SS3 is available for conditioning. Moreover, the uncertainties to be evaluated within the MSE framework were also briefly discussed (Merino et. al, 2020). |
| Status | The client fulfilled its obligation to put pressure on ICCAT to progress on the management strategy evalution, through DIPESCA and ISSF. |

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| | According to the road map agreed by the SCRS in its 2018 meeting (ICCAT 2018a), ICCAT should have finalized reference set of Operating Models (mathematical-statistical models used to describe the fishery in simulation trials), completed their conditioning and started development of candidate management procedures, and independent peer review of MSE code should have been conducted. However, none of these have been carried out.<br><br>The condition deadline and milestones are subject to a 6-month extension in accordance with Covid-19 Derogation 27 March 2020 from the original timeline (March 2020) to September 2020 (see **Section 3** for further details).<br><br>Some of AZTI's researchers interviewed during the site visit are also ICCAT's SCRS experts. After consulting them on the likelihood of achieving the roadmap goals, it was clear that the part of the milestone that has to do with ICCAT will not be met even taking into account the 6-month derogation.<br><br>Therefore, and despite the client having fulfilled its part of the milestone, the overall condition status is 'behind target'. A review of the milestones was done as a remedial action. See above. |
| Additional information | During 2019, ICCAT planned that the development of MSE framework would be continued with the development of candidate management procedures for tropical tunas. However, not much progress has been made so far. |

## Condition 3

**Table 5.2.2 – Condition 3**

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| Performance Indicator | **PI 2.3.1 The UoA meets national and international requirements for the protection of ETP species. The UoA does not hinder recovery of ETP species**<br><br>**SI(b) Direct effects, element: marine mammals** |
| Score | 75 |
| Justification | For the element marine mammals: In scoring Issue b the SG80 requires that the known direct effects of the UoA are highly likely to not hinder recovery of ETP species, in this case marine mammals and in particular large whales. The fishery does not meet the SG80 requirements because the interactions with whales, in particular large whales are avoidable by not setting on them. The fishery needs to address this issue, as 22 large whales were reported captured in FSC sets between 2014 and 2018 according to data collected by observers on board the UoC. |
| Condition | By the end of the certification period, the fishery shall demonstrate that the direct effects of the UoA not hinder recovery of marine mammals, especially large whales. |
| Milestones | **Year 1: The client provides evidence to the CAB that a company policy to address this issue has been developed.**<br><br>Year 2: The client provides evidence to the CAB that a company policy that prohibits setting a purse seine near or on whales, so as to reduce the capture of whales to near zero, has been adopted<br><br>Year 3: The client shall demonstrate, based on observer data, that the whales are not being set on or captured, and if being captured accidently revise the fishing tactics to reduce the capture to near zero. SG 80 would be met at this stage. |
| Consultation on condition | FCR 7.11.3 is not applicable to this condition since actions considered to achieve it rely exclusively on the client's means. |

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| Progress on Condition (Year 1) | Immediately following the certification of the fishery in 2019 that included the condition that the fishery would not hinder the recovery of marine mammals, Sant Yago issued a policy statement to vessel captains, crew and observers for the Sant Yago fleet that clarifies the need to properly identify Unassociated (FSC) sets from Associated (FAD) sets (Spanish language original version is included in **Appendix 7.2.1.2b** of this report). This statement included a formal reiteration of the company policy that prohibits the setting of a purse seine on large whales. The following is an English language translation of that prohibition statement:<br><br>*It is important to clarify at this point that making intentional sets on cetaceans or whale sharks is banned by the EU, RFMOs, as well as the vast majority of coastal states with which we have subscribed private fishing agreements*.<br><br>Moreover, the Client provided the assessment team with an e-mail that was sent to the fishing vessels informing them about the new protocol and asking them to put it in a highly visible and accessible place in the vessel.<br><br>Furthermore, SEA EYE assured the assessment team (via email – see **Section 7.2.1.1**) that the aforementioned Client's FAD FREE protocol has been implemented. Therefore, FAD FREE sets are all those sets where no floating elements are associated with them, while large whales or any other floating elements are considered as FADs (which are avoided).<br><br>This can be evidenced from the review of the 2019 observer data for the Sant Yago fleet which indicate that there were no sets of the purse seine associated with large whales or whale sharks in 2019 **(Section 4.2.7)**. |
| Status | The client issued a statement including a formal reiteration of the company policy that prohibits the setting of a purse seine on large whales. In addition, the team was provided with evidence that such protocol is being implemented. Thus, meeting the milestone set for year 1.<br><br>The condition deadline and milestones are subject to a 6-month extension in accordance with Covid-19 Derogation 27 March 2020 from the original timeline (March 2020) to September 2020 (see **Section 3** for further details), therefore the condition status is 'ahead target' following the MSC CAB guidance. |
| Additional information | No additional information needed. |

## Condition 4

**Table 5.2.2 – Condition 4**

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| Performance Indicator | **PI 2.3.2. The UoA has in place precautionary management strategies designed to:**<br><br>• **meet national and international requirements;**<br>• **ensure the UoA does not hinder recovery of ETP species.**<br><br>**Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.**<br><br>**SI(b) Management strategy in place (alternative)**<br>**SI(c) Management strategy evaluation**<br>**SI(d) Management strategy implementation** |
| Score | 75 |
| Justification | SI(b) The SG80 requirement states that there must be a strategy in place that is expected to ensure the UoA does not hinder the recovery of ETP species, in this case for marine mammals, in particular large whales. However, as evidenced by the 22 interactions with large whales in the 2014-2017 observer data, the UoA does have an interaction problem that in total could hinder the recovery of large whales, in particular, and these interactions are most likely the result of whale sets that are intentional. So, while there are some measures in place, with |

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| | regard to marine mammals, there is no strategy, because if there was, whale sets would be prohibited.<br><br>SI(c) The SG80 requirement states that there must be an objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved. With regard to marine mammals, as noted previously, the capture of 24 marine mammals, including 22 large whales, some of which are endangered, that could have been avoided, point out the lack of a strategy to reduce impacts of ETP marine mammals.<br><br>SI(d) The SG80 requirement states that here must be some **evidence** that the measures/strategy is being implemented successfully. The fact that there were 22 large whales captured on the 2014-2017 period, and none in the 2017-2018 period suggests that the decision to set on or near large whales is purposely made, and can be easily remedied. |
| Condition | By the end of the certification period, the fishery shall develop, implement, and evaluate a strategy that ensure the UoA does not hinder recovery of marine mammals, in particular large whales |
| Milestones | **Year 1: The client shall provide the CAB with evidence that alternative options for a strategy to reduce interactions with large whales has been evaluated.**<br><br>Year 2: The client provide evidence that a strategy to reduce interactions with large whales has been implemented<br><br>Year 3: The client shall provide the CAB with evidence that the success of that strategy to reduce interactions with large whales has been evaluated SG80 would be met at this stage. |
| Consultation on condition | FCR 7.11.3 is not applicable to this condition since actions considered to achieve it rely exclusively on the client's means. |
| Progress on Condition (Year 1) | The Year 1 milestone for Condition 4 is that the fishery provide evidence that it has evaluated alternative options for a strategy to reduce interactions with large whales. This condition (4) is related to Condition 3 and the Year 1 progress on Condition 3 provides evidence of satisfactory progress on Year 1 milestones for Condition 4.<br><br>Immediately following the certification of the fishery in 2019 that included the condition that the fishery would not hinder the recovery of marine mammals, Sant Yago fleet issued a policy statement to vessel captains, crew and observers that clarified the need to properly identify Unassociated (FSC) sets from Associated (FAD) sets (Spanish language original version is included in **Appendix 7.2.1.2a** of this report). This statement also included a formal reiteration of the company policy that prohibits the setting of a purse seine on large whales. The following is an English language translation of that prohibition statement:<br><br>*It is important to clarify at this point that making intentional sets on cetaceans or whale sharks is banned by the EU, RFMOs, as well as the vast majority of coastal states with which we have subscribed private fishing agreements*.<br><br>Moreover, the Client indicated to the assessment team that the fishing vessels had been informed about the new FAD Free protocol and that it was implemented according to the indications given on the email sent to the fleet.<br><br>Furthermore, SEA EYE assured the assessment team (via email – see **Section 7.2.1.1**) that the aforementioned Client's FAD FREE protocol has been implemented. Therefore, FAD FREE sets are all those sets where no floating elements are associated with them, while large whales or any other floating element are considered as FADs (which are avoided).<br><br>This can be evidenced from the review of the 2019 observer data for the Sant Yago fleet which indicate that there were no sets of the purse seine associated with large whales or whale sharks in 2019 **(Section 4.2.7)**. |
| Status | The decision to simply prohibit the setting of a purse seine on large whales essentially precluded the demonstration of an evaluation of alternatives to setting on large whales. Continued monitoring of observer data in subsequent years will further demonstrate the effectiveness of this prohibition. |

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| | The condition deadline and milestones are subject to a 6-month extension in accordance with Covid-19 Derogation 27 March 2020 from the original timeline (March 2020) to September 2020 (see **Section 3** for further details), therefore the condition status is 'ahead target' following the MSC CAB guidance. |
| Additional information | No additional information is required. |

## Condition 5

**Table 5.2.2 – Condition 5**

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| Performance Indicator | **PI 2.3.3 Relevant information is collected to support the management of UoA impacts on ETP species, including:**<br>• **Information for the development of the management strategy;**<br>• **Information to assess the effectiveness of the management strategy; and**<br>**Information to determine the outcome status of ETP species.**<br><br>**SI(b) Information adequacy for a management strategy** |
| Score | 65 |
| Justification | The SG80 requirements for SI (b) state that the information must be adequate to measure trends and support a strategy to manage impacts on ETP species. As noted previously in the justification for PI2.3.2 with regard to marine mammals, there is not a strategy for the UoA (FSC fishery), and this resulted in the interactions with 24 marine mammals (22 large whales) in the 2014-2016 period. And notable this was followed by no reported interactions in the 2017-2018 period. Interestingly in the most recent observer data (2017-2018) there is the report of a whale shark being taken, and as noted previously, sets on whale sharks are supposed to be included in FOB sets, and therefore not be included in this UoA/UoC. This confusion and possible contradictions in the available data indicates to the assessment team that the information is adequate to measure trends and support a strategy to manage impacts on ETP species, especially with respect marine mammals and sharks and rays. |
| Condition | By the end of the certification period, the fishery shall develop an improved system for the collection and verification of observer data so that this information can be used to both develop a management strategy for ETP species, and to assess the effectiveness of the management strategy, and provide information to determine the outcome status of ETP species (in particular marine mammals and sharks) |
| Milestones | **Year 1: The client shall provide the CAB with evidence that all historical observer data for the last five years have been critically evaluated, and corrections made as required. Develop systems and guidelines for the collection, verification and presentation of all observer data in formats compatible with MSC catch analysis requirements for primary, secondary and ETP species (in particular marine mammals and sharks).**<br><br>Years 2-3: provide observer catch data to assessment team at annual surveillances in formats compatible with MSC catch analysis requirements for primary, secondary and ETP species (in particular marine mammals and sharks). SG80 would be met after third surveillance audit. |
| Consultation on condition | FCR 7.11.3 is not applicable to this condition since actions considered to achieve it rely exclusively on the client's means |
| Progress on Condition (Year 1) | Following the completion of the MSC assessment in 2019, and in response to Condition 6, the fishery requested that AZTI to conduct an evaluation of all historical observer data for the last five years, and corrections make as required. In addition, the fishery requested that AZTI develop systems and guidelines for the collection, verification and presentation of all observer |

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| | data in formats compatible with MSC catch analysis requirements for primary, secondary and ETP species (in particular marine mammals and sharks).<br><br>With respect to the first part of the Year 1 milestone, AZTI confirmed in the site visit remote meeting that it had reviewed and corrected, as required, the SEA EYE observer data for 2017 and 2018, however it was unable to obtain the original observer data for the period prior to 2017 as it was provided by another company. AZTI also provided a written confirmation of this statement in an email sent on 19 May 2020. The important portion of the email message in Spanish is provided in **Appendix 7.2.1.3**; the following is an English translation of this portion of the email message:<br><br>"We have received the observer data collected on Jealsa vessels from 2017 onwards (collected by Sea Eye) in the same format that we usually work within our observer database (postgresql). This has allowed us to upload the information to our server and exploit (clean-up & analyze) it in a joint manner. However, for the previous period (2015-2016), we have not received the information in a format that would allow us to include those trips in our server, and therefore exploit them. "<br><br>The assessment team has been provided the corrected data for 2017 and 2018, and believes that this evaluation of historical data is adequate for this surveillance audit (see **section 4.2.7**). With regard to the second part of Year 1 milestone for Condition 5, as described in the Year 1 progress on Condition 3 and 4, the fishery has developed and implemented a policy on the proper identification of FSC and FAD set types, and AZTI has implemented systems and guidelines for the collection, verification and presentation of all observer data in formats compatible with MSC catch analysis requirements for primary, secondary and ETP species (in particular marine mammals and sharks). The observer data that was provided to the CAB for 2019 is evidence that AZTI has implemented these new systems and guidelines. |
| Status | AZTI has reviewed and corrected, as required, the observer data for 2017 and 2018, however, they were unable to get the original observer data for the period prior to 2017 in a format that would allow them to include those trips in their server, and therefore exploit them. In addition, AZTI has developed and implemented systems and guidelines for the collection, verification and presentation of all observer data in formats compatible with MSC catch analysis requirements for primary, secondary and ETP species. Therefore, milestones set for year 1 were met.<br><br>The condition deadline and milestones are subject to a 6-month extension in accordance with Covid-19 Derogation 27 March 2020 from the original timeline (March 2020) to September 2020 (see **Section 3** for further details), therefore the condition status is 'ahead target' following the MSC CAB guidance. |
| Additional information | No additional information is required. |

## Condition 6

**Table 5.2.2 – Condition 6**

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| Performance Indicator | **PI 3.2.3. Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.**<br><br>**SI(a) MCS implementation** |
| Score | 75 |
| Justification | Both at ICCAT and client's level, the implemented MCS system has demonstrated an ability to enforce relevant management measures and strategies, strategies and/or rules.(e.g. access to the fishery (IUU list, specific authorization for targeting tropical tunas), VMS, catch data collection and reporting, observers programs… |

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| | However, data presented in the latest meeting of the SCRS (made available in November 2018) show a different picture since historical trends of catches have been reviewed (ICCAT 2018e). According to ICCAT (2018e) overall catches have exceeded the TAC by 17-37% in the most recent years. Taking this information into consideration the team consider that SG80 is not met, since it cannot be argued that the MCS system has demonstrated an ability to enforce the TAC issued by the Commission. |
| Condition | By the end of the certification period the fishery shall demonstrate that the MCS system implemented has demonstrated an ability to enforce the TAC issued by the Commission |
| Milestones | Recognizing that ICCAT is the body responsible for the monitoring and enforcement of the TAC issued by the Commission, to address the condition the assessment team requires the client to work with DIPESCA and with other appropriate groups to strongly encourage ICCAT to review relevant yellowfin tuna conservation and management measures in place, so TAC can be effectively enforced.<br><br>**1) Between the first and third surveillance audits, the client will submit evidence that it is working actively through DIPESCA and with other appropriate groups to promote that ICCAT reviews relevant yellowfin tuna conservation and management measures in place, so TAC can be effectively enforced. This includes a summary of the actions taken by the client, the Guatemalan government, and other members of ICCAT to achieve this outcome.**<br>2) Prior to recertification, the fishery shall demonstrate that the MCS system implemented has demonstrated an ability to enforce the TAC issued by the Commission so SG80 scoring requirement must be met in full. The client will submit evidence that this is the case.<br>These milestones provide incremental steps in achieving the condition. Only when the final step is complete will the team be able to revise the score. By the fourth surveillance audit/ re-certification, the required minimum score is 80. |
| Consultation on condition | During its latest SCRS meeting report (ICCAT 2018e) the Committee noted that the most recent catch estimates suggest that overall catches have exceed TAC in every year but one since 2012. The Committee expressed strong concern that these overages may have further degraded the condition of the yellowfin stock. Also, noting that for 2015- 2017 catches have exceeded TAC, it is possible that overfishing is now occurring. To address this concern, the Committee recommends a stock assessment of yellowfin tuna be conducted in 2019. Furthermore, given that significant overages continue to occur, existing conservation and management measures appear to be insufficient, and the Committee recommends that the Commission strengthen such measures.<br>The concern expressed by the SCRS has been concretized in the recent Recommendation 18-01 adopted by the Commission. This recommendation supplements and amends Rec 16-01 and expresses the commitment that the Commission “shall review relevant tropical tunas conservation and management measures in place in 2019”.<br>The track record therefore indicates that the on-going SCRS advice and ICCAT Recommendations on the management of tropical tunas are already consistent with the achievement of this Condition. Further, it demonstrates that necessary progress to achieve conditions does not require any of the following: (i) extra investment of time or money of the Commission; (ii) unexpected changes to management arrangements or regulations; (iii) re-arrangements of research priorities by the SCRS or the Commission.<br>Therefore, despite the condition is relying upon the involvement, funding and resources of the Commission, the CAB considers it achievable by the client and realistic in the period specified. |
| Progress on Condition (Year 1) | As seen in **section 4.2.6**, a full new stock assessment was conducted for yellowfin tuna in 2019 using catch and effort data through 2018.<br><br>A catch of 148,874 t was recorded in 2016, 135,865 t for 2017, and 135,689 t for 2018, all an overage of the implemented TAC (ICCAT, 2019a). However, the various stock assessment results indicated that the stock is above or fluctuating around the MSY level; B2018/BMSY is 1.17 (0.75-1.62) (ICCAT, 2019a). In addition, the results pointed to a stock status of not overfished (with a 76% probability) and with no overfishing (57% probability), and it is estimated that there is a 10% certainty that the stock is below B2018/BMSY=0.75, therefore, the atlantic yellowfin stock in no longer considered to be below the MSY level and rebuilding of the stock is no longer required. In fact, PI 1.1.1 has been rescored and Condition #1 has been closed, accordingly. |

In 2018, the SCRS recommended that the efficacy of longer and larger closures should be evaluated (ICCAT, 2019c). SCRS/2019/107 presented at the 2019 ICCAT Yellowfin tuna stock assessment meeting (held in Grand-Bassam, Cote d'Ivoire, from 8-16 July 2019) an alternative approach to manage purse seine fisheries for tropical tuna stocks, which uses fisheries closures instead of catch limits for the purse seine fishery. The Group discussed the fact that such closures can assist in achieving a TAC. The Group agreed that this analysis was informative and that it should be transmitted to the SCRS for their consideration in the September 2019 meeting. It is worth noting that this analysis was performed by two authors, and one of them is from OPAGAC (and our client is member of this organization).

Moreover, DIPESCA shared with the assessment team two documents (Doc. No. PA1-505A / 2018 and Doc. No. PA1-505A / 2018) entitled "DRAFT RECOMMENDATION BY ICCAT TO REPLACE RECOMMENDATION 16-01 ON A MULTI-ANNUAL CONSERVATION AND MANAGEMENT PROGRAMME FOR TROPICAL TUNAS" which were presented by Guatemala at Panel 1 of the 21st Special Meeting of the Commission, held at Dubrovnik, Croatia, from 12 to 19 November 2018 (https://www.iccat.int/com2018/). This Proposal represented an update to Recommendation by ICCAT on a Multi-Annual Conservation and Management Programme for Tropical Tunas [Rec. 16-01] and the changes incorporated were intended to accommodate the latest scientific advice from the SCRS and the follow-up actions recommended by the Commission in Rec 16-01. The main elements of the proposal were the following:

- **Catch limits for tropical tuna stocks**: this proposal is fully in line with the advice the SCRS has provided for the four stocks of tropical tunas and addresses the recommendations from the Commission that the requirements in Rec. 16-01 if the measure fails to maintain the catch levels adopted for each stock at the recommended levels.
- **Capacity limits**: The proposal addresses concerns that current levels of fishing capacity in the Atlantic Ocean are high through a requirement for CPC to report their number of active fishing vessels, including proof of such activity, by September 2019, and a freeze on capacity adopted on the basis of those reports. In addition, developing coastal CPC in the Atlantic Ocean are invited to present fleet development plans to the Commission. A 20% reduction in the number of FADs is also included.
- **Transhipments at-sea**: The proposal addresses concerns that at-sea transhipments are a source of IUU activities and undermine the economic activities in ports of developing coastal states in the Atlantic Ocean, calling for a total ban on transhipments at-sea.
- **Scientific observers**: The proposal addresses the long-standing recommendation from the SCRS that levels of observer coverage should not represent less than 20% of the fishing activities of each fleet calling CPCs to gradually increase levels of coverage throughout 2019, to achieve 20% by the end of such year.
- **Socio-economic study**: The proposal addresses concerns from CPC that are developing coastal states and/or other flag states that the Commission does not take into consideration the importance of the socio-economic context on adopting management measures and calls for a study to be initiated in order to address those concerns and allow more informed decision-making by the Commission.

In addition, following with the document presented by Guatemala at ICCAT in 2018, DIPESCA also shared with the assessment team the document entitled "Explanatory note to draft recommendation by ICCAT to replace Recommendation 16-01 on a multi-annual conservation and management programme for tropical tunas" (Doc. No. PA1_505/ 2019) which in 2019 was submitted by the Central America region, including Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Mexico for Panel 1 of the 26th Regular Meeting of the Commission held in Palma de Mallorca, Spain, from 18 to 25 November 2019 (https://www.iccat.int/com2019/index.htm#en). The technical perspective of the proposal was as follows:

This proposal calls for a change in the management system used by ICCAT, shifting from the TAC and quota system to a mixed system that includes effort controls for industrial purse seiners and catch controls for other fisheries. The main reasons for the change are:

- Measures based on TAC and quotas do not fully meet the scientific advice because some fisheries are excluded from implementation of the measure and have increased catches of the target stocks in recent years;
- Compliance with the quotas by some CPCs is not ensured because MCS coverage is poor in those countries and ICCAT has not set an independent system to validate catch reports from its CPCs.
- The new measures proposed can be summarized as follows:
    - TAC: The proposal does not consider necessary to reduce CURRENT TAC (65,000 t). The SCRS does not recommend to reduce TAC; it recognizes (2019 report on BET included in the Report for Biennial Period 2018-2019, Part II (2019), Vol. 2, available at: https://www.iccat.int/Documents/BienRep/REP_EN_18-19_II-2.pdf):
        - The Committee notes that current and previous FOB time area closures and possible future changes of the allocation of catch to different gears provide some benefits to the stock (sections 19.2 and 19.4 4 to the Report for Biennial Period 2018-2019, Part I (2018), Vol. 2). The necessary reduction of fishing mortality on bigeye tuna required for stock recovery, however, cannot be achieved only with such measures. The Commission should urgently ensure that catches are appropriately reduced to end overfishing and allow the stock to recover following the Decision Framework adopted in paragraph 3 of Rec. 11-13.
        - The Commission should be aware that increased harvests on small fishes could have had negative consequences for the productivity of bigeye tuna fisheries (e.g. reduced yield at MSY and increased SSB required to produce MSY) (BET-Figure 9) and, therefore, should the Commission wish to increase long term sustainable yield, the Committee continues to recommend that effective measures be found to reduce fishing mortality of small bigeye tunas.
    - Purse seine fisheries: They shall be regulated through fishery closures, with each vessel selecting one of two possible closures. The length and time of the closures shall be estimated using the Control Rule proposed by Sharma & Herrera (2019) during the 2019 SCRS. The main advantages of fishery closures are:
        - Inclusiveness: The Control Rule is directed at all purse seine vessels in operation, from all flag States, addresses the advice for the three stocks of tropical tunas, and shall also assist in reducing incidental levels. TAC and quota systems are piecemeal, directed at just one stock and may lead to perverse impacts on other stocks or changes in fishing strategy towards more sensitive components of the stock the measure is directed at;
        - Ensures full compliance: Fishery Closures are monitored through VMS and Inspection in Port (either the vessel is operating or not); quotas, on the other hand, require good MCS strategies and independent validation of catch logs, which ICCAT does not have.
    - Longline and other fisheries: There is no change proposed for these fisheries at this time, other than allocation of quotas by fishery rather than CPC, and for both stocks yellowfin tuna and bigeye tuna, with all important fleets covered. Monitoring of implementation of the measure shall be required to ensure that catch reports are accurate.
    - Other provisions: Provisions for previous notice of changes to the fishing and support vessels are also considered.

In general, the aforementioned CPCs (including Guatemala) consider that the measures:

- Assists ICCAT in achieving its conservation targets for the four stocks of tropical tunas, in a more effective and integral manner;
- Takes into account the socio-economic impact that a overly restrictive TAC could have on fishing activity or other reliant economic activities, which would mostly affect developing coastal countries;
- Assists ICCAT in addressing recommendations for the mitigation of incidental from purse seine fisheries, in particular endangered, threatened and protected species;

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| | - Ensures compliance with the measure by the fishery whose contribution to total catch is highest;<br>- Ensures that purse seiners reduce their catches of bigeye and yellowfin juveniles while reducing skipjack catches at the same time, avoiding any detrimental effects that changes in target species or selectivity may have been experienced through the implementation of quotas;<br>- Fully respects the rights to resources of developing coastal states in the Atlantic Ocean, as it does not set limits on capacity while ensuring that all new entrants are subject to the measure;<br>- It takes into consideration the socio-economic context as it sets a more realistic plan for the implementation of the measure, establishing a phased-in three-year approach with gradual reductions in effort (purse seine) and catch (longline and other fisheries). |
| Status | From the abovementioned, and in addition to what has been stated in Condition 2, the client has fulfilled its obligation to put pressure on ICCAT through DIPESCA and ISSF to have yellowfin tuna effective management measures in order to ensure catches are maintained at sustainable levels.<br>The condition deadline and milestones are subject to a 6-month extension in accordance with Covid-19 Derogation 27 March 2020 from the original timeline (March 2020) to September 2020 (see **Section 3** for further details), therefore the condition status is 'ahead target' following the MSC CAB guidance. |
| Additional information | No additional information is required. |

## Condition 7 - NEW

**Table 5.2.2 – Condition 7**

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| Performance Indicator | **PI 2.1.1. The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.**<br><br>**SI (a) Main secondary species (Bigeye tuna – *Thunnus obesus*). If the species is below the PRI, there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding.** |
| Score | 75 |
| Justification | Stock status evaluations for Atlantic bigeye tuna used in 2018 several modelling approaches, ranging from non-equilibrium (MPD) and Bayesian statespace (JABBA) production models to integrated statistical assessment models (Stock Synthesis). The results of different model formulations considered to be plausible representations of the stock dynamics were used to characterize stock status and the uncertainties in the status evaluations.<br>Results of the uncertainty grid of Stock Synthesis runs show a long-term decline in SSB with the current estimate being at the lowest level in the time series (**Figure 4.2.7.3**) and increasing trend of fishing mortality (average F on ages 1-7) starting in the early 1990s, with the highest fishing mortality at 1994 and has remained high since then (see Kobe plot below) (ICCAT, 2019a).<br>The SS3 uncertainty grid, despite a broad range of assumptions regarding stock productivity (steepness) and model parameterization, shows trajectories of increasing F decreasing B towards the red area of the Kobe plot ($F > F_{MSY}$ and $SSB < SSB_{MSY}$), overfishing starting in around 1994 and an overfished stock at around 1996-1997, and being in the red quadrant of the Kobe plot since then (see below). According to the results of the SS3 uncertainty grid, Atlantic bigeye stock is currently overfished ($SSB/SSB_{MSY}$ =0.59, ranging from 0.42 to 0.80) |

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| | median (90th percentile) and undergoing overfishing ($F/F_{MSY}$ = 1.6, ranging from 1.14 to 2.12) with very high probability (99%) (see Kobe plot).<br><br>SSB/SSBMSY =0.59, is marginally above the PRI (defined as 0.5BMSY - MSC-MSCI Vocabulary, 2014, pg377, GSA 2.2.3.1). The lower 90th percentile estimate is below that point, at SSB/SSBMSY = 0.42, which means that there is a 5% probability that the stock is below PRI. No other probabilities are given for the status. However, the available information (ICCAT, 2018c) calculates the confidence Intervals (CIs) as mean +/- 1.68SE, this suggests the SE is approx. 0.11 [(0.611-0.426)/1.68]. The lower 70th percentile = 0.611- (1.04-0.11) would thus be 0.497. Given the uncertainty in the PRI, the median value of B2017/BMSY at 0.59, the proximity of the lower estimate to the 0.5BMSY proxy, and no recent indication of declining recruitment, **SG60 is met**.<br><br>However, the BET is not highly likely to be above the PRI and therefore, **SG80 is not met**. |
| Condition | By the first surveillance audit of the next certification cycle, the main primary species shall be highly likely above the PRI OR if the species is below the PRI, there shall be either evidence of recovery or a demonstrably effective strategy in place between all **MSC UoAs** which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding. |
| Milestones | According to FCP v2.1 7.18.1.5, the CAB determines that achieving a performance level of 80 may take longer than the period of certification based on the following:<br><br>1. ICCAT's SCRS is the body responsible for assessing the stock status of Bigeye tuna;<br>2. According to the road map agreed by the SCRS in its latest meeting (ICCAT, 2019a) the next stock assessment for BET was scheduled for 2023;<br>3. In the report of the SCRS meeting on Process and Protocol held in Madrid, Spain, 20-22 February 2020 (ICCAT,2020) it is stated that data preparatory meeting and stock assessment for BET should be carried out in 2021 (timing to be determined). However, at the time of drafting these milestones, the Process and Protocol is pending approval from the Commission.<br><br>Due to the COVID-19 situation, not all the planned activities have been able to be conducted and there is a lot of uncertainty on when and whether they will be carried out. Therefore, the team has decided that exceptional circumstances need to be applied to this condition.<br><br>Considering all the above, the Milestones are as follows:<br><br>1) Between the second and fifth surveillance audits, the client will submit evidence that is working actively through DIPESCA and with other appropriate groups so updates are carried out each year within ICCAT's assessment body (led by the tropical tuna species group within the SCRS), and will provide proof that changes in the fishery, including the new BET stock assessment has been carried out.<br>2) By the first surveillance audit of the second certification cycle, it is required that the client presents evidence that the bigeye stock is highly likely to be above the PRI.<br><br>In case the species falls below the PRI in any of the surveillance audits, the CAB will use the second part of the Scoring Guidepost definition ("OR If the species is below the PRI, there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding"), hence, revising the milestones. |
| Client Action Plan | The client is promoting the development and implementation of stock management measures by ICCAT through the following:<br><br>**Participation in ISSF**: since 2010, information is being sent to the representatives of the EU and Spain at ICCAT's annual meetings alerting them of the management needs, such as:<br><br>• Adopt stock-specific tuna management measures that are consistent with SCRS advice; adopt complementary measures for reducing the mortality of bigeye and yellowfin tuna in the purse seine fishery; fully allocate the bigeye and yellowfin catch limits by gear and/or flag; and adopt provisions to ensure compliance. |

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| | • Immediately address compliance with FAD data reporting, accelerate requiring fully non-entangling FADs, promote research into biodegradable FADs, and require the submission of FAD position data and FAD marking.<br>• Ensure sufficient funding so that management strategy evaluation for tropical tunas continues.<br>• Strengthen monitoring, control, and surveillance (MCS) measures, such as vessel monitoring systems (VMS), at-sea transhipment regulations and Port State Measures.<br>• Require 100% observer coverage for large-scale purse seine and longline vessels, and all vessels engaged in at-sea transshipment.<br><br>In the current situation, caused by the COVID-19 pandemic, and despite the fact that the annual meeting of ICCAT has not been held, the European Union has also been strongly urged to put pressure on ICCAT to address the critical management and conservation issues linked to Rec. 19-02 on Bigeye catch limit measures.<br><br>All recommendations have been forwarded to the representatives of the EU, Spain and DIPESCA (Guatemalan Fishing Authority) participating in the ICCAT meetings.<br><br>**Participation in OPAGAC**: through Opagac, the positions of the associated fleet regarding the management needs within ICCAT are sent to the representatives of the EU and Spain at ICCAT meetings.<br><br>In the coming years we will continue carrying out this work, as well as transmitting the recommendations agreed within OPAGAC to the representatives of the Guatemalan Fishing Authority (DIPESCA) present at the ICCAT meetings.<br><br>**Collaboration with ICCAT scientific teams** by providing them with information on both our purchases and our catches in order to contribute to a better data collection.<br><br>**On-board observers** who report information to AZTI with which this organization prepares the reports that DIPESCA sends to ICCAT.<br><br>**Reporting the position of our vessels (VMS)** to the Spanish fishing authorities, as well as to the flag state and coastal states for which we have licenses.<br><br>**Implementation of our own measures** to **reduce** the **catches of Bigeye**: In 2019, measures have been implemented to reduce Bigeye catches, which have allowed us to reduce catches by 31% compared to 2018. These measures will be sustained over time until the recovery of the species. Within the package of measures implemented, the follwoing is included:<br><br>• Centralize the fishing activity in waters where other tuna species are traditionally abundant; this implies not applying for fishing licenses in areas where the pressure on Bigeye is higher.<br>• Inform the crew of the concern about the situation of the Bigeye stock and the importance of implementing measures that will prevent the overfishing situation from continuing.<br><br>**Collaboration with DIPESCA**: The Guatemalan Fishing Authority (DIPESCA), as the competent body before ICCAT, has committed at the request of Sant Yago to meeting the objective that by the year 2020, Bigeye tuna's catches from vessels flying the Guatemalan flag should be kept at levels below 1827 mt. This means a reduction in catches of 37% compared to the average of the last two years. |
| Consultation on condition | The SCRS Science Strategic Plan 2015-2020 set as a main goal the evaluation of precautionary management reference points and robust harvest control rules (HCRs) through management strategy evaluations (MSE). As a result, ICCAT, 2015a, Rec 15-07 provided guidelines on the development of Harvest Control Rules and of Management Strategy Evaluation for each stock, inter alia, northern albacore, Bluefin tuna, North Atlantic swordfish, and tropical tunas.<br><br>The Commission requests to the SCRS related to MSE on tropical tunas are already explicit in ICCAT, 2016a, Rec. 16-01. This includes to provide performance indicators for yellowfin, |

skipjack and bigeye tuna with the perspective to develop management strategy evaluations for tropical tunas.

The ICCAT Recommendation (17-01) prohibiting discards of tropical tunas (YFT, SKJ, BET) by purse seiners entered into force on 11th June 2018. This Recommendation states that vessels shall retain on board and then land or transship to port all bigeye, skipjack and yellowfin tunas caught. This Recommendation also notes that CPCs shall report all discards observed.

New Rec 19-02 establishes that the Total Allowable Catch (TAC) for bigeye tuna shall be 62,500 t in 2020 and 61,500 t in 2021. The TAC for 2022 and future years shall be considered in 2021 based on SCRS advice. It also defines the management of FADs and support vessels in the Convention area to minimize the impact of FAD fishing on the productivity of bigeye stocks that result from the capture of high numbers of juveniles that aggregate with skipjack on FADs. It establishes that FAD closure in the high seas or EEZs shall be prohibited during a two- and three-month period, split into 2020 and 2021, respectively. This should be reviewed and, if necessary, revised based on advice by the SCRS taking into account monthly trends in free school and FAD-associated catches and the monthly variability in the proportion of juvenile tuna in catches. SCRS should provide this advice to the Commission in 2020. In addition, each CPC shall ensure its vessels do not deploy drifting FADs during a period of 15 days prior to the start of the closure period. The Rec 19-02 also includes capacity management measures, management of FADs and control measures.

At the latest meeting of the SCRS held in Madrid between 30th September – 4th October 2019, it was recognized that some preliminary steps have been made towards the development of MSE to support a robust advice framework for the Atlantic tropical tuna stocks (ICCAT 2018a), and the MSE works should be resumed. The technical work required to support the advice on the adoption of Harvest Strategies will be undertaken by an international consortium. The first phase of the MSE works included (i) the planification of Operating Models for bigeye, yellowfin and skipjack, (ii) the identification of multi-specific Management Procedures that could potentially be applied, and (iii) the investigation on communication tools. Items (i) and (iii) have been mainly progressed through the work of the consortium. Initial discussion on item (ii) took place at the panel 1 Commission meeting in July and the SCRS has requested that these works continue.

The tropical tuna WG discussed options to continue the MSE works in the intersessional meeting (15th August 2020), including the proposal to define Terms of References for new contracts. It is foreseen that such discussion will continue and be more focused so that the MSE development is supported by a broad consultation and dialogue between the contractors and other experts from the Atlantic tropical tunas Species Group.

The Committee recommends the procurement of additional funds to support the continued development of the MSE for Tropical tunas. Specifically, the Committee supports extending the current contract to support "Phase 2 and 3" activities. The Tropical Tuna working group estimated that the funds necessary for this work amount €250,000 (ICCAT, 2019, Yellowfin tuna SA meeting, Grand Bassam, 2019).

According to the report of the SCRS meeting on Process and Protocol held in Madrid, Spain, 20-22 February 2020 (ICCAT, 2020), which is pending adoption by the Commission, it is stated that data preparatory meeting and stock assessment for BET should be carried out in 2021 (timing to be determined). Moreover, the latest MSEs roadmap approved by the Commission at its Annual meeting held in November 2019 was presented to the Group. The updated schedule reflects the recommendation of the Commission to slow the overall process, giving priority to the N-ALB and bluefin tuna MSE process.

The track record, therefore, indicates that the on-going activities of the SCRS following the Commission mandate are already consistent with the achievement of this Condition. Under the MSE roadmap adopted it was agreed to continue the development of the tropical tunas MSE but at reduced speed, taking into consideration the complexity of this MSE process and the advantage of the recent stock assessments of BET, YFT and scheduled SKJ. In addition, it was noted that under the ICCAT biannual budget approval schedule, stopping completely the tropical tunas MSE development would delay this process for several years. It was noted the importance of continuing the development of the tropical tunas MSE, both in technical

| | |
|---|---|
| | aspects and management objectives, given the importance of these fisheries and the current status of some of the stocks (ICCAT, 20020).<br><br>Therefore, despite the condition is relying upon the involvement, funding and resources of the Commission, the CAB considers it achievable by the client and realistic in the period specified. |

## 5.3 Client Action Plan

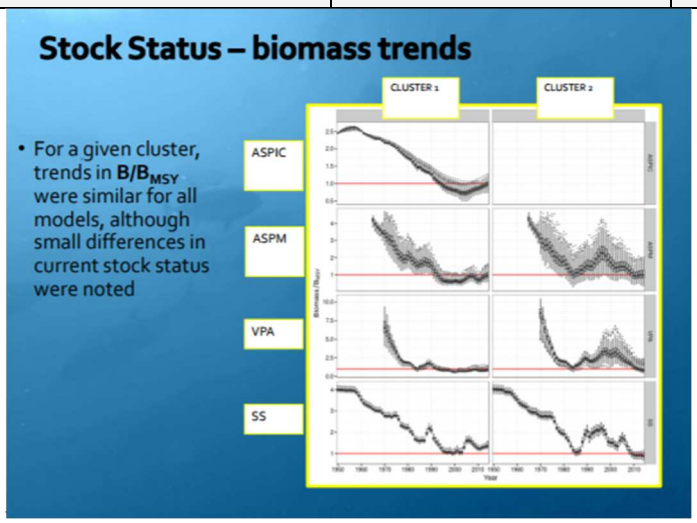
Due to the new Condition 7 opened during this surveillance audit, an additional Client Action Plan has been included (see Section 5.2 – Condition 7 – NEW for further details).

## 5.4 Re-scoring Performance Indicators

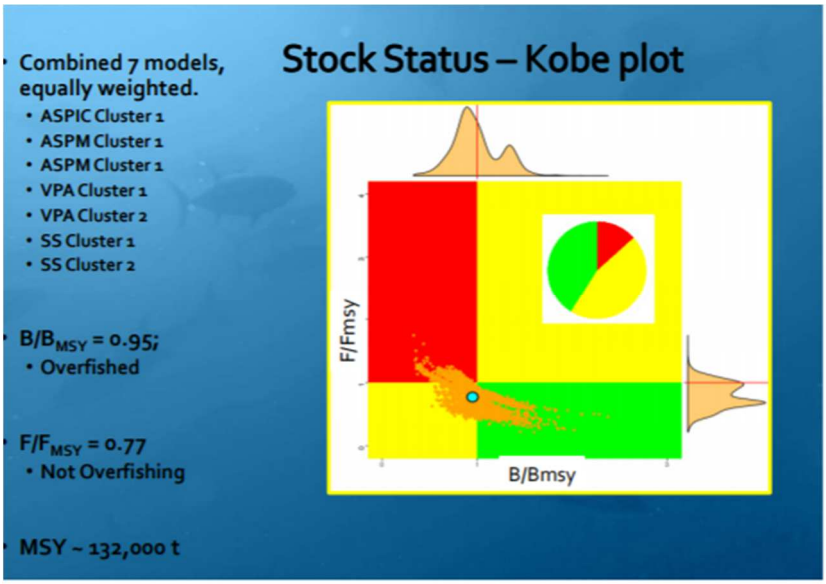
Changes made to the original rationales are identified by adding text in **blue**, while outdated parts of the original rationales are ~~**crossed out**~~.

**Evaluation Table for PI 1.1.1 – Stock status**

| **PI 1.1.1** | | **The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing** | | |
|---|---|---|---|---|
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| **a** | Stock status relative to recruitment impairment | | | |
| | **Guide post** | It is likely that the stock is above the point where recruitment would be impaired (PRI). | It is highly likely that the stock is above the PRI. | There is a high degree of certainty that the stock is above the PRI. |
| | **Met?** | Y | Y | ~~N~~ Y |
| | **Justification** | ~~The latest YFT assessment was conducted in 2016 (ICCAT, 2016b) to estimate the stock size of 2014. The stock was evaluated by using four different assessment methods; Production models (ASPIC), Age structured production model (ASPM), Virtual population analysis (VPA), Catch statistical models (Stock synthesis SS3). The results were presented for two index clusters, each underlying a different hypothesis of stock depletion. The ASPIC model did not converge using the indices under the Cluster 2 assumption. Management advice was ultimately based on the combination of results of seven runs, equally weighted. The results were presented as below.~~ | | |

| PI 1.1.1 | | The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing | | |
|---|---|---|---|---|
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| | |  | | |

~~Reproduced from (ICCAT, 2016d)~~




~~Reproduced from (ICCAT, 2016d)~~

~~Management advice was based on the median (10$^{th}$-90$^{th}$ percentiles) from the joint distribution of age-structured and production model bootstraps.~~

~~Relative biomass $B_{2014}/B_{MSY}$=0.95 (0.71-1.36)~~

~~No explicit reference point where recruitment is impaired is used in ICCAT, therefore the default reference point of 0.5$B_{MSY}$ is used as proxy indicator (MSC-MSCI Vocabulary, 2014, pg377, GSA 2.2.3.1). It is estimated that there is a 10% probability that the stock is below $B_{2014}/B_{MSY}$=0.71, therefore by assuming that the estimates are approximately normally distributed ( (Medley, 2017), it implies that it is highly likely that the stock is above the level where recruitment is impaired and implicitly there is a high degree of certainty of that.~~

- ~~However, consideration should be given to the fact that the eight longline indices that were selected for the use in the stock assessment were arranged into the two "clusters" each representing a unique hypotheses regarding trends in abundance of yellowfin tuna. Cluster 1 indices showed~~

| PI 1.1.1 | | The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing | | |
|---|---|---|---|---|
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| | | ~~an initial decline, with nearly constant relative abundance since 1990, while Cluster 2 indices suggest increased abundance during the 1990s, followed by a general decline through 2014. The two trends represent a major source of scientific uncertainty regarding the abundance of yellowfin tuna (ICCAT 2016b).~~<br><br>~~This PI meets SG60, SG80 and probably SG100, but because of the uncertainty in the above mentioned indices, SG100 is not met.~~<br><br>A full stock assessment was conducted for yellowfin tuna in 2019, applying two production models (JABBA, MPB) and one age-structured model (Stock Synthesis) to the available catch data through 2018. The four Stock Synthesis model runs, were regarded as representing alternative recruitment, and steepness hypotheses. Likewise, the JABBA runs addressed different hypotheses about initial priors for r, and about which indices of abundance were representing the population. Finally, the base case selected for MPB estimated biomass and fishing mortality trends that varied somewhat from JABBA. In order to capture this uncertainty in the population dynamics for developing the management advice, it was best to incorporate results from all of the accepted model runs.<br><br>Equal weight was given to surplus production model and integrated assessment model results. Within surplus production models, JABBA and MPB were also given equal weight. Each run within a modeling platform (JABBA, and Stock Synthesis) were also given equal weight. For the combined results (MPB, JABBA, SS) used to develop management advice, the median estimate of $B_{2018}/B_{MSY}$ is 1.17 (0.75-1.62)- and the median estimate of $F_{2018}/F_{MSY}$ is 0.96 (0.56-1.5). The median MSY estimated is 121,298 t (90,428t – 267,350 t). These relate to 90% confidence intervals. Combining the results of all models provides a way to estimate the probability of the stock being in each quadrant of the Kobe plot in 2018 (**Figure 4.2.6.6**). The corresponding probabilities are 54% in the green (not overfished not subject to overfishing), 21% in the orange (subject to overfishing but not overfished) 2% in the yellow (overfished but not subject to overfishing) and 22% in the red (overfished and subject to overfishing). In summary, the results point to a stock status of not overfished (24% probability of overfished status), with no overfishing (43% probability of overfishing taking place).<br><br>No explicit reference point where recruitment is impaired is used in ICCAT, therefore the default reference point of $0.5B_{MSY}$ is used as proxy indicator (MSC-MSCI Vocabulary, 2014, pg377, GSA 2.2.3.1). It is estimated that there is a 10% probability that the stock is below $B_{2018}/B_{MSY}$=0.75.Assuming the estimates are approximately normally distributed, the 95%CI would also exclude the PRI therefore it is highly likely that the stock is above the level where recruitment is impaired and implicitly there is a **high degree of certainty** of that.<br><br>SI (a) meets **SG60, SG80 and SG100**. | | |
| **b** | Stock status in relation to achievement of MSY | | | |
| | **Guide post** | | The stock is at or fluctuating around a level consistent with MSY. | There is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years. |
| | **Met?** | | ~~N~~ Y | N |

| PI 1.1.1 | The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing | | |
|---|---|---|---|
| **Scoring Issue** | SG 60 | SG 80 | SG 100 |

**Justification**

~~The latest YFT assessment estimated the state of the resource for 2014 which was estimated as $B_{2014}/B_{MSY}$=0.95 (0.71-1.36), which is very close to the MSY (ICCAT, 2016b). In fact, most of the assessment results estimated the stock to be either at MSY or just above it, with the exception of the VPA and SS using the indices for cluster 2.~~

| ~~Model~~ | ~~$B_{cur}/B_{MSY}$~~ | ~~$F_{cur}/F_{MSY}$~~ |
|---|---|---|
| ~~ASPIC Cluster1~~ | ~~1.019~~ | ~~0.770~~ |
| ~~ASPM Cluster1~~ | ~~1.002 (0.775-1.240)~~ | ~~0.558 (0.445-0.692)~~ |
| ~~ASPM Cluster2~~ | ~~1.025 (0.610-1.429)~~ | ~~0.625 (0.423-0.989)~~ |
| ~~SS Cluster1~~ | ~~1.38~~ | ~~0.704~~ |
| ~~SS Cluster2~~ | ~~0.81~~ | ~~0.84~~ |
| ~~VPA Cluster 1~~ | ~~0.84~~ | ~~0.98~~ |
| ~~VPA Cluster 2~~ | ~~0.54~~ | ~~1.13~~ |

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

| 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 |

Current TAC

~~Reproduced from (ICCAT, 2016d)~~

~~It is difficult to determine whether the stock is fluctuating around the level consistent with MSY, as so many different stock assessment methods are used. The general trend, however, indicates that the stock was estimated to be below the MSY level since 2001 and is now recovering towards the MSY level (ICCAT, 2006). However, the stock is not yet at a level consistent with MSY. **SG80 is not met**.~~

The general trend indicated by the various stock assessment results (**Section 4.2.6**), indicates that the stock is above or fluctuating around the MSY level; $B_{2018}/B_{MSY}$ is 1.17 (0.75-1.62), therefore **SG80 is met** (see **Figure 4.2.6.4**) (ICCAT, 2019a). However, in the last stock assessment of 2019 the Kobe plot indicates that there is only a 75% certainty that the stock is above the MSY level. Therefore, we can not state that there is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY. Thus, **SG100 is not met**.

| **References** | References: |
|---|---|

| PI 1.1.1 | The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing | | |
|---|---|---|---|
| **Scoring Issue** | SG 60 | SG 80 | SG 100 |
| | ~~ICCAT, 2006. Report of the standing committee on research and statistics (SCRS) (Madrid, Spain, October 2 to 6, 2006) Retrieved from: https://stecf.jrc.ec.europa.eu/c/document_library/get_file?uuid=3459de27-7169-46f7-a05c-5044c7d96955&groupId=43805~~<br><br>~~ICCAT, 2016b. Report of the 2016 ICCAT yellowfin tuna stock assessment meeting (San Sebastian, Spain – 27 June to 1 July 2016). Retrieved from: https://www.iccat.int/Documents/Meetings/Docs/2016_YFT_ASSESSMENT_ENG.pdf~~<br><br>~~ICCAT, 2016d. ICCAT SCRS Report Panel 1-Tropical tunas. Retrieved from: https://www.iccat.int/Documents/SCRS/Presentation/2016/Panel1-2016.pdf~~<br><br>~~Medley P.A.H. and J. Gascoigne. 2017. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 5). ISSF Technical Report 2017-09. International Seafood Sustainability Foundation, Washington, D.C., USA~~<br><br>ICCAT, 2019a | | |
| **OVERALL PERFORMANCE INDICATOR SCORE:** | | | ~~70~~ **90** |
| **CONDITION NUMBER (if relevant):** | | | ~~1~~ **NA** |

Stock status relative to reference points

| | Type of reference point | Value of reference point | Current stock status relative to reference point |
|---|---|---|---|
| Reference point used in scoring stock relative to PRI (SIa) | Atlantic Ocean YFT:<br><br>ICCAT has not as yet adopted reference points for YFT, therefore the proxy advised in the FCR guidance clause GSA2.2.3.1, was used | According to FCR guidance clause GSA2.2.3.1, the proxy for the PRI is about $0.5B_{MSY}$. | MSY level; $B_{2018}/B_{MSY}$ is 1.17 (0.75-1.62), ($10^{th}$-$90^{th}$ percentiles), therefore it is highly likely that the stock is above the proxy of $0.5B_{MSY}$, |
| Reference point used in scoring stock relative to MSY (SIb) | Biomass as maximum sustainable yield level | $B_{cur}>B_{MSY}$<br><br>$F_{cur}<F_{MSY}$ | MSY level; $B_{2018}/B_{MSY}$ is 1.17 (0.75-1.62), ($10^{th}$-$90^{th}$ percentiles). The stock is estimated to be above the MSY biomass level |

## Evaluation Table for PI 1.1.2 – Stock rebuilding

| PI 1.1.2 | | Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe | | |
|---|---|---|---|---|
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| **a** | **Rebuilding timeframes** | | | |
| | **Guide post** | A rebuilding timeframe is specified for the stock that is **the shorter of 20 years or 2 times its generation time**. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years. | | The shortest practicable rebuilding timeframe is specified which does not exceed **one generation time** for the stock. |
| | **Met?** | ~~Y~~ NA | | ~~Y~~ NA |
| | **Justification** | The team shall only score this PI when Stock Status PI 1.1.1 does not achieve 80 (Standard v2.01 SA 2.3.1), and therefore after rescoring PI 1.1.1 to be above 80, this PI is now **not applicable**.<br><br>~~For YFT, the age-at-50%-maturity is around 2.5 years and the natural mortality can be as low as 0.45 per year (ICCAT, 2016c). Using this information, the generation time (GT) is estimated to be around 5 years (380 MSC CR2.0 Box GSA4). The generation time is the average age of a reproductive individual, in a given stock.~~<br><br>~~The latest stock assessment of YFT was performed in 2016 (ICCAT, 2016b) and the state of the resource for 2014 was estimated to be $B_{2014}/B_{MSY}$=0.95 (0.71-1.36), which is just below the desired $B_{MSY}$ level. The most recent estimate of the fishing mortality ratio; $F_{2014}/F_{MSY}$= 0.77 (0.53-1.05), indicates that there is a very low probability for the fishing mortality to be above the fishing mortality at MSY.~~<br><br>~~In 2012, a TAC of 110 000t was put in place (ICCAT, 2014) to ensure that the stock is to recover within the shortest practicable rebuilding timeframe. It was estimated with a 68% probability that the stock would be above MSY in 2017, which is one generation time. 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 estimate is near this level (108,910 t).~~<br><br>~~Considering the estimated projections of the 2016 stock assessment and bearing in mind that the fishery followed the TAC of 110 000 tonnes until 2015, the probability matrix (ICCAT, 2016d) indicates that there is a 78% probability that the stock is at $B_{MSY}$ in 2018. The MSY was estimated to be 132 000t (120 000-150 000), therefore, even though in 2016 the recorded catch was around 127 000t, the projections indicate that currently the stock should be above the MSY level.~~<br><br>~~It is likely in 2018, highly likely in 2019 and there is a high degree of certainty that in 2022 the stock is above the biomass at MSY level. It should further be recognised that the 2014 stock level, two years after the implementation of the TAC, estimated the stock to be only 5% below the MSY.~~<br><br>~~From the forward projections, with the implemented TAC, it can be seen that the rebuilding timeframe is shorter than 2 times its generation time (10 years), therefore SG60 is met.~~<br><br>~~The forward projections estimated a 68% probability that the stock would be rebuild within one generation time (5 years), therefore SG100 is met.~~ | | |

| PI 1.1.2 | | Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe | | |
|---|---|---|---|---|
| | | ~~Kobe II matrix expresses the probability that B>$B_{MSY}$~~ | | |

| 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% | 93% | 95% | 96% | 97% |
| 120,000 | 67% | 75% | 80% | 80% | 81% | 82% | 84% | 84% |
| 130,000 | 64% | 68% | 72% | 70% | 69% | 67% | 65% | 62% |
| 140,000 | 63% | 64% | 63% | 59% | 53% | 46% | 40% | 38% |
| 150,000 | 61% | 59% | 55% | 47% | 34% | 30% | 28% | 27% |

~~Reproduced from (ICCAT, 2016d)~~

| b | Rebuilding evaluation | | | |
|---|---|---|---|---|
| | **Guide post** | Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe. | There is evidence that the rebuilding strategies are rebuilding stocks, or it is likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe. | There is strong evidence that the rebuilding strategies are rebuilding stocks, or it is highly likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe. |
| | **Met?** | ~~Y~~ NA | ~~Y~~ NA | ~~N~~ NA |
| | **Justification** | The team shall only score this PI when Stock Status PI 1.1.1 does not achieve 80 (Standard v2.01 SA 2.3.1), and therefore after rescoring PI 1.1.1 to be above 80, this PI is now **not applicable.**<br><br>~~Stock assessments are undertaken every five years by ICCAT, therefore monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe. SG60 has been met.~~<br><br>~~The management quantities estimated in the 2011 and 2016 YFT stock assessment (ICCAT, 2012) (ICCAT, 2016b) were the following:~~<br>~~$B_{2010}/B_{MSY}$=0.85(0.61-1.12) $B_{2014}/B_{MSY}$=0.95 (0.71-1.36)~~<br>~~$F_{2010}/F_{MSY}$=0.87 (0.68-1.4) $F_{2014}/F_{MSY}$=0.77 (0.53-1.05)~~<br>~~The overall health of the stock increased by approximately 10%; the stock status increased by 10% and the fishing pressure decreased by that amount. Therefore, there is evidence that the rebuilding strategies are rebuilding stocks, and it is likely that they will be able to rebuild the stock within the specified timeframe. SG 80 has been reached.~~<br><br>~~Further, in the 2011 YFT stock assessment the rebuilding strategy was illustrated in the matrix below (ICCAT, 2011a)~~ | | |

| PI 1.1.2 | Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe |
|---|---|

| Constant Catch (t, in 1000s) | Probability (%) that $B>B_{MSY}$ and $F<F_{MSY}$ in each year | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
| 50 | 25 | 51 | 70 | 78 | 84 | 87 | 89 | 91 | 92 | 93 | 94 | 95 | 95 | 96 |
| 60 | 24 | 48 | 66 | 76 | 81 | 85 | 87 | 89 | 90 | 92 | 93 | 93 | 94 | 94 |
| 70 | 24 | 45 | 63 | 73 | 78 | 82 | 85 | 87 | 89 | 90 | 90 | 92 | 92 | 93 |
| 80 | 24 | 43 | 59 | 69 | 75 | 79 | 82 | 84 | 86 | 87 | 88 | 89 | 90 | 90 |
| 90 | 24 | 40 | 54 | 65 | 71 | 75 | 78 | 81 | 82 | 84 | 85 | 86 | 87 | 88 |
| 100 | 24 | 37 | 49 | 59 | 66 | 70 | 73 | 76 | 78 | 80 | 81 | 82 | 83 | 84 |
| 110 | 23 | 35 | 45 | 53 | 59 | 64 | 67 | 70 | 72 | 74 | 75 | 76 | 77 | 78 |
| 120 | 23 | 32 | 40 | 46 | 51 | 55 | 58 | 61 | 64 | 65 | 66 | 68 | 69 | 70 |
| 130 | 23 | 29 | 35 | 39 | 43 | 45 | 47 | 49 | 51 | 53 | 54 | 55 | 56 | 58 |
| 140 | 22 | 26 | 29 | 31 | 33 | 34 | 36 | 36 | 37 | 38 | 39 | 39 | 40 | 40 |
| 150 | 20 | 21 | 22 | 22 | 22 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 20 | 20 |

~~Reproduced from (ICCAT, 2011a)~~

~~The interpretation of this 2011 probability matrix is that it was predicted that in 2014 there would be a 45% chance for the stock to be at MSY, following a TAC of 110 000.~~

~~In the 2016 YFT assessment the stock was estimated to be:~~

- ~~$B_{2014}/B_{MSY}$=0.95(0.71-1.36) (ICCAT, 2016b), which is very close to the required $B_{MSY}$ level, indicating that there is strong evidence that the rebuilding strategies are rebuilding the stock, and it is shown that it is highly likely that they will be able to rebuild the stock within the specified timeframe.~~
- ~~However, in addition to the contradicting two indices trends, which is a major source of scientific uncertainty regarding the abundance of yellowfin tuna (ICCAT 2016b), there was an overage of catch in 2016. The TAC is 110 000t and the catch was around 130 000 (ICCAT database), and as yet it is not known what the catches of 2017 were, therefore SG100 is not met.~~

**References**


~~ICCAT (2011a). Executive summary. Retrieved from: https://www.iccat.int/Documents/SCRS/ExecSum/YFT_ENG.pdf~~

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| ~~OVERALL PERFORMANCE INDICATOR SCORE:~~ | ~~90~~ |
|---|---|
| **CONDITION NUMBER (if relevant):** | **NA** |

According to FCP 7.28.15.1 , CABs are reminded that aggregated Principle scores shall be updated at the surveillance audit and recorded in the surveillance report. This applies if any of the Performance Indicator scores have changed, irrespective of whether the changes are material or not (FCP 7.20.6.c). Therefore, and due to new information on some species stock assessments (i.e., Yellowfin tuna - **Section 4.2.6** and **PI 1.1.1** -, Atlantic Bigeye tuna and Eastern Skipjack – **Sections 4.2.7.1.2 a** and **b**) and re-classification of one species (i.e., the shortfin mako from ETP to primary species – see **Section 4.2.7.1.2 c**), PIs 1.2.3, 1.2.4, 2.1.1, 2.1.2 and 2.1.3 were re-assessed. See below their evaluation:

## Evaluation Table for PI 1.2.3 – Information and monitoring

| **PI 1.2.3** | | **Relevant information is collected to support the harvest strategy** | | |
|---|---|---|---|---|
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| **a** | Range of information | | | |
| | **Guidepost** | **Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy. | **Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy. | A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available. |
| | **Met?** | Y | Y | N |
| | **Justification** | ~~The following fisheries data are used as input to the stock assessment models: Task I nominal catch, Task II catch and effort (CE), Task II catch at size (CAS) and the corresponding size frequency data aggregated by year-quarter, fishing mode, main gear, and 5x5 square Lat-Long grid (ICCAT, 2016c). Detailed data are available since the 1950s. This information is adequate to use four different stock assessment approaches as illustrated in (ICCAT, 2016b).~~ ~~**SG60 is met**~~.<br><br>~~These stock assessments are adequate for the requirements of decision making. ICCAT also has comprehensive information about the fleet composition.~~<br><br>~~All participating companies in ISSF (and Jealsa Rianxeira Group is one of them) are bound to provide very detailed information on their purchases every quarter to the competent RFMO scientific body (in the case of the assessed fishery is the SCRS) as required by the ISSF conservation measure 2.2. Quarterly Data Submission to RFMO:~~<br><br>~~1) Processors, traders, importers, transporters, marketers and others involved in the seafood industry shall submit the following data within their control to the appropriate RFMO scientific bodies:~~<br>~~A. Round fish (includes gilled and gutted, and headed and gilled and gutted) unloading from Fishing Vessel~~<br>~~i. Name of fishing vessel~~<br>~~ii. Unique Vessel Identification Number (for example, IMO number) of fishing vessel~~<br>~~iii. Gear type~~<br>~~iv. Flag State of fishing vessel~~<br>~~v. Start date for unloading to processor~~<br>~~vi. End date for unloading to processor~~<br>~~vii. RFMO area of subject catch~~<br>~~viii. Fishing trip dates~~ | | |

| PI 1.2.3 | | Relevant information is collected to support the harvest strategy |
|---|---|---|
| | | ~~ix. Weight of catch (in metric tons, by commercial species/size categories compiled as specified in paragraph 2)~~<br>~~x. Unloading port~~<br>~~xi. Data source (unloading data, outturn report or immediate pre-processing)~~<br>~~B. Round fish (includes gilled and gutted) unloading from Carrier Vessel (Transhipments)~~<br>~~i. Name of carrier vessel~~<br>~~ii. Unique Vessel Identification Number (for example, IMO number) of carrier vessel~~<br>~~iii. Flag State of carrier vessel~~<br>~~iv. Start date for unloading to processor~~<br>~~v. End date for unloading to processor~~<br>~~vi. Name(s) of catcher vessel(s)~~<br>~~vii. Unique Vessel Identification Number(s) (for example, IMO number) of catcher vessel(s)~~<br>~~viii. Flag state(s) of catcher vessel(s)~~<br>~~ix. Date(s) of transfer of fish from catcher vessel(s) by vessel, and/or transfer from processor(s) to carrier vessel~~<br>~~x. Locations of transfer(s) at sea [at sea coordinates/port name] by transfer~~<br>~~xi. Fishing trip dates~~<br>~~xii. Weight of catch (in metric tons, by commercial species/size categories by catcher vessel(s) compiled from immediate pre-processing data as specified in paragraph 2)~~<br>~~xiii. Unloading port~~<br>~~xiv. Data source (unloading data, outturn report or immediate pre-processing)~~<br>~~2) Weight of catch (in metric tons) by commercial species/size categories should be compiled from immediate pre-processing data or from unloading data/outturn reports. The size classes shall reflect commercial grading used by the processor, with the following suggested minimum breakdowns:~~<br>~~- Skipjack: <3 lb. (1.4 Kg); 3-4 lb. (1.4 -1.8 Kg); 4-7.5 lb.; >7.5 lb. (3.4 Kg). The category 3-4 lb. can be combined with the <3 lb. category if not generally measured by the processor.~~<br>~~- Yellowfin and bigeye: <4 lb. (1.8 Kg); 4-7.5 lb. (1.8-3.4 Kg); 7.5-20 lb. (3.4-9 Kg); > 20 lb. (9 Kg). If used by the processor, the additional category 3-4 lb. (1.4-1.8 Kg) should be added.~~<br>~~- Albacore: <4 Kg; 4.0-7.0 Kg; 7.0-10.0 Kg; >10 Kg.~~<br>~~Species separation for skipjack, yellowfin and bigeye should apply to all size breakdowns, unless practical considerations limit this separation in the smallest size classes (e.g. < 3 lb. or < 4 lb.), in which case the report should indicate the species mix.~~<br>~~3) Submission of these data for each quarter shall be done by the last day of the following calendar quarter. Submissions shall be done by electronic mail to the appropriate RFMO scientific bodies~~<br><br>~~This is relevant information to improve the accuracy of Task I and Task II data. The compliance with this ISSF conservation measure is being audited by MRAG on an annual basis as part of the verification scheme to ensure compliance with the ISSF conservation measures. The SCRS has used this data in the past to crosscheck Task I data in conflicting situations, for instance it was used to check and improve catch data from Ghana (Victor Restrepo –ISSF-, pers. comm). However, ISSF is currently working on improving standardisation of data reported by the different companies to facilitate the task of the ICCAT Secretariat (the body in charge of receiving all data).~~<br><br>~~The information is relevant to support the harvest strategy.~~ ~~**SG80 is met**~~~~.~~<br><br>• ~~There is a comprehensive range of relevant information on stock abundance, fishery removal and other information such as environmental information. Environmental data is available at https://www.iccat.int/en/SC_ENV.htm. However, at this stage there are no other monitoring programs, which though not directly relevant to the target stock, are referred to by fishery managers to inform their understanding of the stock management.~~ ~~**SG100 is not met.**~~ |

| PI 1.2.3 | Relevant information is collected to support the harvest strategy |
|---|---|

The following fisheries data are used as input to the stock assessment models: Task I nominal catch, Task II catch and effort (CE), Task II catch-at-size (CAS) and the corresponding size frequency data aggregated by year-quarter, fishing mode, main gear, and 5x5 square Lat-Long grid (ICCAT, 2016c).

The tables below show the SCRS statistics (Task-I and Task-II) for the East and West Atlantic yellowfin, major fishery (flag/gear combinations ranked by order of importance) and year (1988 to 2017). Only the most important fisheries (representing ±97.5% of Task-I total catch) are shown. For each data series, Task I (DSet= "t1", in tonnes) is visualised against its equivalent Task II availability (DSet= "t2") scheme. The Task-II colour scheme, has a concatenation of characters ("a"= T2CE exists; "b"= T2SZ exists; "c"= CAS exists) that represents the Task-II data availability in the ICCAT-DB. See the legend below for the colour scheme pattern definitions provided in the tables below (ICCAT, 2019b).

**LEGEND and color schemes used to show Task II (t2) availability**

| character | represents |
|---|---|
| a | t2ce |
| b | t2sz |
| c | t2cs |

| color scheme | t2 availability score |
|---|---|

| Concatenated string | represents | score3 (*) | score2 (**) |
|---|---|---|---|
| -1 | no T2 data | 0 | 0 |
| a | t2ce only | 1 | 1 |
| b | t2sz only | 1 | 1 |
| c | t2cs only | 1 | 1 |
| bc | t2sz + t2cs | 1 | 1 |
| ab | t2ce + t2sz | 2 | 2 |
| ac | t2ce + t2cs | 2 | 2 |
| abc | all | 3 | 2 |

* Species requiring ST05-T2CS data (ALB, BFT, BET, YFT, SKJ, SWO)

** Rest of the species (not requiring ST05-CAS data)

| | | |
|---|---|---|
| (number of years in the score) | totYears | 30 |
| (score scale adopted) | scale | 10 |

Detailed data are available since the 1950s. This information is adequate to use three different stock assessment approaches as illustrated in ICCAT (2019a) and it is also sufficient to support the harvest strategy, therefore SI(a) **SG60 and SG80 is met**.

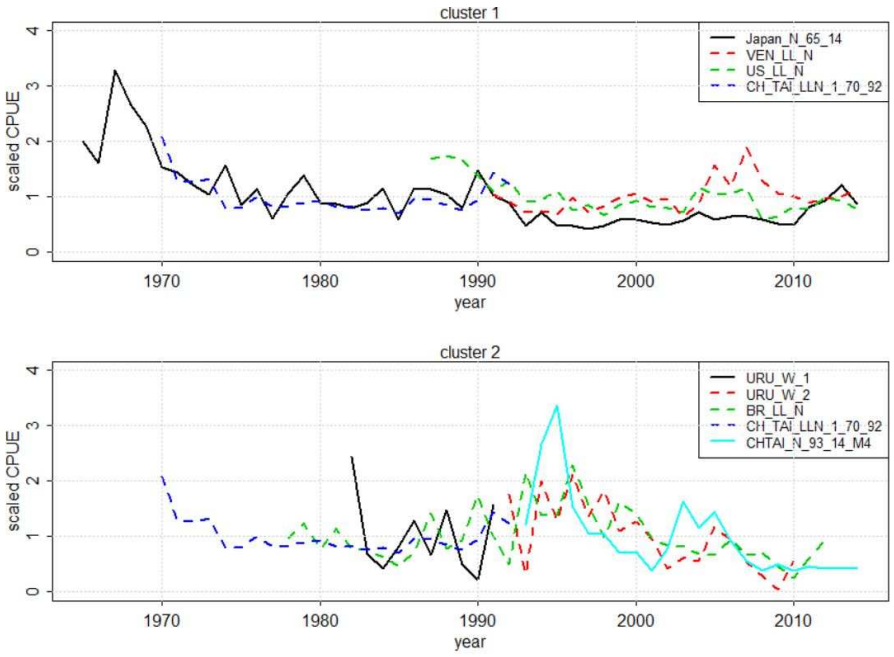
There is a comprehensive range of relevant information on stock abundance, fishery removal and other information such as environmental information. Environmental data is available at https://www.iccat.int/en/SC_ENV.htm. However, at this stage there are no other monitoring programs, which though not directly relevant to the target stock, are referred to by fishery managers to inform their understanding of the stock management. For SI (a) **SG100 is not met.**

**Table B. YFT-E region**

| | | | | | T1 Total | 101642 | 125489 | 160873 | 130626 | 126058 | 124706 | 125530 | 119314 | 116096 | 105034 | 113576 | 105615 | 96531 | 113139 | 104767 | 97467 | 88169 | 75524 | 77528 | 76250 | 93613 | 98782 | 97462 | 94494 | 93742 | 85067 | 92859 | 105088 | 117432 | 102216 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | Stock | Status | FlagName | GearGrp | DSet | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Rank | % | %cum |
| YFT | ATE | CP | EU.España | PS | t1 | 48201 | 60746 | 66569 | 51762 | 48952 | 40044 | 39734 | 37707 | 31866 | 23901 | 28282 | 19332 | 24764 | 30433 | 30343 | 23665 | 20454 | 11121 | 10607 | 12833 | 23557 | 32140 | 24191 | 18238 | 17898 | 11336 | 13463 | 19918 | 17802 | 10817 | 1 | 26.9% | 27% |
| YFT | ATE | CP | EU.España | PS | t2 | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | 1 | | |
| YFT | ATE | CP | EU.France | PS | t1 | 16276 | 28827 | 42431 | 31199 | 31894 | 35031 | 34396 | 28877 | 32633 | 29737 | 31123 | 31010 | 30287 | 31871 | 31600 | 32344 | 23961 | 22319 | 18480 | 10934 | 15981 | 18748 | 20093 | 21772 | 18590 | 20390 | 20878 | 19239 | 25766 | 25611 | 2 | 24.7% | 52% |
| YFT | ATE | CP | EU.France | PS | t2 | ab | ab | ab | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | 2 | | |
| YFT | ATE | CP | Ghana | BB | t1 | 8375 | 6855 | 11808 | 9074 | 9223 | 13283 | 9984 | 9268 | 5640 | 9459 | 9139 | 11810 | 7451 | 11605 | 7426 | 6711 | 9943 | 6655 | 9173 | 10174 | 7325 | 6257 | 6301 | 6771 | 5791 | 4526 | 6023 | 6488 | 6765 | 5919 | 3 | 7.7% | 59% |
| YFT | ATE | CP | Ghana | BB | t2 | abc | abc | ac | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | ab | abc | abc | abc | abc | abc | abc | abc | ab | ab | ab | 3 | | |
| YFT | ATE | CP | Ghana | PS | t1 | | | | | | | | | 2542 | 5628 | 4710 | 9640 | 5222 | 12240 | 11120 | 9127 | 5502 | 6364 | 4865 | 5396 | 9197 | 9602 | 13951 | 11730 | 12984 | 11448 | 16819 | 16079 | 16827 | 16703 | 4 | 6.9% | 66% |
| YFT | ATE | CP | Ghana | PS | t2 | | | | | | | | | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | ab | abc | abc | abc | abc | abc | abc | abc | ab | ab | ab | 4 | | |
| YFT | ATE | CP | Panama | PS | t1 | 1809 | 3131 | 7207 | 6623 | 7041 | 7781 | 8548 | 10854 | 5759 | 3137 | 1753 | 775 | 1087 | 574 | 1022 | | 1887 | 6325 | 8682 | 9539 | 6289 | 5911 | 5102 | 4459 | 5058 | 4062 | 4646 | 3202 | 4305 | 5090 | 5 | 4.5% | 71% |
| YFT | ATE | CP | Panama | PS | t2 | b | b | b | ab | a | ab | ab | ab | ab | ab | ab | a | ab | ab | ab | | ab | ab | ab | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | 5 | | |
| YFT | ATE | CP | Curaçao | PS | t1 | | | | | | | | | 3183 | 6082 | 6110 | 3962 | 5441 | 4793 | 4035 | 6185 | 4161 | 15 | 1964 | 1390 | 7367 | 6469 | 5397 | 4501 | 6906 | 3813 | 5230 | 6140 | 7905 | 6535 | 6 | 3.4% | 74% |
| YFT | ATE | CP | Curaçao | PS | t2 | | | | | | | | | ab | ab | ab | a | ab | ab | ab | ab | ab | b | ab | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | 6 | | |
| YFT | ATE | CP | Japan | LL | t1 | 3587 | 3792 | 4185 | 3020 | 2124 | 2627 | 4194 | 4770 | 4246 | 2733 | 4092 | 2101 | 2286 | 1550 | 1534 | 1999 | 5066 | 3088 | 4206 | 8496 | 5266 | 3563 | 3041 | 3348 | 3637 | 3843 | 3358 | 2855 | 2914 | 2715 | 7 | 3.3% | 77% |
| YFT | ATE | CP | Japan | LL | t2 | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | ab | ab | ab | 7 | | |
| YFT | ATE | CP | Cape Verde | PS | t1 | | | | | | | | | | | | 0 | 6 | 12 | 884 | 246 | 356 | 5110 | 4443 | 3556 | 7295 | 3620 | 4954 | 5260 | 3469 | 6424 | 3591 | 6651 | 4933 | 1491 | 8 | 2.0% | 79% |
| YFT | ATE | CP | Cape Verde | PS | t2 | | | | | | a | | | | | | a | a | a | a | a | ab | ab | ab | abc | abc | abc | abc | abc | abc | abc | abc | abc | ab | ab | 8 | | |
| YFT | ATE | NCC | Chinese Taipei | LL | t1 | 207 | 96 | 2244 | 2163 | 1554 | 1301 | 3851 | 2681 | 3985 | 2993 | 3643 | 3389 | 4014 | 2787 | 3363 | 4946 | 4145 | 2327 | 860 | 1707 | 807 | 1180 | 537 | 1463 | 819 | 1023 | 902 | 927 | 761 | 563 | 9 | 1.9% | 81% |
| YFT | ATE | NCC | Chinese Taipei | LL | t2 | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | abc | abc | abc | 9 | | |
| YFT | ATE | CP | Guatemala | PS | t1 | | | | | | | | | | | | | | | | 2207 | 1588 | 2963 | 5300 | 3478 | 3768 | 2612 | 3158 | 2811 | 2961 | 4036 | 3773 | 5200 | 2703 | 3647 | 10 | 1.6% | 83% |
| YFT | ATE | CP | Guatemala | PS | t2 | | | | | | | | | | | | | | | | ab | ab | ab | ab | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | 10 | | |
| YFT | ATE | CP | EU.España | BB | t1 | 2266 | 1182 | 2384 | 2623 | 1758 | 1498 | 1767 | 1101 | 3069 | 996 | 3509 | 1311 | 601 | 504 | 917 | 1379 | 1292 | 798 | 928 | 769 | 1055 | 874 | 1561 | 3010 | 973 | 593 | 1043 | 1068 | 1393 | 1416 | 11 | 1.4% | 84% |
| YFT | ATE | CP | EU.España | BB | t2 | abc | abc | abc | ac | ac | ac | ac | ac | ac | ac | ac | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | ac | abc | abc | 11 | | |
| YFT | ATE | CP | Maroc | PS | t1 | 1331 | 2305 | 5306 | 1799 | 2653 | 2396 | 3017 | 2290 | 3430 | 1947 | 2276 | 2307 | 2441 | 3000 | 2032 | 1567 | 719 | 1757 | 127 | | | | | 9 | 8 | 21 | 17 | 11 | 35 | 27 | 12 | 1.4% | 86% |
| YFT | ATE | CP | Maroc | PS | t2 | b | b | b | ab | a | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | | | | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 12 | | |
| YFT | ATE | CP | Belize | PS | t1 | | | | | | | | | | | 963 | | 321 | 406 | | | | | | | | 377 | 1820 | 3154 | 5888 | 5295 | 7070 | 7125 | 3497 | 5782 | 13 | 1.3% | 87% |
| YFT | ATE | CP | Belize | PS | t2 | | | | | | | | | | | a | | ab | ab | | b | | | | | | abc | ab | ab | ab | ab | ab | ab | ab | abc | 13 | | |
| YFT | ATE | CP | Cape Verde | HL | t1 | 1997 | 1985 | 1634 | 1272 | 1202 | 1344 | 1560 | 1362 | 1289 | 1299 | 1145 | 1185 | 1388 | 1374 | 918 | 1617 | 1501 | 985 | 1218 | 1048 | 648 | 1121 | 1054 | 800 | 1164 | 1167 | 1167 | 1167 | 2057 | 1265 | 14 | 1.2% | 88% |
| YFT | ATE | CP | Cape Verde | HL | t2 | b | b | b | b | b | ab | ab | ab | ab | ab | ab | ab | ab | a | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | -1 | a | -1 | 14 | | |
| YFT | ATE | CP | EU.France | BB | t1 | 4304 | 2197 | 3671 | 4571 | 3103 | 2587 | 2533 | 1764 | 1658 | 887 | 319 | 1068 | 416 | 684 | 1444 | 757 | 585 | 596 | 588 | 430 | 186 | 378 | 360 | 609 | 258 | 29 | 322 | 340 | 432 | 283 | 15 | 1.2% | 89% |
| YFT | ATE | CP | EU.France | BB | t2 | ab | ab | ab | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | 15 | | |
| YFT | ATE | NCO | NEI (Flag related) | LL | t1 | 206 | 280 | 1115 | 2310 | 1315 | 1157 | 2524 | 2975 | 3588 | 3368 | 5464 | 5182 | 3072 | 2019 | 43 | 466 | | | | | | | | | | | | | | | 16 | 1.1% | 90% |
| YFT | ATE | NCO | NEI (Flag related) | LL | t2 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | | | | | | | | | | | | | | | 16 | | |
| YFT | ATE | CP | St. Vincent and Grenadines | PS | t1 | | | | 510 | 4936 | 5391 | 2476 | 2142 | 2969 | 3017 | 3327 | 1916 | 1987 | 3640 | | | | | | | | | 1 | | | | | | | | | 17 | 1.0% | 91% |
| YFT | ATE | CP | St. Vincent and Grenadines | PS | t2 | | | | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | b | b | | | | | | | -1 | | | | | | | | | 17 | | |
| YFT | ATE | CP | Russian Federation | PS | t1 | | | | 3200 | 1862 | 2160 | 1503 | 2936 | 2696 | 4275 | 4931 | 4359 | 737 | | | | | | | 42 | 211 | 42 | 33 | | | | | | | | | 18 | 0.9% | 92% |
| YFT | ATE | CP | Russian Federation | PS | t2 | | | | -1 | b | -1 | b | b | -1 | b | b | -1 | -1 | | | | | | | -1 | abc | -1 | a | | | | | | | | | 18 | | |
| YFT | ATE | CP | Panama | LL | t1 | 1239 | 901 | 1498 | 1270 | 1297 | 3134 | 3422 | 2588 | 1954 | 1156 | 358 | 385 | | 52 | 90 | | | | | | | 169 | | | | | | | | | 19 | 0.6% | 93% |
| YFT | ATE | CP | Panama | LL | t2 | -1 | -1 | -1 | -1 | a | -1 | -1 | -1 | -1 | -1 | -1 | -1 | | -1 | -1 | | | | | a | a | a | a | | | | a | | | | 19 | | |
| YFT | ATE | CP | El Salvador | PS | t1 | | | | | | | | | | | | | | 933 | | | | | | | | | | | | | | 2750 | 8252 | 6227 | 20 | 0.6% | 94% |
| YFT | ATE | CP | El Salvador | PS | t2 | | | | | | | | | | | | | | ab | | | | | | | | | | | | | | abc | abc | abc | 20 | | |
| YFT | ATE | NCO | Mixed flags (EU tropical) | PS | t1 | 247 | 259 | 230 | 998 | 571 | 744 | 688 | 876 | 254 | 452 | 291 | 216 | 423 | 42 | 13 | 298 | 570 | 292 | 251 | 416 | 464 | 467 | 857 | 1601 | | | | 1855 | 1691 | 1155 | 21 | 0.5% | 94% |
| YFT | ATE | NCO | Mixed flags (EU tropical) | PS | t2 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | b | b | -1 | -1 | -1 | -1 | -1 | -1 | b | b | b | b | b | b | b | b | b | -1 | -1 | -1 | 21 | | |
| YFT | ATE | CP | Senegal | BB | t1 | 104 | 143 | 112 | 52 | | 13 | 6 | 20 | 41 | 208 | 251 | 834 | 252 | 295 | 447 | 279 | 668 | 1301 | 1262 | 816 | 550 | 1157 | 1168 | 1014 | 1647 | 1218 | 500 | 583 | 692 | 241 | 22 | 0.5% | 95% |
| YFT | ATE | CP | Senegal | BB | t2 | ab | ab | ab | a | | a | a | a | ac | a | a | ab | a | ab | ab | ab | ab | ac | ac | ac | ac | ac | ac | ac | ac | ac | ac | ac | ac | ac | 22 | | |
| YFT | ATE | CP | China PR | LL | t1 | | | | | | 139 | 156 | 200 | 124 | 84 | 71 | 1535 | 1652 | 586 | 262 | 1033 | 1030 | 1112 | 1056 | 1000 | 365 | 214 | 169 | 220 | 170 | 130 | 20 | 78 | 286 | 346 | 23 | 0.4% | 95% |
| YFT | ATE | CP | China PR | LL | t2 | | | | | | -1 | -1 | -1 | -1 | -1 | a | a | a | a | a | a | a | a | a | a | ab | ab | ab | ab | ab | ab | a | a | abc | abc | 23 | | |

**Table 9. YFT-W region**

| | | | | | | T1 Total | 34594 | 36902 | 32731 | 36897 | 37712 | 38745 | 48215 | 35274 | 33056 | 32341 | 30919 | 30710 | 35623 | 40317 | 29660 | 24982 | 31238 | 26068 | 28272 | 24167 | 18123 | 18777 | 20855 | 17794 | 21654 | 23440 | 23914 | 24017 | 33790 | 32858 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | Stock | Status | FlagName | GearGrp | DSet | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Rank | % | %cum |
| YFT | ATW | CP | Venezuela | PS | t1 | | 5992 | 11612 | 6533 | 11967 | 9693 | 12659 | 19587 | 6338 | 10777 | 11653 | 9157 | 6523 | 7572 | 13100 | 7961 | 4607 | 3185 | 2634 | 4439 | 2341 | 2067 | 1363 | 2722 | 2253 | 3291 | 3635 | 2581 | 1920 | 2367 | 3373 | 1 | 21.5% | 21% |
| YFT | ATW | CP | Venezuela | PS | t2 | | ab | ab | a | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | 1 | | |
| YFT | ATW | CP | U.S.A. | LL | t1 | | 8644 | 6247 | 4474 | 4141 | 5337 | 3886 | 3246 | 3645 | 3320 | 3773 | 2449 | 3541 | 2901 | 2200 | 2573 | 2164 | 2492 | 1746 | 2010 | 2395 | 1394 | 1686 | 1218 | 1462 | 2270 | 1544 | 1446 | 1041 | 1300 | 1404 | 2 | 9.5% | 31% |
| YFT | ATW | CP | U.S.A. | LL | t2 | | ab | ab | ab | ab | a | ab | ab | ab | ab | ab | ab | ab | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | 2 | | |
| YFT | ATW | CP | U.S.A. | RR | t1 | | 1899 | 1930 | 545 | 1418 | 957 | 1898 | 4523 | 4053 | 4032 | 3569 | 2927 | 3967 | 3862 | 4185 | 2887 | 5328 | 3759 | 3657 | 4908 | 2966 | 1033 | 1011 | 1231 | 1498 | 1727 | 687 | 1067 | 936 | 1911 | 1832 | 3 | 8.4% | 39% |
| YFT | ATW | CP | U.S.A. | RR | t2 | | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | abc | ab | abc | ab | ab | ab | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | 3 | | |
| YFT | ATW | CP | Venezuela | BB | t1 | | 4226 | 3458 | 3765 | 4190 | 3616 | 3296 | 4350 | 2684 | 2604 | 2632 | 4267 | 4152 | 3660 | 4039 | 3166 | 2475 | 2030 | 1631 | 1481 | 951 | 489 | 929 | 809 | 1068 | 788 | 673 | 395 | 428 | 771 | 500 | 4 | 7.7% | 47% |
| YFT | ATW | CP | Venezuela | BB | t2 | | ab | ab | a | a | a | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | 4 | | |
| YFT | ATW | CP | Brazil | HL | t1 | | | | | | | | 60 | 18 | 69 | 156 | | | | | | 272 | | | 30 | 22 | 25 | 2 | 61 | 415 | 1570 | 5208 | 10415 | 12123 | 13658 | 16878 | 5 | 6.7% | 54% |
| YFT | ATW | CP | Brazil | HL | t2 | | | | | | | | b | -1 | -1 | -1 | | | | | | -1 | | | -1 | -1 | -1 | -1 | a | -1 | -1 | -1 | a | -1 | -1 | ab | 5 | | |
| YFT | ATW | CP | Brazil | LL | t1 | | 898 | 1126 | 661 | 582 | 1248 | 1518 | 1084 | 1312 | 734 | 849 | 1014 | 2930 | 2754 | 4883 | 3323 | 1941 | 1968 | 4695 | 1329 | 1552 | 1744 | 1039 | 2989 | 1954 | 2558 | 1141 | 1112 | 1206 | 2579 | 1118 | 6 | 6.0% | 60% |
| YFT | ATW | CP | Brazil | LL | t2 | | ab | a | a | ab | ab | a | ab | a | a | a | a | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | a | a | a | a | ab | | | 6 | | |
| YFT | ATW | CP | Brazil | BB | t1 | | 1596 | 1376 | 953 | 1169 | 2660 | 3087 | 2744 | 2613 | 1956 | 1643 | 1229 | 1197 | 3093 | 1276 | 2843 | 1289 | 2838 | 2236 | 1214 | 1353 | 397 | 402 | 627 | 1243 | 511 | 928 | 118 | 315 | 445 | 366 | 7 | 4.8% | 65% |
| YFT | ATW | CP | Brazil | BB | t2 | | ab | ab | ab | ab | ab | ab | ab | a | a | a | a | a | -1 | a | a | a | a | a | a | ab | a | a | a | a | a | a | a | a | a | ab | 7 | | |
| YFT | ATW | NCC | Chinese Taipei | LL | t1 | | 1641 | 762 | 5221 | 2009 | 2974 | 2895 | 2809 | 2017 | 2668 | 1473 | 1685 | 1022 | 1647 | 2018 | 1296 | 1540 | 1679 | 1269 | 400 | 240 | 315 | 211 | 287 | 305 | 252 | 236 | 139 | 293 | 181 | 213 | 8 | 4.4% | 69% |
| YFT | ATW | NCC | Chinese Taipei | LL | t2 | | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | abc | abc | abc | | 8 | | |
| YFT | ATW | CP | Japan | LL | t1 | | 2395 | 3178 | 1734 | 1698 | 1591 | 469 | 589 | 457 | 1004 | 806 | 1081 | 1304 | 1775 | 1141 | 571 | 755 | 1194 | 1159 | 437 | 541 | 986 | 1431 | 1539 | 1106 | 1024 | 734 | 465 | 613 | 462 | 416 | 9 | 3.6% | 73% |
| YFT | ATW | CP | Japan | LL | t2 | | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc | ab | ab | ab | 9 | | |
| YFT | ATW | NCO | NEI (Flag related) | LL | t1 | | 2118 | 2500 | 2985 | 2008 | 2521 | 1514 | 1880 | 1227 | 2374 | 2732 | 2875 | 1578 | 2197 | 765 | 14 | 112 | | | | | | | | | | | | | | | 10 | 3.3% | 76% |
| YFT | ATW | NCO | NEI (Flag related) | LL | t2 | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | | | | | | | | | | | | | | | 10 | | |
| YFT | ATW | CP | Mexico | LL | t1 | | 283 | 345 | 112 | 433 | 742 | 855 | 1093 | 1126 | 771 | 826 | 788 | 1283 | 1390 | 1084 | 1133 | 1313 | 1208 | 1050 | 943 | 896 | 961 | 1220 | 924 | 1183 | 1421 | 1006 | 1048 | 971 | 1282 | 1244 | 11 | 3.2% | 79% |
| YFT | ATW | CP | Mexico | LL | t2 | | -1 | -1 | -1 | -1 | -1 | a | ac | a | a | a | a | a | a | c | -1 | a | ab | a | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | ab | abc | | 11 | | |
| YFT | ATW | CP | St. Vincent and Grenadines | LL | t1 | | | | | | | | | | | | | 152 | 1956 | 1341 | 1147 | 543 | 4227 | | 2633 | 2972 | 2532 | 2230 | 819 | 927 | 551 | 325 | 481 | 124 | 434 | 642 | 12 | 2.7% | 82% |
| YFT | ATW | CP | St. Vincent and Grenadines | LL | t2 | | | | | | | | | | | | | -1 | -1 | -1 | a | a | a | | a | a | a | a | a | a | a | a | a | a | a | ab | 12 | | |
| YFT | ATW | CP | Panama | LL | t1 | | 2192 | 1595 | 2651 | 2249 | 2297 | | | | | | | 5 | | 20 | 28 | | | | 2804 | 227 | 153 | 119 | 2134 | | | 1995 | 902 | | 1837 | | 13 | 2.3% | 84% |
| YFT | ATW | CP | Panama | LL | t2 | | -1 | -1 | -1 | -1 | -1 | | | | | | | -1 | a | -1 | -1 | | | | a | a | a | a | -1 | | | a | a | | -1 | | 13 | | |
| YFT | ATW | CP | Venezuela | LL | t1 | | 731 | 497 | 258 | 338 | 459 | 707 | 850 | 687 | 383 | 381 | 560 | 504 | 421 | 451 | 266 | 323 | 559 | 828 | 593 | 613 | 712 | 898 | 1249 | 1090 | 736 | 738 | 790 | 773 | 1060 | 1181 | 14 | 2.2% | 86% |
| YFT | ATW | CP | Venezuela | LL | t2 | | b | b | b | -1 | a | a | a | a | a | ab | ab | ab | a | -1 | -1 | a | a | a | a | a | a | a | a | a | a | a | a | a | a | a | 14 | | |
| YFT | ATW | CP | Trinidad and Tobago | LL | t1 | | 1 | 10 | 303 | 540 | | 4 | 120 | 79 | 183 | 223 | 213 | 163 | 112 | 122 | 125 | 186 | 224 | 295 | 459 | 615 | 520 | 629 | 788 | 798 | 930 | 1128 | 1141 | 1179 | 1057 | 889 | 15 | 1.4% | 88% |
| YFT | ATW | CP | Trinidad and Tobago | LL | t2 | | -1 | -1 | -1 | -1 | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | a | a | a | a | a | a | a | a | a | a | a | a | ab | ab | ab | 15 | | |
| YFT | ATW | NCO | Colombia | UN | t1 | | 206 | 136 | 237 | 92 | 95 | | 3418 | 7172 | 238 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | | | | | | | | | | | | 16 | 1.3% | 89% |
| YFT | ATW | NCO | Colombia | UN | t2 | | -1 | -1 | -1 | -1 | -1 | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | | | | | | | | | | | | 16 | | |
| YFT | ATW | CP | Brazil | UN | t1 | | 17 | 31 | 144 | 87 | 320 | 526 | 281 | 66 | | | 271 | | | 71 | | | 2147 | 292 | 1213 | 2541 | 581 | 1868 | | | | | | | | | 17 | 1.2% | 90% |
| YFT | ATW | CP | Brazil | UN | t2 | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | | | -1 | | | -1 | | | -1 | -1 | b | -1 | -1 | -1 | | | | | | | | b | 17 | | |
| YFT | ATW | CP | Grenada | UN | t1 | | 215 | 235 | 530 | 620 | 595 | 858 | 385 | | 523 | 302 | 484 | 430 | 403 | 759 | | | | | | | | | | | | | | | | | 18 | 0.7% | 91% |
| YFT | ATW | CP | Grenada | UN | t2 | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | | -1 | -1 | -1 | -1 | -1 | -1 | | | | | | | | | | | | | | | | | 18 | | |
| YFT | ATW | CP | Grenada | LL | t1 | | | | | | | | | 409 | | | | | | | | 593 | 749 | 460 | 492 | 502 | 633 | 756 | 630 | 673 | | | | | | | 19 | 0.7% | 92% |
| YFT | ATW | CP | Grenada | LL | t2 | | | | | | | | | -1 | | | | | | | | -1 | a | a | a | a | a | a | -1 | -1 | | | | | | | 19 | | |
| YFT | ATW | CP | Vanuatu | LL | t1 | | | | | | | | | | | | | | | | | | 681 | 689 | 661 | 555 | 873 | 816 | 720 | 330 | 207 | 124 | 17 | | | | 20 | 0.6% | 92% |
| YFT | ATW | CP | Vanuatu | LL | t2 | | | | | | | | | | | | | | | | | | a | a | a | -1 | -1 | -1 | a | ab | ab | a | a | | | | 20 | | |
| YFT | ATW | CP | China PR | LL | t1 | | | | | | | | | | | | | 628 | 655 | 22 | 470 | 435 | 17 | 275 | 74 | 29 | 124 | 284 | 248 | 258 | 126 | 94 | 81 | 73 | 91 | 182 | 232 | 21 | 0.5% | 93% |
| YFT | ATW | CP | China PR | LL | t2 | | | | | | | | | | | | a | a | a | a | a | a | a | a | ab | a | ab | ab | ab | ab | ab | ab | abc | ab | abc | abc | 21 | | |
| YFT | ATW | CP | Korea Rep. | LL | t1 | | 120 | 1055 | 484 | 1 | 45 | 11 | | | 84 | 156 | | | | | | | | 580 | 279 | 270 | 10 | 52 | 56 | 470 | 472 | 115 | 39 | 11 | 12 | 3 | 22 | 0.5% | 93% |
| YFT | ATW | CP | Korea Rep. | LL | t2 | | ab | ab | ab | ab | ab | a | a | a | a | a | | | | | | | | a | a | a | a | a | ab | a | abc | abc | abc | abc | abc | abc | 22 | | |
| YFT | ATW | CP | Belize | LL | t1 | | | | | | | | | | | | | | | | | | | | 143 | 1164 | 1160 | 940 | 264 | 42 | 41 | 38 | 33 | | 39 | 359 | 23 | 0.5% | 94% |
| YFT | ATW | CP | Belize | LL | t2 | | | | | | | | | | | | | | | | | | | | a | a | a | ab | ab | ab | ab | ab | ab | ab | a | ab | 23 | | |
| YFT | ATW | CP | EU.España | PS | t1 | | | | | 1451 | 1290 | 810 | | | | | | | | | | | | | | | | | | | | | | | 281 | 265 | 24 | 0.5% | 94% |
| YFT | ATW | CP | EU.España | PS | t2 | | | | | a | abc | a | a | a | ac | ac | a | ac | a | a | ac | a | a | ac | a | a | abc | abc | abc | abc | abc | ac | abc | ac | a | ac | 24 | | |
| YFT | ATW | NCC | Suriname | LL | t1 | | | | | | | | | | | | | | | | | | | | | | | | | | 1943 | 1829 | | | | | 25 | 0.4% | 95% |
| YFT | ATW | NCC | Suriname | LL | t2 | | | | | | | | | | | | | | | | | | | | | | | | | | -1 | -1 | | | | | 25 | | |
| YFT | ATW | CP | EU.France | LL | t1 | | | | | | | | | | | | | | | | | | | | | | | | 122 | 456 | 712 | 412 | 358 | 647 | 632 | 242 | 26 | 0.4% | 95% |
| YFT | ATW | CP | EU.France | LL | t2 | | | | | | | | | | | | | | | | | | | | | | | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 26 | | |

| | | | | |
|---|---|---|---|---|
| **b** | Monitoring | | | |
| | **Guidepost** | Stock abundance and UoA removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule. | Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest control rule**, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule. | **All information** required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent **uncertainties** in the information [data] and the robustness of assessment and management to this uncertainty. |
| | **Met?** | Y | Y | N |
| | **Justification** | ~~According to (ICCAT, 2016b), catch, effort, size and CAS/CAA estimates are available and this information is received from the various member states. As mentioned above, the data is available since the 1950s and they can support a harvest rule.~~ ~~**SG60 is met**~~.<br><br>~~Information is obtained in logbook reports and landing records. There are some gaps within the data and the data is not always received in time, but monitoring programs that may enable managers to make informed management decisions are in place. Therefore, it can be said that stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, which in this case is the constant TAC. Also, 9 stock indicators, divided into 2 Clusters are used within the stock assessments and they are updated and monitored with sufficient frequency to support the harvest control rule.~~<br><br>~~Further, as explained in SI (a) all ISSF participating companies (and Jealsa Rianxeira group is one of them) are providing the SCRS with a detailed account of all their tuna purchases on a regular basis (every quarter). If needed, this information can be cross-checked against the data sent by the CPCs.~~<br><br>~~**SG80 is met.**~~<br><br>  <br><br>~~Indices used within the stock assessment of yellowfin tuna. Reproduced from (ICCAT, 2016a)~~<br><br>~~Even though the indicators are available, the abundance indices (see below) used in the stock assessment are somewhat contradictory, therefore consideration should be given to the fact that the eight longline indices that were selected for the use in the~~ |

~~stock assessment were arranged into the two "clusters" each representing a unique hypotheses regarding trends in abundance of yellowfin tuna. Cluster 1 indices showed an initial decline, with nearly constant relative abundance since 1990, while Cluster 2 indices suggest increased abundance during the 1990s, followed by a general decline through 2014. The two trends represent a major source of scientific uncertainty regarding the abundance of yellowfin tuna (ICCAT 2016b), and there is not a good understanding of the inherent uncertainties.~~ **~~SG 100 is not met~~**.

According to ICCAT (2019a), catch, effort, size and CAS/CAA estimates are available and this information is received from the various member states. As mentioned above, the data is available since the 1950s and they can support a harvest rule. SI(b) **SG60 is met**.

Information is obtained in logbook reports and landing records. There are some gaps within the data and the data is not always received in time, but monitoring programs that may enable managers to make informed management decisions are in place. According to the ICCAT scoreboard, the data for YFT is mostly reasonable (ICCAT, 2019b), but the information from the Western Atlantic is still below 5, which indicates poor data availability. Notwithstanding, catches in the Western Atlantic are much lower than in the Eastern part, therefore, it can be said that stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, which in this case is the constant TAC.

**ICCAT SCORECARD on fisheries data availability (preliminary)**

| Table # | Fishery | SCORE | Score type |
|---|---|---|---|
| 1 | ALB-N stock | 7.04 | score3 |
| 2 | ALB-S stock | 5.49 | score3 |
| 3 | ALB-M stock | 1.85 | score3 |
| 4 | BFT-E stock (ATE region) | 5.69 | score3 |
| 5 | BFT-E stock (MED region) | 3.18 | score3 |
| 6 | BFT-W stock | 7.89 | score3 |
| 7 | BET-A stock (AT + MD) | 6.65 | score3 |
| 8 | YFT-E region | 6.70 | score3 |
| 9 | YFT-W region | 4.29 | score3 |
| 10 | SKJ-E stock | 7.05 | score3 |
| 11 | SKJ-W stock | 4.69 | score3 |
| 12 | SWO-N stock | 7.62 | score3 |
| 13 | SWO-S stock | 6.52 | score3 |
| 14 | SWO-M stock | 3.82 | score3 |
| 15 | BUM-A stock (AT + MD) | 4.22 | score2 |
| 16 | WHM-A stock (AT + MD) | 4.77 | score2 |
| 17 | SAI-E stock | 2.93 | score2 |
| 18 | SAI-W stock | 3.64 | score2 |
| 19 | SPF-E stock | 2.42 | score2 |
| 20 | SPF-W stock | 3.28 | score2 |
| 21 | BSH-N region | 3.31 | score2 |
| 22 | BSH-S region | 3.66 | score2 |
| 23 | BSH-M region | 0.56 | score2 |
| 24 | POR-N region | 1.26 | score2 |
| 25 | POR-S region | 0.83 | score2 |
| 26 | SMA-N region | 2.55 | score2 |
| 27 | SMA-S region | 3.30 | score2 |

| | | Quartile |
|---|---|---|
| bad: | [0, 2.5[ | 1 |
| poor: | [2.5, 5[ | 2 |
| rasonable: | [5, 7.5[ | 3 |
| good: | [7.5, 10[ | 4 |

| | | |
|---|---|---|
| | | Four indices of abundance were used in various stock assessment model runs used to develop management advice (Figure below). A major advancement from the 2016 to the 2019 assessment was the development of a joint longline index using high resolution catch and effort information from the main longline fleets operating in the Atlantic (Japan, US, Brazil, Korea and Chinese Taipei). The indices were developed for 3 regions, but only two were used in the assessment: the North Atlantic (Region 1), and the tropical area (Region 2). A new echosounder-based buoy associated index (BAI) index was developed and was assumed to represent the abundance of juvenile yellowfin tuna. An index of larger yellowfin tuna (>80 cm, 10 kg) in free schools for the EU purse seine fleet (EUPSFS index) was also used. SI(b) **SG80 is met.**<br>  <br>Indices used within the stock assessment of yellowfin tuna. Reproduced from ICCAT (2019a).<br>It should be noted that for all models there are large uncertainties in the value of biomass and fishing mortality at any point in the history, including 2018, therefore it can be deduced that there is not a good understanding of the inherent uncertainties. For SI(b) **SG 100 is not met**. |
| **c** | Comprehensiveness of information | |
| | **Guidepost** | There is good information on all other fishery removals from the stock. |
| | **Met?** | Y |
| | **Justification** | ~~Total catches of the P1 stock is broken down into all nations and all gears. Contracting Parties and Cooperating non□Contracting Parties, Entities and Fishing Entities (CPCs) require the collection of bycatch and discard data in their existing domestic scientific observer programs and logbook programs (Rec 11-10 in (ICCAT, 2011d). There is good information on all other fishery removals from the stock. **SG80 is met**.~~ |

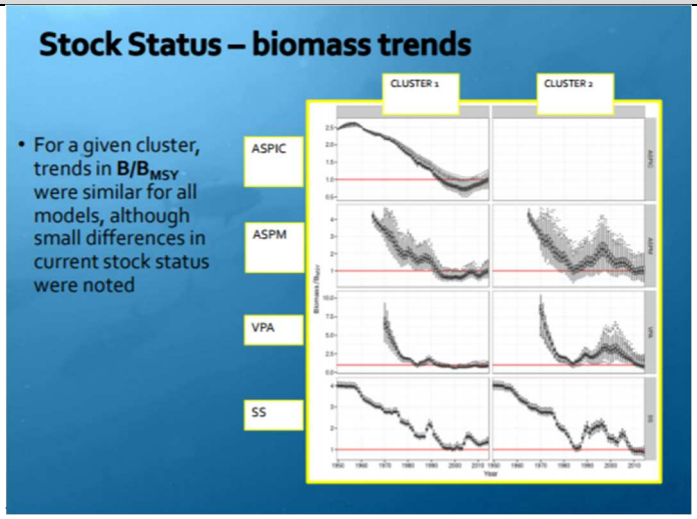
| | | |
|---|---|---|
| | | Total catches of the P1 stock is broken down into all nations and all gears. Contracting Parties and Cooperating non-Contracting Parties, Entities and Fishing Entities (CPCs) require the collection of bycatch and discard data in their existing domestic scientific observer programs and logbook programs (Rec 11-10 in ICCAT - 2011d). The ICCAT scoreboard indicates the data availability from the upper end of poor (4.29 –west YFT) to reasonable (6.70-east YFT) See figure under SI(b).<br><br>Therefore, it can be considered that there is good information on all other fishery removals from the stock. SI (c) **SG80 is met**. |
| **References** | | ICCAT (2016a), ICCAT (2016b), ICCAT (2011d). |
| **OVERALL PERFORMANCE INDICATOR SCORE:** | | **80** |
| **CONDITION NUMBER (if relevant):** | | NA |

# Evaluation Table for PI 1.2.4 – Assessment of stock status

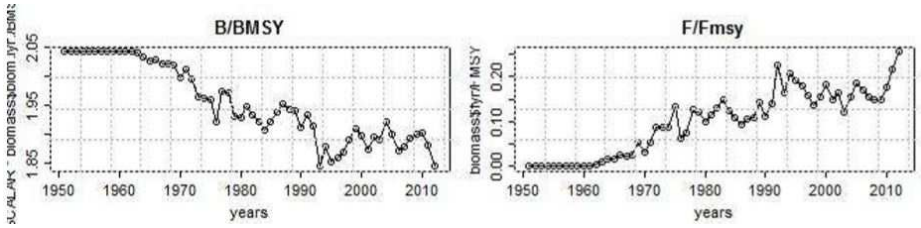
| **PI 1.2.4** | | **There is an adequate assessment of the stock status** | | |
|---|---|---|---|---|
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| **a** | Appropriateness of assessment to stock under consideration | | | |
| | **Guidepost** | | The assessment is appropriate for the stock and for the harvest control rule. | The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA. |
| | **Met?** | | Y | Y |
| | **Justification** | ~~Four different assessment methods; Production models (ASPIC), Age structured production model (ASPM), Virtual population analysis (VPA), Catch statistical models (Stock synthesis SS3) were shown to be appropriate for estimating the status of the YFT stock. The results were presented for two index clusters, each underlying a different hypothesis of stock depletion. Various sensitivities to biological parameters can be evaluated by using these models. For the ASPIC model, several sensitivity analyses were conducted for two scenarios (with Cluster 1: logistic and Fox model equal weighted). These include scenarios with different B1/K, scenarios with longer Japanese longline CPUE and scenarios which exclude one or more CPUE indices. Three types of CAA formulations were used for the ASPM analysis. The data source of the standardized CPUE contained three groups of indices (clusters 1 and 2, and sensitivities). For the SS3, numerous assumptions were tested, based on steepness, natural mortality and growth. The VPA was run using different abundance indices. The VPA also ran retrospective analysis.~~<br><br>~~Thus it can be deduced that the uncertainties in some of the biological parameters are realised and appropriate sensitivity tests are done, to address uncertainties. **SG80 and SG100 are met**.~~<br><br>A full stock assessment was conducted for yellowfin tuna in 2019, applying two production models (JABBA, MPB) and one age-structured model (Stock Synthesis) to the available catch data through 2018. The four Stock Synthesis model runs, were regarded as representing alternative recruitment, and steepness hypotheses. Likewise, the JABBA runs addressed different hypotheses about initial priors for r, and about which indices of abundance were representing the population. Finally, the base case selected for MPB estimated biomass and fishing mortality trends that varied somewhat from JABBA. In order to capture this uncertainty in the population | | |

<table>
<tr><td colspan="2">PI 1.2.4</td><td>There is an adequate assessment of the stock status</td></tr>
<tr><td></td><td></td><td>dynamics for developing the management advice, it was best to incorporate results from all of the accepted model runs (2019c).<br><br>Thus, it can be deduced that the uncertainties in some of the biological parameters are realised and appropriate sensitivity tests are done, to address uncertainties. For SI(a) SG80 and SG100 are met.</td></tr>
<tr><td>b</td><td colspan="2">Assessment approach</td></tr>
<tr><td></td><td>Guidepost</td><td>The assessment estimates stock status relative to generic reference points appropriate to the species category.<br><br>The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.</td></tr>
<tr><td></td><td>Met?</td><td>Y<br><br>Y</td></tr>
<tr><td></td><td>Justification</td><td>~~All four stock assessment methods estimate $B_{2014}/B_{MSY}$ and $F_{2014}/F_{MSY}$. Results are presented in a Kobe plot which illustrates whether the stock is overfished and whether overfishing is taking place. The Kobe plot is designed around the MSY concept, which is a generic reference point. **SG60 is met**.~~<br><br>~~In the table below it is shown that all four stock assessments are able to estimate the stock status relative to MSY related reference points which are appropriate to the stock (ICCAT, 2016b). **SG80 is met**.~~<br><br>
<table>
<tr><th>~~Model~~</th><th>~~$B_{2014}/B_{MSY}$~~</th><th>~~$F_{2014}/F_{MSY}$~~</th></tr>
<tr><td>~~**ASPIC Cluster1**~~</td><td>~~1.019~~</td><td>~~0.770~~</td></tr>
<tr><td>~~**ASPM Cluster1**~~</td><td>~~1.002 (0.775-1.240)~~</td><td>~~0.558 (0.445-0.692)~~</td></tr>
<tr><td>~~**ASPM Cluster2**~~</td><td>~~1.025 (0.610-1.429)~~</td><td>~~0.625 (0.423-0.989)~~</td></tr>
<tr><td>~~**SS Cluster1**~~</td><td>~~1.38~~</td><td>~~0.704~~</td></tr>
<tr><td>~~**SS Cluster2**~~</td><td>~~0.81~~</td><td>~~0.84~~</td></tr>
<tr><td>~~**VPA Cluster 1**~~</td><td>~~0.84~~</td><td>~~0.98~~</td></tr>
<tr><td>~~**VPA Cluster 2**~~</td><td>~~0.54~~</td><td>~~1.13~~</td></tr>
</table>
All stock assessment methods estimate $B_{2018}/B_{MSY}$ and $F_{2018}/F_{MSY}$.<br><br>$B_{2018}/B_{MSY}$=1.17 (0.75-1.62) $F_{2018}/F_{MSY}$=0.96 (0.56-1.5) (90% confidence intervals)<br><br>Results are presented in a Kobe plot (Figure 4.2.6.6). Combining the results of all models provides a way to estimate the probability of the stock being in each quadrant of the Kobe plot in 2018. The corresponding probabilities are 54% in the green (not overfished not subject to overfishing), 21% in the orange (subject to overfishing but not overfished) 2% in the yellow (overfished but not subject to overfishing) and 22% in the red (overfished and subject to overfishing). In summary, the results point to a stock status of not overfished (24% probability of overfished status), with no overfishing (43% probability of overfishing taking place).<br><br>The Kobe plot is designed around the MSY concept, which is a generic reference point. SI(b) SG60 is met.<br><br>All stock assessments are able to estimate the stock status relative to MSY-related reference points which are appropriate to the stock (ICCAT, 2019a). For SI(b) SG80 is met.</td></tr>
</table>

| PI 1.2.4 | | There is an adequate assessment of the stock status | | |
|---|---|---|---|---|
| c | Uncertainty in the assessment | | | |
| | **Guidepost** | The assessment **identifies major sources** of uncertainty. | The assessment takes uncertainty into account. | The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way. |
| | **Met?** | Y | Y | Y |
| | **Justification** | ~~The latest YFT assessment was conducted in 2016 (ICCAT, 2016b) to estimate the stock size of 2014. The stock was evaluated by using four different assessment methods; Production models (ASPIC), Age structured production model (ASPM), Virtual population analysis (VPA), Catch statistical models (Stock synthesis SS3). The results were presented for two index clusters, each underlying a different hypothesis of stock depletion (including different standardised CPUE series). The various stock assessment approaches also evaluate the status of the resource by investigating numerous biological assumption; for example, different values of natural mortality and steepness. Further, different CAA matrices were tested. The results are presented in a probabilistic way, as shown by the Kobe plot as an example in P1.1.1a. Management advice is based on the median (10th-90th percentiles) from the joint distribution of age-structured and production model bootstraps. Projections under different catch strategies are presented in a probability matrix (See P1.1.2b).~~<br><br>~~Therefore, the major sources of uncertainty are identified (SG60 is met) and the assessment takes into account uncertainty (SG80 is met) and is evaluating stock status relative to reference points (MSY) in a probabilistic way. **SG100 is met**.~~<br><br>The various stock assessment approaches evaluate the status of the resource by investigating numerous biological assumption; for example, different values of natural mortality and steepness. Further, different growth assumptions were tested. The results are presented in a probabilistic way, as shown by the Kobe plot as an example in **Figure 4.2.6.6**. Projections under different catch strategies are presented in a probability matrix (See **Table 4.2.6.2**).<br><br>Therefore, the major sources of uncertainty are identified (**SG60 is met**) and the assessment takes into account uncertainty (**SG80 is met**) and is evaluating stock status relative to reference points (MSY) in a probabilistic way. For SI(c) **SG100 is met**. | | |
| d | Evaluation of assessment | | | |
| | **Guidepost** | | | The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored. |
| | **Met?** | | | Y |
| | **Justification** | ~~Each one of the four different assessment approaches used for the stock assessment of YFT, explores various hypothesis (ICCAT, 2011b) as described in P1.2.4c. Except for the ASPIC, using the data for the Cluster2 hypothesis, all models converged and the results were fairly similar as indicated below.~~ | | |

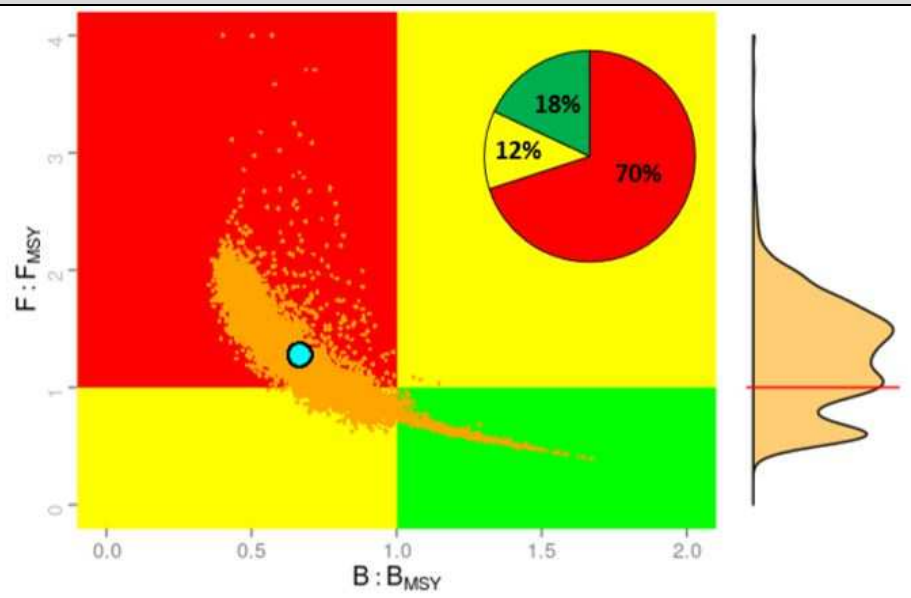
| PI 1.2.4 | | There is an adequate assessment of the stock status | | |
|---|---|---|---|---|
| | |  | | |
| | | ~~Reproduced from (ICCAT, 2016d).~~ | | |
| | | ~~This means that alternative hypotheses and assessment approaches have been rigorously explored, tested and shown to be robust. **SG100 is met**.~~ | | |
| | | Input variance adjustments were iteratively adjusted according to recommendations in Francis (2011). A set of diagnostics were run to evaluate model performance including fits to indices of abundance, length composition residuals, retrospective analysis, hindcasting, likelihood profiling, Age Structured Production Model (ASPM) analysis, jitter analysis and sensitivity runs on influential parameters. Therefore, different hypotheses and assessment approaches have been rigorously explored, tested and shown to be robust. For SI(d) **SG100 is met**. | | |
| **e** | Peer review of assessment | | | |
| | **Guidepost** | | The assessment of stock status is subject to peer review. | The assessment has been **internally and externally** peer reviewed. |
| | **Met?** | | Y | N |
| | **Justification** | The SCRS meet annually and discuss the data, model assumptions and results. This meeting is attended by numerous stock assessment scientists, therefore the assessment of the stock status is subject to peer review. SG 80 has been met. However, during this meeting, no external reviewer has been invited yet, therefore it cannot be said that the assessment has been internally and externally peer reviewed. **SG100 is not met**. | | |
| **References** | ICCAT (2016b), ICCAT (2016d). | | | |
| **OVERALL PERFORMANCE INDICATOR SCORE:** | | | | **95** |
| **CONDITION NUMBER (if relevant):** | | | | NA |

## Evaluation Table for PI 2.1.1 – Primary species outcome

| PI 2.1.1 | | The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI. | | |
|---|---|---|---|---|
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| **a** | Main primary species stock status | | | |
| | **Guide post** | Main primary species are likely to be above the PRI<br><br>OR<br><br>If the species is below the PRI, the UoA has measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding. | Main primary species are highly likely to be above the PRI<br><br>OR<br><br>If the species is below the PRI, there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding. | There is a high degree of certainty that main primary species are above the PRI and are fluctuating around a level consistent with MSY. |
| | **Met?** | Y (see scoring per elements) | N (see scoring per elements) | N (see scoring per elements) |
| | **Justification** | According to logbook data from the UoC during 2018 and 2019 (¡Error! No se encuentra el origen de la referencia.), skipjack accounted for 24.78% of the total FSC catches, while bigeye tuna accounted for 13.96%. Therefore, both species are classified as primary species in accordance with SA3.1.3.3.<br><br>**Eastern Skipjack tuna:**<br><br>The SCRS carried out the last assessment of the stock of skipjack in the East Atlantic in 2014, using data until 2013. Two alternative models were analyzed for Eastern skipjack, including a catch-only model and a Bayesian Surplus Production (BSP) model. The results of the Bayesian surplus production models show that the values of the posterior distribution mean for the $B_{cur}/B_{MSY}$ can be in the range of 1.55 to 1.79 for the five different model scenarios and the $F_{cur}/F_{MSY}$ can be from 0.22 to 0.49. It is therefore in the qualitative sense- very likely that the Eastern Atlantic Skipjack stock is not overfished, nor does overfishing take place. (ICCAT 2014)<br><br>Even a precautionary diagnosis on the state of the stock in the absence of quantification by an adequate approach, indicates no evidence of a fall in yield, or in the average weight of individuals captured.<br><br>  <br><br>Even though not much confidence is being put into the Production model results (see graphs above), and no confidence intervals are provided, according to SA2.2.1 in P1 the terms “likely”, “highly likely” and “high degree of certainty” are used to allow for either qualitative or quantitative evaluation. The stock assessment concluded that it can reliably be said that no indicator indicates that the stock is overfished, as all the | | |

| PI 2.1.1 | | The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI. |
|---|---|---|
| | | estimates point to a lightly exploited stock. Hence, the high recent landings, even if above MSY, are unlikely to reduce the stock below $B_{MSY}$ for several years, at which time the response of landings and CPUE indicators to several years of high landings could be re-evaluated (ICCAT 2014). ~~Using this qualitative information, it is highly likely that skipjack tuna is above the PRI, therefore **SG80 has been reached**.~~<br><br>~~Even though all the model results indicated the posterior distribution mean to be above the MSY level, there is no high degree of certainty about this and therefore **SG100 is not met**.~~<br><br>Moreover, there is no evidence that the average yield or the weight of individuals has decreased, according to the latest stock assessment. Hence, using this qualitative information, and even though 90% confidence intervals are not available, considering the highly resilient nature of skipjack, the stock should then be above the PRI with a high degree of certainty, therefore, meeting **SG60, SG80 and SG100**.<br><br>**Bigeye tuna:**<br><br>~~Status of the bigeye tuna resource is estimated by using several modeling approaches, ranging from non-equilibrium production models to integrated statistical assessment models. The results of different model formulations considered to be plausible representations of the stock dynamics were used to characterize stock status and the uncertainties in the status evaluations (ICCAT 2017).~~<br><br>~~In 2015, results from a non-equilibrium production model and an integrated statistical assessment model, which can account for temporal changes in selectivity, were used to provide the status of the resource. Multiple runs of each model were included in the results, using alternative assumptions in order to better reflect the uncertainties in the assessment. The non-equilibrium production model results included 3 different runs, which used different individual CPUE indices. These CPUEs were based on longline indices that characterize the adult component of the stock, while the production model dynamics are based on exploitable biomass. The integrated statistical assessment model results included 12 different runs, reflecting different assumptions regarding growth, the influence of spawning biomass on recruitment, and confidence in available size data. Because the results of both non-equilibrium production model and integrated assessment model were considered to represent plausible alternative hypotheses of stock status, they were given equal weight in determining the state of the stock (ICCAT 2017).~~<br><br>~~The Atlantic bigeye tuna stock was estimated to be overfished and that overfishing was occurring in 2014 (See Kobe plot below). Projections indicated that maintaining catch levels at the current TAC of 65,000 t was expected to recover the stock status to Convention objectives with 49% probability by 2028. However, 2016 catches (72,375 t) exceeded the TAC of 65,000 by 11%. If future catches are maintained at a level of 2016, the probability of achieving $B>B_{MSY}$ and $F<F_{MSY}$ by 2028 is expected to decrease to around 38% (ICCAT 2017).~~ |

| PI 2.1.1 | | The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI. |
|---|---|---|




~~Combined Kobe phase plot of non-equilibrium production model and integrated stock assessment model. The combined plot was developed by giving equal weighting between production models and integrated assessment model results. Within each model type equal weighting was given to different runs (ICCAT 2017).~~

~~The current relative biomass was estimated using the combined results of non-equilibrium and statistical integrated assessment models. The numbers in brackets indicate 10 and 90% percentiles (ICCAT 2017).~~

~~Relative Biomass ($B_{2014}/B_{MSY}$) = 0.67 (0.48-1.20)~~

~~Relative Fishing Mortality ($F_{2014}/F_{MSY}$) = 1.28(0.62-1.85)~~

~~By assuming that PRI is defined as $0.5B_{MSY}$ it is highly likely that the BET stock is above the PRI, therefore **SG80 has been reached**. However, the 10% percentile is below $0.5B_{MSY}$ therefore there is not a high degree of certainty that BET stock is above PRI therefore **SG100 is not met**.~~

Stock status evaluations for Atlantic bigeye tuna used in 2018 several modelling approaches, ranging from non-equilibrium (MPD) and Bayesian statespace (JABBA) production models to integrated statistical assessment models (Stock Synthesis). The results of different model formulations considered to be plausible representations of the stock dynamics were used to characterize stock status and the uncertainties in the status evaluations.

Results of the uncertainty grid of Stock Synthesis runs show a long-term decline in SSB with the current estimate being at the lowest level in the time series (**Figure 4.2.7.3**) and increasing trend of fishing mortality (average F on ages 1-7) starting in the early 1990s, with the highest fishing mortality at 1994 and has remained high since then (see Kobe plot below) (ICCAT, 2019a).

The SS3 uncertainty grid, despite a broad range of assumptions regarding stock productivity (steepness) and model parameterization, shows trajectories of increasing F decreasing B towards the red area of the Kobe plot ($F > F_{MSY}$ and $SSB < SSB_{MSY}$), overfishing starting in around 1994 and an overfished stock at around 1996-1997, and being in the red quadrant of the Kobe plot since then (see below). According to the results of the SS3 uncertainty grid, Atlantic bigeye stock is currently overfished ($SSB/SSB_{MSY}$ =0.59, ranging from 0.42 to 0.80) median ($90^{th}$ percentile) and undergoing overfishing ($F/F_{MSY}$ = 1.6, ranging from 1.14 to 2.12) with very high probability (99%) (see Kobe plot).

SSB/SSBMSY =0.59, is marginally above the PRI (defined as 0.5BMSY - MSC-MSCI Vocabulary, 2014, p. 377, GSA 2.2.3.1). The lower 90th percentile estimate is below that point, at SSB/SSBMSY = 0.42, which means that there is a 5% probability that

| | | | | |
|---|---|---|---|---|
| **PI 2.1.1** | | **The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.** | | |
| | | the stock is below PRI. No other probabilities are given for the status. However, the available information (ICCAT, 2018c) calculates the confidence Intervals (CIs) as mean +/- 1.68SE, this suggests the SE is approx. 0.11 [(0.611-0.426)/1.68]. The lower 70th percentile = 0.611-(1.04-0.11) would thus be 0.497. Given the uncertainty in the PRI, the median value of B2017/BMSY at 0.59, the proximity of the lower estimate to the 0.5BMSY proxy, and no recent indication of declining recruitment, **SG60 is met**.<br><br>However, the BET is not highly likely to be above the PRI and therefore, **SG80 is not met.** | | |
| **b** | Minor primary species stock status | | | |
| | **Guide post** | | | Minor primary species are highly likely to be above the PRI<br><br>OR<br><br>If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species |
| | **Met?** | | | Y (see scoring per elements) |
| | **Justification** | As detailed in section 3.4.3 there are 8 species to be assessed as minor primary: albacore (*Thunnus albacares*) stocks North & South, swordfish (*Xiphias gladius*) stocks North & South, Atlantic sailfish (*Istiophorus albicans*), blue marlin (*Makaira nigricans*), Atlantic white marlin (*Tetrapturus albicans*) and blue shark (*Prionace glauca*) stocks North & South. Table 2.1.1.1 presents a summary of the results of the latest stock assessments performed by the SCRS for these species. The degree of uncertainty varies greatly between the 11 different stocks.<br><br>In the light of the information presented there is a high degree of certainty (≥90%ile in accordance with SA3.2.3) that the following species/stocks are above the PRI (PRI defined as $1/2B_{MSY}$ or $20\%B_0$ in accordance with GSA2.2.3.1) and fluctuating around the level consistent with MSY:<br><br>▪ Albacore stock N: the lowest range of the 80% CI for $B_{2015}/B_{MSY}$ is 1.05 for the base case.<br>▪ Swordfish stock N: the lowest range of the 95% CI for $B_{2015}/B_{MSY}$ is 0.82 from the base case for the two models used (BSP2 and SS models).<br>▪ Swordfish stock S: the lowest range of the 95% CI for $B_{2015}/B_{MSY}$ is 0.53 from base case JABBA model.<br>▪ Blue shark stock N: Scenarios with the Bayesian Surplus Production (BSP) estimated that the stock was not overfished is $B_{2013}/B_{MSY}$ = 1.50 to 1.96., while estimates obtained with the SS3 models indicate that $SSF_{2013}/SSF_{MSY}$=1.35 to 3.45.<br>▪ Blue shark stock S: Scenarios with the BSP (Bayesian Surplus Production) estimated that the stock was not overfished ($B_{2013}/B_{MSY}$=1.96 to 2.03). Estimates obtained with the state-space BSP were generally less optimistic, especially when process error was not included, predicting that the stock could be overfished ($B_{2013}/B_{MSY}$=0.78 to 1.29 | | |

| PI 2.1.1 | The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI. |
|---|---|

- The lowest range of $B_{current}/B_{MSY}$ for both the Atlantic sailfish (East Atlantic stock) and the Atlantic white marlin is below 0.5 $B_{MSY}$, and therefore below PRI.
- In the case of the blue marlin the lowest range of the $SSB_{current}/SSB_{MSY}$ is slightly above $0.5B_{MSY}$ (0.53 with a 95%CI). However, the most recent assessment for this species was conducted in 2011 using data until 2009 and it was already determined at that time that the stock was overfished and that overfishing was occurring despite the Recommendation issued by ICCAT on 2000 (Rec 00-13) to establish a plan to rebuild blue marlin and white marlin populations. This rebuilding plan has been recently strengthened by a new Recommendation which entered into force the 4th of June of 2016 (Rec 15-06).
- The north Atlantic shortfin mako stock is overfished and overfishing is occurring. All model outputs combined indicate a 90% probability that this is the case. (ICCAT, 2017)
- The south Atlantic shortfin mako stock was estimated to not being overfished, but that overfishing might be occurring. The combined model results indicate a 19% probability that the stock is both overfished and experiencing overfishing.

Table 2.1.1.1. Summary of the latest assessments available for all species assessed as minor primary components of the P2. Featured in GREEN are stocks which are highly likely to be above PRI, while in ORANGE stocks where this condition is not fulfilled.

| | Stock/s | Latest year^ | $B_{last\ year}/B_{MSY}$ | $SSB_{last\ year}/SSB_{MSY}$ | $F_{last\ year}/F_{MSY}$ | Over fished | Over fishing |
|---|---|---|---|---|---|---|---|
| **Albacore** | Stock N | 2015 | 1.36 (1.05-1.78) | - | 0.54 (0.35-0.72) | No | No |
| | Stock S | | 1.10 (0.51-1.80) | - | 0.54 (0.31-0.87) | No | No |
| **Swordfish** | Stock N | 2015 | 1.04 (0.82 - 1.39) | - | 0.72 (0.62-1.01) | No | No |
| | Stock S | | 0.72 (0.53 - 1.01) | - | 0.98 (0.70-1.36) | Yes | No |
| **Atlantic sailfish** | Atl. Este | 2014 | 0.22-0.70 | - | 0.33-2.85 | Yes | Possibly |
| **Blue marlin** | Atl. | 2009 | - | 0.67 (0.53-0.81) | 1.63 (1.11-2.16) | Yes | Yes |
| **Atlantic White marlin** | Atl. | 2010 | 0.50 (0.42-0.60) | 0.322 (0.23-0.41) | 0.99 (0.75-1.27) | Yes | Not Likely |
| **Atlantic shortfin mako** | N | 2015 | 0.57-0.85 | | 1.93-4.37 | Yes | Yes |
| **Atlantic shortfin mako** | S | 2015 | 0.65-1.75 | | 0.86-3.67 | Possibly | Possibly |
| **Blue shark** | Stock N | 2013 | 1.35-3.45 | - | 0.15-0.75 | Not likely | Not likely |
| | Stock S | | 0.78-1.29 | - | 0.54-1.19 | Undetermined | Undetermined |

(^) Last year considered in the stock assessment

| PI 2.1.1 | | The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI. |
|---|---|---|
| | | According to observers data collected on board the UoA (**¡Error! No se encuentra el origen de la referencia.**), for every 1,000t of production (tropical tunas retained) only 0.31t of albacore are caught. According to **¡Error! No se encuentra el origen de la referencia.** average annual production of the UoC was 2,847 tonnes between 2016 and 2017. This means that total annual catches of the UoC would amount up to 0.9 tons of albacore (some of those catches corresponding to the North stock). **¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.** confirm that most of the tuna catches correspond to the 3 tropical tunas (YFT, BET and SKJ), other tunas accounting for a much reduced percentages of the catches (also when FOB sets are included as for **¡Error! No se encuentra el origen de la referencia.**). Table 2.1.1.1 shows that estimated annual catches are of the UoC is negligible compared with the 2017 yield (13,679t) or the MSY value (25,901t) estimated for this stock.<br><br>Also according to data collected by the Sea Eye observers on board the two assessed vessels (**¡Error! No se encuentra el origen de la referencia.**) not a single sailfish was caught, while bycatches of billfishes were reduced to 0.07 tons of white marlin for every 1,000 tons of production (YFT+SKJ+BET landed) and 0.8 tons of blue marlin/1,000 tons of production. Taking into account average annual production showed in **¡Error! No se encuentra el origen de la referencia.**, total annual catches of the UoC would amount up to 0.2 tons of white marlin and 2.3 tons of blue marlin.<br><br>In the UoA, shortfin mako catches reported in 2019, were 2 individuals representing 0,004% of the total catch and 1 individual in 2018 representing only 0.001% of the total catch. Therefore, there is evidence that the UoA does not hinder the recovery and rebuilding of the North Atlantic shortfin mako stock.<br><br>Table 2.1.1.2 shows MSY, current yield (2016) and estimated UoC annual catches based on the observer's data collected between 2017 and 2018. UoC catches would represent 0.05% of the current annual catch limit established for the white marlin and 0.11% in the case of the blue marlin. Observers data collected between 2014 and 2017 (55 fishing trips) by the IEO (**¡Error! No se encuentra el origen de la referencia.**) show that a total of 116 billfishes were caught during that period. In this case, most of those individuals (91) were sailfish followed by blue marlin (21), and a single individual of white marlin was recorded. Although this set of data shows a different pattern in relation to the sailfish species composition, it is consistent in relation to show a reduced interaction between the UoC and billfishes (116 individuals caught in 55 fishing trips result in an average of 2.1 individuals caught per fishing trip). Almost 100% of bycatches of billfishes are retained as it can be seen **¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.**).<br><br>Table 2.1.1.2. MSY, current yield, annual catch limitation and estimated UoC catches of the sailfish (East Atlantic), white marlin and blue marlin. Source: ICCAT and Sea Eye observers data. |

| | Albacore (South Atl) | Sailfish (East Atl) | White marlin | Blue marlin |
|---|---|---|---|---|
| MSY (t) | 25,901 (15,270-31,768) | 1,635-2,157 | 874 - 1604 | 2,837 (2,343 – 3,331) |
| Current yield (2016) (t) | 13,679 | 1,421 | 452 | 1,295 |
| TAC /Annual catch limit | 24,000* | - | 400** | 2,000** |

| | | | | | |
|---|---|---|---|---|---|
| **PI 2.1.1** | | **The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.** | | | |
| | | Estimated UoC annual catches (t) based on observers data 2017-18 | 0.88 | 0 | 0.20 | 2.27 |
| | | (*) 2017 TAC; (**) Annual catch limit for 2016, 2017 and 2018<br><br>Based on the information presented above and summarized in Table 2.1.1.1, the assessment team considers that *North and South Atlantic albacore, Atlantic swordfish, South Atlantic shortfin mako* and *North Atlantic blue shark* stocks meet SG100 since it is highly likely that they are all above the PRI, while *Bigeye tuna ,Atlantic sailfish*, *blue marlin*, *Atlantic white marlin*, *South Atlantic Blue Shark* and the *North Atlantic Shortfin mako* shark stocks also meet SG100 since even though they are likely to be below the PRI, there is evidence that the UoC is not hindering their recovery and rebuilding. Therefore, all 11 minor secondary stocks assessed meet SG100. | | | |
| **References** | | ICCAT (2011e), ICCAT (2012b), ICCAT (2014b), ICCAT (2015c), ICCAT (2016f), ICCAT (2016g), ICCAT (2017a), ICCAT (2017b) | | | |
| ***Main scoring elements (N=2): skipjack tuna, bigeye tuna*** | | | | | *70* |
| ***Minor scoring elements (N=11): albacore stock N, albacore stock S, swordfish stock N, swordfish stock S, Atlantic sailfish East Atlantic stock, blue marlin, Atlantic white marlin, blue shark stock N, blue shark stock S, North Atlantic Shortfin mako, and South Atlantic Shortfin mako.*** | | | | | *100* |
| **Scoring summary** | | The assessment team followed MSC FCR v2.0 7.10.7 to score PIs with different scoring elements. Table 4: Combining element scores was used to assign the overall score for this PI; All stocks (scoring elements) meet SG80, most achieve higher performance at SG100, and only a few fail to achieve SG100. | | | |
| **OVERALL PERFORMANCE INDICATOR SCORE:** | | | | | **75** |
| **CONDITION NUMBER (if relevant):** | | | | | 7 |

## Evaluation Table for PI 2.1.2 – Primary species management strategy

| | | | | |
|---|---|---|---|---|
| **PI 2.1.2** | | **There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.** | | |
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| **a** | Management strategy in place | | | |
| | **Guide post** | There are measures in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to above the point where recruitment would be impaired. | There is a partial strategy in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the point where recruitment would be impaired. | There is a strategy in place for the UoA for managing main and minor primary species. |
| | **Met?** | Y | Y | Y |

| PI 2.1.2 | | There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch. |
|---|---|---|
| | Justification | SG60 and SG80 deal only with Main primary species, which in the case of the assessed fishery are Atlantic bigeye tuna and East Atlantic skipjack tuna. Therefore, those are the species components to be assessed in order to determine whether SG60 and SG80 are met.<br><br>MSC defines a "strategy" as a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically. It also states that a strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.<br><br>ICCAT established a comprehensive range of measures comprising monitoring, stock assessment and management measures, and it also provides the necessary tools and mechanisms so they can work jointly towards achieving the management objective to keep or rebuild their target stocks at levels consistent with MSY.<br><br>Both for East Atlantic skipjack and bigeye tunas (the two main primary species impacted by the assessed fishery) there is a strategy which integrates regular stock assessments performed by SCRS, principles for the decision making (Rec 11-13), and the complete set of measures included in the Multi-annual conservation and management program for tropical tunas (Rec 16-01), in force since June 2017. This program has been reviewed annually since its first publication in 2011 (Rec 11-01), which only referred to bigeye and yellowfin tunas, while in 2014 (Rec 14-01) the skipjack was also included. Rec 16-01 has been described in detail in sections **¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.**, and includes catch limits on bigeye and yellowfin tunas, capacity management measures, a complete set of measure for managing FADs, additional control measures, and other provisions.<br><br>Rec 16-01 establishes a TAC for 2016 subsequent years of 65,000 t for bigeye tuna and also mechanisms for quota transfers and adjustments in cases of underage or overage of catches. The multi-annual program on tropical tunas was initially focused on limiting the catches on juvenile bigeye tunas aiming to rebuild the stock to MSY level. Efforts to limit bycatch on juvenile bigeye started in 1998 by establishing a closed area/season for the use of FADs in the East Atlantic since juveniles of this species are commonly associated to these devices. As explained in PI 2.1.1 SI(a), although the TAC is set in order to rebuild the stock to MSC levels, the stock is still classified as being overfished and overfishing is taking place, however it is still highly likely the bigeye tuna stock is above its PRI.<br><br>New Rec 19-02 establishes that the Total Allowable Catch (TAC) for bigeye tuna shall be 62,500 t in 2020 and 61,500 t in 2021. The TAC for 2022 and future years shall be considered in 2021 based on SCRS advice. It also defines the management of FADs and support vessels in the Convention area to minimize the impact of FAD fishing on the productivity of bigeye stocks that result from the capture of high numbers of juveniles that aggregate with skipjack on FADs. It establishes that FAD closure in the high seas or EEZs shall be prohibited during a two- and three-month period, split into 2020 and 2021, respectively. This should be reviewed and, if necessary, revised based on advice by the SCRS taking into account monthly trends in free school and FAD-associated catches and the monthly variability in the proportion of juvenile tuna in catches. SCRS should provide this advice to the Commission in 2020. In addition, each CPC shall ensure its vessels do not deploy drifting FADs during a period of 15 days prior to the start of the closure period. The Rec 19-02 also includes capacity management measures, management of FADs and control measures.<br><br>In the case of the East Atlantic skipjack the Committee recommends that the level of catch and effort should not exceed the catches of recent years but there is no TAC or any other specific regulation limiting the catches. The multi-annual program on tropical tunas was initially focused on limiting the catches on juvenile bigeye tunas, but by implication, as a side effect also resulted in management measures on the |

| PI 2.1.2 | | There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch. |
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| | | skipjack (Powers and Medley 2016), this has managed to keep the stock of skipjack above MSY levels (see PI2.1.1 SIa). Even though not much confidence is being put into the assessment model results, it can reliably be said that no indicator indicates that the stock is overfished or that overfishing is taking place (ICCAT 2014).<br><br>A recent ICCAT Recommendation (17-01) prohibiting discards of tropical tunas (YFT, SKJ, BET) by purse seiners just entered into force 11th June 2018. This Recommendation state that vessels shall retain on board and then land or transship to port all bigeye, skipjack and yellowfin tunas caught, except for two exceptions: (i) fish unfit for human consumption and, (ii) when caught during the last set of a trip and there is not enough storage capacity. This Recommendation also notes that CPC shall report all discards observed. The client has adopted an internal protocol of full retention of all tuna catches aligned with Rec17-01.<br><br>Therefore, **SG60 and SG80 are met**.<br><br>For assessing SG100 all primary species (main AND minor have to be considered).<br><br>Rec 16-06 on a multi-annual conservation and management program for the North Atlantic albacore establishes a TAC and catch limits for the most relevant CPCs targeting this stock, mechanisms for adjusting the quotas in cases of overage or underage of catch, capacity management and control measures, and subsequent Rec 17-04 had determined biological reference points and HCRs for this stock (the first one under ICCAT management). For the southern albacore there is a TAC and catch limits for the period 2017-2020 (Rec 16-07).<br><br>In the case of the North and South Atlantic stocks of swordfish, TACs, catch limits, provision for quota transfer and adjustments and minimum sizes are set through Recs (17-02 and 17-03) respectively. These Recs are in force since 11 June 2018, and replaced previous Recs 16-03 and 16-04. TACs are set following the SCRS advice following to maintain (in the case of the N Atlantic stock) and rebuild (in the case of the S Atlantic stock) the stocks at levels consistent with MSY.<br><br>Rec 15-05 was implemented to further strengthen the plan to rebuild blue marlin and white marlin stocks and also to provide annual limits for both species for the period 2016-2018 and establishes other measures such as the obligation to provide annual estimates of live and dead discards. A new stock assessment for these two species is expected for 2018, and depending on the results the SCRS shall evaluate progress towards the goals of the rebuilding program.<br><br>There are individual regulations for the **shortfin mako shark**, i.e., Recommendation by ICCAT on Atlantic Shortfin Mako Sharks Caught in Association with ICCAT Fisheries [Rec. 10-06], including the obligation of CPCs to annually report Task I and Task II data for catches of sharks from all ICCAT fisheries, in accordance with ICCAT data reporting procedures; also Recommendation by ICCAT on Penalties Applicable in Case of non-fulfilment of Reporting Obligations [Rec.11-15].<br><br>Until 2016 there was no specific management measure for the Atlantic sailfish, however Rec 16-11 has entered in force in June 2017 determining management measures for the conservation of this species. This Rec notes that if the total catches of either stock of Atlantic sailfish exceeds in any year the level corresponding to 67% of the average estimate of the MSY (i.e. 1,271 t for the East Atlantic) the Commission shall review the implementation and effectiveness of this recommendation.<br><br>The case of the blue shark is similar to that of the Atlantic sailfish since there were no specific management measures for this species until 2016. Rec 16-02 (in force since 12 June 2017) has established the following catch limit for the North Atlantic blue shark: *"If the average total catch of the North Atlantic blue shark in any consecutive two years from 2017 onward exceeds the average level observed during the period 2011-2015 (i.e. 39,102 t), the Commission shall review the implementation and effectiveness of these measures"*. Based on the review and the results of the next stock assessment scheduled for 2021 or at an earlier stage if enough information is provided to SCRS, the Commission shall consider introduction of additional measures. Also, based on the results of the next stock assessment, the Commission |

| PI 2.1.2 | | There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch. |
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| | | shall consider measures necessary to sustainably utilize the South Atlantic blue shark stock. Finally, Rec 16-02 also provides that, *"in the light of the results of the next stock assessment of blue shark, the SCRS shall provide, if possible, options of HCR with the associated limit, target and threshold reference points for the management of this species in the ICCAT Convention area".*<br><br>The following provisions to reduce discards are included in Rec 16-01:<br><br>The CPCs shall:<br><br>▪ submit to the SCRS information on by-catches and discards made by fishing vessels flying their flag fishing for tropical tunas;<br><br>▪ encourage the vessel owners, masters and crew fishing for tropical tunas under their flag to implement good practices to better manage by-catches and reduce discards;<br><br>▪ consider designing and adopting management measures and/or management plans to better manage by-catch and reduce discards.<br><br>The SCRS shall:<br><br>▪ evaluate the contribution of by-catches and discards to the overall catches in ICCAT tropical tuna fisheries, on a fishery by fishery basis;<br><br>▪ advise the Commission on possible measures allowing to reduce discards and to mitigate onboard post-harvest losses and by-catch in ICCAT tropical tuna fisheries.<br><br>The internal protocol aligned with Rec 17-01 adopted by the client is not restricted to catches of the three tropical tunas, it was taken one step forward since they extended it to all incidental catches. Therefore, restrictions for discarding stated in Rec 17-01 (see above), in the case of the assessed vessels are applicable to all catches. This internal protocol also details that *"fish shall not be discarded from the vessel until an observer had estimated the species composition to be discarded".*<br><br>Rec (17-01) also mandates the SCRS to undertake work in 2020 to examine the benefits of retaining non-targeted species catches and present its recommendations to the Commission. The work should take into account all species that are usually discarded on all major gears<br><br>Most of these Recommendations mandate or encourage (depending on the case) the CPCs to implement data collection programs that ensure the reporting of accurate catch, effort, size and live and dead discard data to ICCAT in full accordance with the ICCAT requirements for provision of Task I and Task II. The UoC has implemented a voluntary observer program that cover 100% of the fishing trips, well above the minimum of 5% of the fishing effort established by Rec (16-14) and also above the level recommended by the SCRS to provide reasonable estimates of total bycatch (Rec 16-01).<br><br>Further, in 2012 the client signed a code of good practices on board which is based on a comprehensive manual developed by OPAGAC/AGAC and ANABAC-OPTUC with the assistance of AZTI. The code was adopted by all the OPAGAC and ANABAC fleets and initially AZTI was in charge of developing and implementing a system of verification of the code. Since the development and implementation of a specific standard for a sustainable tropical tuna purse seine fishery, the UNE1956006:2016, this code of conduct was embedded as one of the sections of this standard. AZTI is now the institution in charge of assessing compliance with the implementation of this code. Additionally, a steering committee should also track its implementation. The manual on good practices provides detailed information on how to proceed to release sharks and rays, and includes specific forms for the observers to record these operations.<br><br>Therefore, it can be argued there is a strategy in place for managing main and minor primary species. **SG100 is met**. |

| PI 2.1.2 | | There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch. | | |
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| **b** | Management strategy evaluation | | | |
| | **Guide post** | The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species). | There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved. | Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved. |
| | **Met?** | Y | Y | N |
| | **Justification** | The management measures and mechanisms designed and adopted by ICCAT basically based setting a TAC or catch limit following the advice of the SCRS which in turn is based on regular stock assessments is a well-known and sound way of managing the fisheries within the Commission area. ICCAT has a long story as an RFMO and has proven its capacity to manage in tuna stocks sustainably, and even to rebuild overfished stocks such as the Eastern Atlantic and Mediterranean Bluefin tuna (ICCAT 2017).<br><br>Also the partial recovery of the YFT tuna indicates that measures are likely to work under the auspices of ICCAT. The management quantities estimated in the 2011 and 2016 YFT stock assessment (ICCAT, 2012) (ICCAT, 2016b) were the following:<br><br>$B_{2010}/B_{MSY}$=0.85(0.61-1.12) $B_{2014}/B_{MSY}$=0.95 (0.71-1.36)<br><br>$F_{2010}/F_{MSY}$=0.87 (0.68-1.4) $F_{2014}/F_{MSY}$=0.77 (0.53-1.05)<br><br>The overall health of the stock increased by approximately 10%; the stock status increased by 10% (See figure below) and the fishing pressure decreased by that amount. | | |

| PI 2.1.2 | There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch. |
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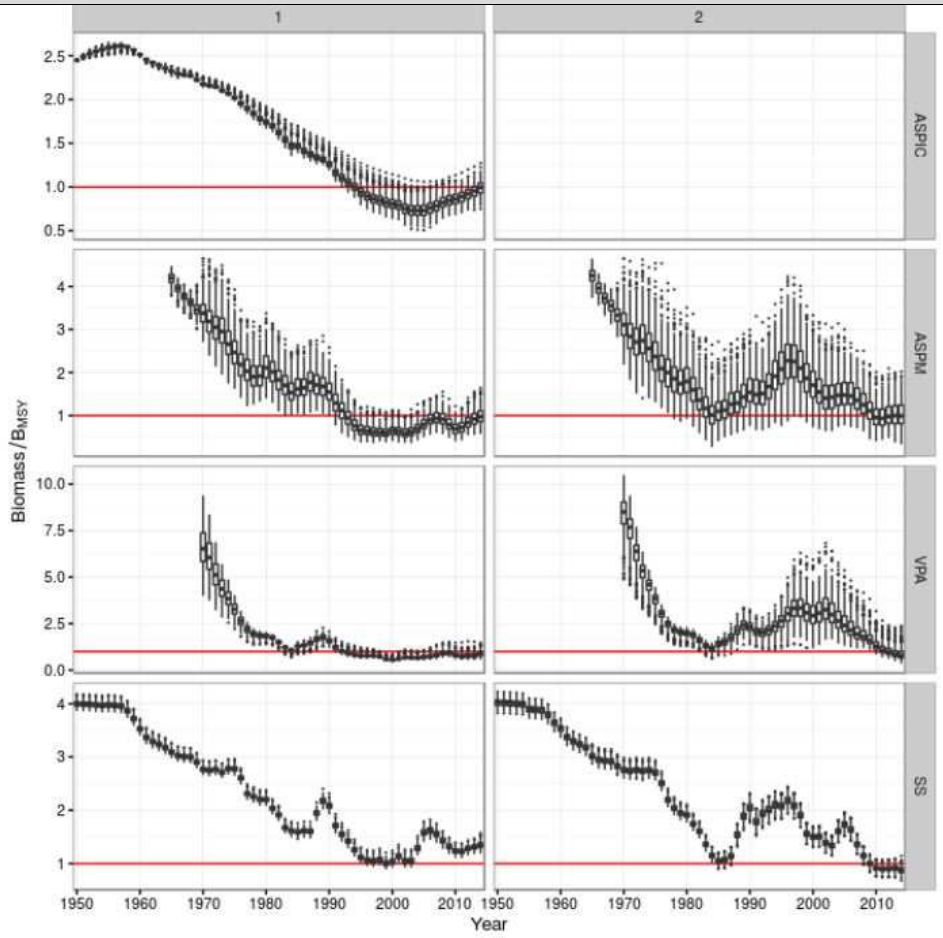
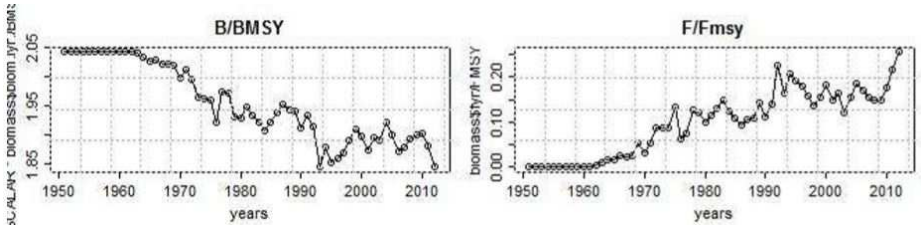



Based on all the information presented above, **SG60 is met**.

Even though, for the eastern Atlantic skipjack stock there is not much confidence in the stock assessment results (see graphs below), it can reliably be said that no indicator classifies the stock as overfished, as all the estimates point to a lightly exploited stock. Hence, the high recent landings, even if above MSY, are unlikely to reduce the stock below $B_{MSY}$ for several years, at which time the response of landings and CPUE indicators to several years of high landings could be re-evaluated (ICCAT 2014).




The Atlantic bigeye tuna stock was estimated to be overfished and that overfishing was occurring in 2014. Projections indicated that maintaining catch levels at the current TAC of 65,000 t was expected to recover the stock status to Convention objectives with 49% probability by 2028. However, 2016 catches (72,375 t) exceeded the TAC of 65,000 t by 11%. Therefore, if future catches are maintained at the level of 2016, the probability of achieving ($B>B_{MSY}$, $F<F_{MSY}$) is expected to decrease to around 38%, therefore there is some objective basis for confidence that the strategy will work, even if it takes longer.

Based on the analyses conducted in 2016 as well as in 2013, the Committee believed that the current TAC for the North Atlantic albacore would maintain the long-term objectives of the Commission as specified in Rec. 16-06. Although the SCRS will

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| | | continue working in reviewing and improving the MSE for northern albacore, the MSE simulations conducted in 2017 allow the Committee to provide advice that is robust to a wide range of uncertainties, including those affecting the 2016 assessment. The different model scenarios considered in the south Atlantic albacore stock assessment provide different views on the future effects of alternative management actions. Projections at a level consistent with the 2016 TAC (24,000 t) showed that probabilities of being in the green quadrant of the Kobe plot across all scenarios would increase to 63% by 2020. Further reductions in TAC would increase the probability of being in the green zone in those timeframes.<br><br>In the case of the N Atlantic swordfish, current TAC of 13,700 t has a 36% probability of maintaining the stock in the green quadrant of the Kobe plot by 2028, whereas a TAC of 13,200 t would have a 50% probability, and would also result in the biomass being above BMSY with a probability greater than 50%. While in the case of the South Atlantic swordfish stock, the current TAC of 15,000 t has a 26% probability of rebuilding the South Atlantic swordfish stock to within MSY reference levels by 2028, whereas a TAC of 14,000 t would have a 50% probability of rebuilding the stock.<br><br>For the North Atlantic blue shark stock, all scenarios considered with the Bayesian surplus production model and the integrated model (SS3) indicated that the stock was not overfished and that overfishing was not occurring, as was also concluded in the 2008 stock assessment. The limit adopted by the Commission (based on the average catch of the final five years used in the assessment model) was considered to be precautionary by the SCRS, and therefore it should allow the strategy to work.<br><br>Therefore, in the case of the skipjack, bigeye tuna, albacore and swordfish stocks and N Atlantic blue shark the assessment team consider that there is some objective basis for confidence that the strategy in place will work, based on information from the SCRS latest stock assessment.<br><br>On the other hand, uncertainty associated with stock assessments of sailfish, marlins and the S Atlantic blue shark, and also the fact that sailfish and marlins are overfished and possibly overfishing is occurring (see table 2.1.1.1), puts some doubts on whether the ICCAT strategy will work for these stocks. However, the pro-active attitude showed by ICCAT in recent years towards the challenges faced by these stocks is a positive sign in the right direction. The assessment team remarks the following actions as signs of this pro-active attitude:<br><br>▪ The continuous revision and improvement of the Pluriannual program for tropical tunas (after the first Recommendation for a pluriannual program for tropical tunas in 2011 it was reviewed in 2013, 2014, 2015 and 2016),<br><br>▪ The Recommendation (15-05) to further strengthen the plan to rebuild blue marlin and white marlin stocks (issued in 2012),<br><br>▪ The recent Recommendation (16-11) on management measures for the conservation of the Atlantic sailfish<br><br>▪ The recent Recommendation (16-12) on management measures for the conservation of Atlantic blue shark caught in association with ICCAT fisheries<br><br>Most of these Recommendations have only been in force since June 2017, therefore it is not expected to see any results as yet.<br><br>Moreover, according to the MSC FCR P2 the environmental impact that UoA which is being assessed places on these species needs to be considered. Therefore, the focus shall be place on the impact of the UoC (the two assessed vessels when targeting free swimming tuna schools) on those species/stocks whose status is more uncertain or whose trends are not as expected: Bigeye tuna and sailfish, marlins and the S Atlantic blue shark stock.<br><br>**¡Error! No se encuentra el origen de la referencia.** already showed that bigeye tuna accounted for only 8.8% of the total catches of the UoC between 2016 and 2017, while **¡Error! No se encuentra el origen de la referencia.** show that bigeye |

| PI 2.1.2 | | There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch. |
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| | | represented up to 7% of the total catches of the fishing trips observed by Sea Eye between 2017 and 2018. The SCRS estimates the MSY for this stock to be 78,824 tons, while yield in 2016 was 72,375 tons. Annual catches of the UoC between 2017 and 2018 oscillated between 12 and 397 tons, representing between 0.02 % and 0.50% of the MSY.<br><br>**Table 5.1.4** shows that bigeye tuna accounted for 13.82% of the total catches of the UoC between 2018 and 2019, while **Table 4.2.7.7** shows that bigeye represented 15% of the total catches of the fishing trips observed by Sea Eye in 2019. The SCRS estimates the MSY for this stock to be 76,232 tons, while yield in 2018 was 73,366 tons. Annual catches of the UoC between 2018 and 2019 ranged from 357 and 476 tons, representing 0.47 % and 0.62% of the MSY. TAC for 2016-2019 was established at 65,000 tons, therefore, the UoC catches represented 0.55% and 0.73% of the TAC in 2018 and 2019, respectively.<br><br>As presented in **¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.** and already discussed in PI 2.1.1, UoC catches of sailfish and blue and white marlins are very small, less than 2 individuals per fishing trip on average, representing annual catches between 2.3 tons in the case of blue marlin and 0.2 t in the case of white marlin.<br><br>According to data recorded by the Sea Eye observers on board the assessed vessels between 2017 and 2018 blue shark accounts for 0.06% of the total UoC catches. No blue shark caught during that period was retained, 33.4% was discarded dead and the remaining 66.6% released alive. This means that for every 1,000 tons of production (YFT+SKJ+BET landed) 0.19 tons of blue shark are discarded dead and 0.38 tons are released alive. According to table 3-6 average annual production of the UoC was 2,847 tons between 2016 and 2017. This means that every year the UoC would discard 0.54 tons of dead blue shark. The SCRS estimates the MSY for this species to be 24,077 tons and yield in 2013 to be 20,799 tons. Therefore, the discarded fraction generated by the UoC represents a negligible fraction of the MSY for this species. Data collected by IEO observers between 2014 and 2017 (a total of 55 fishing trips) recorded only 21 individuals caught by the UoC for that period (no weight estimations were provided). In this case the fraction discarded dead was 19.1% (data aggregated with FOB).<br><br>Document SCRS/2019/095 summarized future projections developed intersessionally to evaluate the effectiveness of a subset of the 2017 conservation and management measures recommended by ICCAT as applied in SCRS/2019/095, related to TAC and minimum size limits, to reduce North Atlantic shortfin mako shark mortality in association with ICCAT fisheries and to rebuild the stock to the MSY level. The discarded fraction generated by the UoC represents a negligible fraction as it represents 0% of all catches.<br><br>Therefore, in the case of the bigeye tuna, sailfish stocks and N Atlantic blue shark the assessment team consider that there is some objective basis for confidence that the strategy in place will work, based on information collected by observers on board the assessed vessels, and also on the fact that there are new and recently reviewed Recommendations on these species.<br><br>Based on all the information presented above, the assessment team considers that **SG80 is met**.<br><br>In the case of the East Atlantic skipjack, the latest stock assessment did not allow the SCRS to provide a reliable estimate of MSY, and it was recognized that is still pending the submission of additional data which are necessary to improve the stock assessment. Also, the Committee has expressed its concern regarding uncertainties which the underreporting of skipjack catches may have on the perception of the state of the skipjack Atlantic stocks.In the case of the Atlantic swordfish stocks the indices detailed above showed reduced % of success (between 36% and 50% for the N Atlantic stock and between 26% and 50% for the S Atlantic stock, depending on the TAC). Further, the Committee emphasized that their advice does not account for removals associated with the actual mortality of unreported dead and live discard, |

<table>
<tr><td colspan="2">PI 2.1.2</td><td colspan="3">There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.</td></tr>
<tr><td></td><td></td><td colspan="3">quota carryovers, quota transfers across the North and South stock management boundaries.<br><br>In the case of the South Atlantic blue shark stock, the Committee did not make a determination on the stock status, but cautions that the stock may have been overfished and overfishing may have occurred in recent years.<br><br>Those uncertainties are preventing to conclude that testing supports high confidence that the strategy will work for these stocks, based on information for their stock assessments.<br><br>In the case of the minor species/stocks, data collected by observers on board provide evidence that the UoC has a very small impact on them. Further, there is 100% observer’s coverage and detailed information on bycatches is recorded. Therefore, this data could be taken as a proof supporting the strategy will work with these species/stocks. However, the historical data series available is still too short and due to some challenges about the compilation of the data from the IEO observers, the assessment team was faced with some limitation with the analysis of the data (data presented exclusively in number of individuals, the fate of the bycatch was aggregated for FOB and FSC…).<br><br>Therefore, SG100 is not met.</td></tr>
<tr><td>c</td><td colspan="4">Management strategy implementation</td></tr>
<tr><td></td><td>Guide post</td><td></td><td>There is some evidence that the measures/partial strategy is being implemented successfully.</td><td>There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a).</td></tr>
<tr><td></td><td>Met?</td><td></td><td>Y</td><td>Y</td></tr>
<tr><td></td><td>Justification</td><td colspan="3">There are multiple evidences that the established management measures are being implemented. The following resources can be downloaded or consulted at the ICCAT website:<br>▪ Volume 4 of the ICCAT biennial reports present evidence that CPCs are complying with their obligations in relation to catch data reporting (Task I and II), although the degree of compliance varies according to the species. In the case of Guatemala, compliance is complete in relation to the report of the 3 species of tropical tunas. This volume also contains the Secretariat’s Reports to the ICCAT Conservation and Management Measures Compliance Committee (COC)<br>▪ Stock assessments carried out by the SCRS, as well as technical reports issued by the related Working Groups, are evidence of the analysis carried based on catch data and other scientific studies. Volume 2 of the ICCAT biennial reports includes the Report of the SCRS and its appendices<br><br>Therefore, SG80 is met.<br><br>Further, in the case of the UoC there is a 100% observer’s coverage (all fishing trips are observed). Data recorded by the observers are compiled and analysed by AZTI and reported to the SCRS in accordance with Task II protocols. The assessed fleet is annually assessed by AZTI against the good practices on board included in the Norma UNA195006:2016. This annual assessment verifies (among other issues related to FADs) the implementation of release operations of incidental catches according to the procedures detailed in the manual, proper recording of those activities, and training of skippers, crews and observers. The assessed vessels got the declarations of conformity signed by AZTI for 2016 and 2017.</td></tr>
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| **PI 2.1.2** | | **There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.** | | |
| | | The assessed fleet is annually assessed by AZTI against the good practices on board included in the Standard UNE195006:2016. This annual assessment verifies (among other issues related to FADs) the implementation of release operations of incidental catches according to the procedures detailed in the manual, proper recording of those activities, and training of skippers, crews and observers. The assessed vessels got the declarations of conformity signed by AZTI for 2016 and 2017.<br><br>Therefore, there is clear evidence that the strategy in place for managing main and minor primary species (as described in SIa) is being implemented successfully. Also, the assessment team considers that the strategy is working since it has maintained the two main primary species (skipjack and bigeye tuna) at levels which are highly likely to be above the PRI (despite the lack of a reliable estimate of a MSY for the skipjack and that bigeye tuna is still being overfished in its overfished state). Besides, observer data show that the impact of the UoC on the minor primary species is very limited and catches cannot be considered a threat for the conservation or recovery of these stocks. Further, ICCAT has taken steps towards the improved management of sailfish and blue shark, and it also strengthened its management strategy for marlins. **SG100 is met**. | | |
| **d** | Shark finning | | | |
| | **Guide post** | It is likely that shark finning is not taking place. | It is highly likely that shark finning is not taking place. | There is a high degree of certainty that shark finning is not taking place. |
| | **Met?** | Y | Y | Y |
| | **Justification** | Blue shark is only shark species impacted by the UoC and assessed as a primary component of the P2.<br><br>The client has adopted an internal protocol against shark finning. This protocol was adopted on the 24th February 2014 and states the following:<br><br>"We are aware that shark finning contravenes the Code Of Conduct For Responsible Fishing and the FAO International Plan of Action for the Conservation and Management of Sharks. For these reasons, ATUNERA SANT YAGO, S.A and ATUNERA NACIONAL, S.A. taking into account the management measures applied by Regional Organizations (RFMOs) and national and international norms for the conservation of marine life has established and incorporated into his Tuna Trade Policy the following points:<br><br>1) We condemn and forbid shark finning.<br><br>2) We avoid any commercial dealings with vessels which have been identified by the Regional Organizations (RFMOs) or by national or international authorities as practitioners of shark finning.<br><br>3) We avoid commercial dealings with any company which has not forbidden and condemned the practice of shark finning."<br><br>Based on the above, **SG60 is met**.<br><br>The assessed fleet has a 100% observer's coverage. Between 2014 and 2017 the IEO used to send the client one report per every fishing trip, based on the data recorded by their observers. The fate of the bycatches (i.e. retained/discarded alive/discarded dead) was detailed in these reports and a column for shark finning was prepared to collect specific information on this issue. All these reports were reviewed by the assessment team and it can be confirmed that not a single case of shark finning (for any shark species) was recorded in the 55 observed fishing trips. Outputs based on data collected by the Sea Eye observers since April 2017 were prepared by AZTI to be shared with the assessment team. Again, not a single case of shark finning was recorded until April 2018 (26 fishing trips). | | |

| PI 2.1.2 | | There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch. | | |
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| | | Therefore, the team considers that it can be assured with a high level of certainty that shark finning is not taking place on board the assessed vessels. **SG80 and SG100 are met**. | | |
| **e** | Review of alternative measures | | | |
| | **Guide post** | There is a review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of main primary species. | There is a regular review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate. | There is a biennial review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate. |
| | **Met?** | Y | Y | N |
| | **Justification** | According to data recorded by the observers on board the assessed vessels between 2014 and 2018 (**¡Error! No se encuentra el origen de la referencia.**), all bigeye tuna catches were retained while 0.32% of the skipjack caught by the UoC was discarded.<br><br>A recent ICCAT Recommendation (17-01) prohibiting discards of tropical tunas (YFT, SKJ, BET) by purse seiners just entered into force 11th June 2018. This Recommendation state that vessels shall retain on board and then land or transship to port all bigeye, skipjack and yellowfin tunas caught, except for two exceptions: (i) fish unfit for human consumption and, (ii) when caught during the last set of a trip and there is not enough storage capacity. This Recommendation also note that CPC shall report all discards observed. Finally, it is noted that in 2020 the SCRS shall assess the effectiveness of this Recommendation and submit recommendations to the Commission regarding potential improvements. The client has adopted an internal protocol of full retention of all tuna catches aligned with Rec17-01.<br><br>Therefore, discards recorded by observers on board the assessed fishery proved that discarding of skipjack and bigeye tuna is almost nonexistent, and also Rec (17-01) foresees a review of its effectiveness two years after its implementation.<br><br>Further, as explained in detail in section 3.2.5 the UoA has implemented the code of good practices developed by OPAGAC/ANABAC, which has been later on included in the standard UNE196005, and both vessels are include in the ISSF PVR list. Both the UNE standard and the PVR list include measures aimed to minize mortality of unwanted catch and means to verify its correct implementation (commitment to have a 100% observer coverage, training of skippers and crew, detailed record keeping) since they are being externally audited on an annually basis. In the case of the OPAGAC/ANABAC code of conduct there is a steering committee in charge of reviewing the performance of the results. The last meeting at the time of preparing the PDR was held on January 18, 2018. The team could review the presentations prepared by AZTI, to verify that they included a review of previous commitments and also updates on applicable regulation from the different RFMOs on minising bycatches (among other issues). After its implementation in 2012, the Code of Conduct has been reviewed and updated in 2015 and 2017.<br><br>Based on all the above, the team considered that there is a regular review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate, **SG60 and SG80 are met**. | | |

| PI 2.1.2 | There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch. |
|---|---|

Table below was extracted from **¡Error! No se encuentra el origen de la referencia.** and it is based on data provided by the Sea Eye observers on board the assessed vessels between 2017 and 2018. It can be seen that all billfishes (including swordfish) were retained, while in the case of the blue shark all catches were discarded (67% were released alive and 33% were discarded dead).

| Species name | % retained | % discarded alive | % discarded dead |
|---|---|---|---|
| ***Xiphias gladius*** | 100.00% | 0.00% | 0.00% |
| ***Istiophorus albicans*** | 100.00% | 0.00% | 0.00% |
| ***Makaira nigricans*** | 100.00% | 0.00% | 0.00% |
| ***Prionace glauca*** | 0.00% | 66.59% | 33.41% |

Fate of bycatches in data collected between 2014 and 2018 by the IEO observers (**¡Error! No se encuentra el origen de la referencia.**) does not allow to differentiate between FOB and FSC sets when dealing with the fate of bycatch, but shows a similar pattern in the fate of the discarded blue sharks (5% retained, 76% alive and 19% dead) and also shows that 8% of the billfish catches were discarded (almost all the individuals were dead, less than 0.6% were returned alive).

Therefore, for the 5 species assessed as minor primary unwanted catches are kept at reduced levels and most of them are retained. The only exception is the blue shark since individuals caught are discarded, but it has to be taken into account that this species accounts for only 0.06% of the total catches (including discards), and it is estimated that at least two thirds are returned alive to the sea. This means that for every 1,000 tons of production (YFT+SKJ+BET landed) the UoC discards less than 0.2 tons of blue shark (**¡Error! No se encuentra el origen de la referencia.**).

Bycatch is recorded by the observers and data reported by the CPCs (in the case of the UoC it is done by the research institution in charge of the observer's program: before through IEO and now through AZTI) to the SCRS on a continuous basis. The SCRS compiles these data, together with other information (logbooks, landings, port sampling, and other research activities implemented or coordinated by ICCAT), and annually they are reviewed by specific working groups. The following specific ICCAT Working Groups are relevant to the 7 species assessed as Primary components of the P2 for this fishery: (i) Tropical tunas; (ii) Swordfish; (iii) Billfishes; (iv) Sharks. Among other tasks, these Working Groups are responsible for reviewing measures to minimize the mortality of unwanted catches. Also, the sub-committee on Ecosystems and discards (integrated in the SCRS) is commissioned for reviewing alternative measures for minimizing bycatches and discards. However, this review is done according to the needs and it is not biennial. For instance, Rec (01-04) for evaluating alternatives to reduce catches of juveniles or dead discards of swordfish remains in force since 2002, but it does not record a certain timeline for reviews. Rec (16-01) encourages CPCs to submit information on bycatches and discards and consider designing and adopting management measures to better manage bycatch and reduce discards, while mandates the SCRS to evaluate the contribution of bycatches and discards on a fishery by fishery basis and to advise the Commission on possible measures allowing to reduce discards and to mitigate onboard post-harvest losses and bycatch in ICCAT tropical tuna fisheries. Finally, Rec (17-01) also mandate the SCRS to undertake work in 2020 to examine the benefits of retaining non-targeted species catches and present its recommendations to the Commission. The work should take into account all species that are usually discarded on all major gears.

The internal protocol aligned with Rec 17-01 adopted by the client is not restricted to catches of the three tropical tunas, it was taken one step forward since they extended it to all unwanted fish catches. Therefore, restrictions for discarding stated in Rec 17-01 (see above), in the case of the assessed vessels are applicable to all fish catches.

| | | |
|---|---|---|
| **PI 2.1.2** | | **There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.** |
| | | Since there is no biennial review in the case of minor species the team considers that **SG100 is not met**. |
| **References** | | ICCAT (2011e), ICCAT (2012a), ICCAT (2012b), ICCAT (2014b), ICCAT (2015c), ICCAT (2016b), ICCAT (2016f), ICCAT (2016g),ICCAT (2017a), ICCAT (2017b), ICCAT (2018c) |
| **OVERALL PERFORMANCE INDICATOR SCORE:** | | **95** |
| **CONDITION NUMBER (if relevant):** | | NA |

## Evaluation Table for PI 2.1.3 – Primary species information

| | | | | |
|---|---|---|---|---|
| **PI 2.1.3** | | **Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species** | | |
| **Scoring Issue** | | SG 60 | SG 80 | SG 100 |
| **a** | Information adequacy for assessment of impact on main primary species | | | |
| | **Guide post** | Qualitative information is adequate to estimate the impact of the UoA on the main primary species with respect to status.<br><br>OR<br><br>If RBF is used to score PI 2.1.1 for the UoA:<br>Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species. | Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status.<br><br>OR<br><br>If RBF is used to score PI 2.1.1 for the UoA:<br>Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species. | Quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoA on main primary species with respect to status. |
| | **Met?** | Y | Y | Y |
| | **Justification** | The obligation for all CPCs to record and report data on catches (Task I), and catch-effort and catch-at-size (Task II) allows the SCRS to have updated and complete information on all removals of skipjack and bigeye stocks.<br><br>A number of standardized indices of abundance have been developed for both species by national scientists for selected fleets for which data were available at greater spatial and/or spatial temporal resolution for the assessment.<br><br>The SCRS is continuously working on improving the fishery indicators and the models used in their regular stock assessments of tropical tuna stocks. Below are some examples of the work done in recent years:<br><br>▪ The historical series of commercial catches of skipjack and bigeye tuna were corrected since it was detected that about 30% of the landings occurring in the Ivory Coast and reported as 'faux poisson' (different fish species and sizes rejected by the canning industry) consisted of skipjack and also | | |

| PI 2.1.3 | | Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species |
|---|---|---|
| | | significant catches of small bigeye tuna were found to be channeled to local West African markets in this way.<br>▪ Species composition and catch at size from the Ghanaian fleet of bait boats and purse seiners, has been thoroughly reviewed during the past few years. This review has led to new estimates of Task I, and partially Task II catch and effort and size, for these fleets for the period 1973-2013.<br>▪ Average rate of discards of skipjack on FADs by European purse seiners operating in the eastern Atlantic has been estimated based on onboard observer programs, and these data are regularly integrated into the models.<br>▪ IUU fishing affecting tropical tunas has been estimated by comparing monitored landings in West African ports and cannery data against catches reported to ICCAT. These catches have been partially included and the associated sizes in the skipjack assessment.<br>▪ The use of data series on the yearly progression of the sale prices of tropical species by commercial category has been used in order to identify the years when skipjack is more targeted by purse seiners.<br>▪ Data from different tagging studies (a total of 42,520 tagged individuals released between 1960 and 2011) have been used to gain knowledge on the stock structure and growth models to be incorporated into the models. Rec 14-02 launched the implementation of the Atlantic Tuna Tagging Program (AOTTP). Tagging activity began at the end of June 2016 in Azores, EU-Portugal waters and is currently ongoing in West African waters. To date more than 12,000 tropical tunas, across species and size-ranges have been tagged and released. The most commonly tagged species so far were skipjack (ca 40%), bigeye (ca 30%) (ICCAT 2017c).<br>▪ Port sampling program which is being used by the SCRS assess the results of the of the area/time closure to FADs, but also to estimate IUU fishing or to review catch species composition declared at the logbooks (e.g. Ghanaian catches between 2006 and 2012 were found to be underestimated and corrected).<br>Still, there are still a lot of limitations in the information available (uncertainties on the stock structure, spatial differences in growth rates, improved CPUE trends responsive to the stock status are needed in the case of the skipjack, underreporting of catches…) and challenges to be faced (difficulties in assessing the effects of fishing mortality due to continuous reproduction in the case of the skipjack, difficulties to discriminate fishing effort on FOB and FSC, how to integrate into stock assessment models the numerous changes that have occurred in the fishery since the early 1990s…). However, regular stock assessments and annual executive summary on the species produced by the SCRS are adequate to assess and monitor the abundance and stock status of both skipjack and bigeye tuna.<br>Data reported to ICCAT as Task I and Task II are mainly based on the information collected in the logbooks by the captains and the information collected by the observers on board.<br>Rec 16-01 only requires the presence of an observer during the area/time closure to FADs, while and Rec 16-14 establishes that CPCs shall ensure a minimum of 5% observer coverage of fishing effort in purse seine fisheries. However, the assessed fleet has been carrying a scientific observer on every fishing trip (100% coverage) since 2012, as already explained in section 3.4.1.1(e). As shown in sections 3.2.3 and 3.4.2.1(d) these observers collect detail information on the fishing operations, catches and bycatch species composition and sampling (size). Fate of the bycatches (retained, released alive, discarded dead) is also being recorded.<br>Between 2012 and February 2017 the observer program on board the assessed vessels was run by the IEO, which is the Institution in charge of reporting this data to ICCAT. Since March 2017 the observers are hired by a consultancy based in Ivory |

<table>
<tr><td colspan="2">PI 2.1.3</td><td colspan="3">Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species</td></tr>
<tr><td></td><td></td><td colspan="3">Coast (Sea Eye). During the site visit it was confirmed by both AZTI and Sea Eye representatives that the hired observers have undergone standard training courses developed and implemented by AZTI. According to ICCAT 2017d Guatemala has been reporting data on East Atlantic skipjack and bigeye tuna catch-effort since 2005 and catch-effort and catch-at-size since 2007. Data on catches and bycatches composition of the UoC is presented in ¡Error! No se encuentra el origen de la referencia. (logbooks) and ¡Error! No se encuentra el origen de la referencia., ¡Error! No se encuentra el origen de la referencia., ¡Error! No se encuentra el origen de la referencia., ¡Error! No se encuentra el origen de la referencia. (observers).<br><br>Based on all the information presented above the assessment team concludes that quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoC on main primary species (skipjack and bigeye tuna) with respect to status. SG60, SG80 andSG100 are met.</td></tr>
<tr><td>b</td><td colspan="4">Information adequacy for assessment of impact on minor primary species</td></tr>
<tr><td></td><td>Guide post</td><td></td><td></td><td>Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.</td></tr>
<tr><td></td><td>Met?</td><td></td><td></td><td>Y</td></tr>
<tr><td></td><td>Justification</td><td colspan="3">As explained in PI 2.1.1 SI (b) the SCRS perform regular stock assessments for all the minor species and stocks assessed as minor primary: albacore (Thunnus albacares) North & South stocks, swordfish (Xiphias gladius) North & South stocks, Atlantic sailfish (Istiophorus albicans), blue marlin (Makaira nigricans), Atlantic white marlin (Tetrapturus albicans) ,blue shark (Prionace glauca) North & South stocks and shortfin mako shark (Isurus oxyrinchus) North & South stocks. Despite the degree of uncertainty which varies greatly between the 11 different stocks it can be concluded that regular stock assessments and annual executive summaries on the species are produced by the SCRS, which are adequate to assess and monitor the abundance and stock status for all of them.<br><br>As explained in the previous SI, the assessed fleet has been carrying a scientific observer on every fishing trip (100% coverage) since 2012. As shown in sections 3.2.3 and 3.4.2.1(d) these observers collect detail information on the fishing operations, catches and bycatch species composition and sampling (size). Fate of the bycatches (retained, released alive, discarded dead) is also recorded. Observers' data on bycatch composition of the UoC is presented in ¡Error! No se encuentra el origen de la referencia., ¡Error! No se encuentra el origen de la referencia., ¡Error! No se encuentra el origen de la referencia. and ¡Error! No se encuentra el origen de la referencia.. SG100 is met.</td></tr>
<tr><td>c</td><td colspan="4">Information adequacy for management strategy</td></tr>
<tr><td></td><td>Guide post</td><td>Information is adequate to support measures to manage main primary species.</td><td>Information is adequate to support a partial strategy to manage main Primary species.</td><td>Information is adequate to support a strategy to manage all primary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.</td></tr>
</table>

| PI 2.1.3 | | Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species | | |
|---|---|---|---|---|
| | Met? | Y | Y | N |
| | Justification | As previously argued in PI 2.1.2 SI (a), there is a strategy in place for managing main and minor primary species. Most of the Recommendations integrating this strategy mandate or encourage (depending on the case) the CPCs to implement data collection programs that ensure the reporting of accurate catch, effort, size and live an dead discard data to ICCAT in full accordance with the ICCAT requirements for provision of Task I and Task II.<br><br>The assessed vessels have a 100% observer's coverage since 2012, and these observers are proceeding in accordance with the National Observer Data Collection Program established by ICCAT. Data collected the observers' on board the assessed vessels is reviewed at the Sea Eye offices in Abidjan before being sent to AZTI where they will be reviewed again, analyzed and reported to ICCAT.<br><br>Therefore, the information which have been presented and discussed in previous SI (a) and SI (b) is considered adequate to support the strategy in place for managing main and minor primary species as described PI 2.1.2 SI (a).<br><br>**SG60 and SG80 are met**.<br><br>Further, the assessment team considers the strategy is achieving its overall objective since it has maintained the two main primary species (skipjack and bigeye tuna) at levels which are highly likely to be above the PRI, and also observer's data show that the impact of the UoC on the minor primary species is very limited and catches cannot be considered a threat for the conservation or recovery of these stocks.<br><br>However, there are still a lot of uncertainties affecting the stock assessment and status determination which prevent the assessment team to conclude that the available information allows evaluating with a high degree of certainty whether the strategy is achieving its objective (e.g. the lack of a reliable estimate of a MSY for the skipjack, the fact that bigeye tuna is still being overfished whilst below MSY level, sailfish and marlins are overfished and possibly overfishing is occurring). **SG100 is not met**. | | |
| **References** | | ICCAT 2017c, ICCAT 2017d, ICCAT 2018c. | | |
| **OVERALL PERFORMANCE INDICATOR SCORE:** | | | | **95** |
| **CONDITION NUMBER (if relevant):** | | | | NA |

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# 7 Appendices

## 7.1 Evaluation processes and techniques

### 7.1.1 Site visits

The first annual surveillance audit for the first period of certification was conducted between the 27th and the 28th of April 2020 as initially planned. However, as explained in detail in **section 7.3**, the first surveillance audit was initially planned as an on-site visit, but due to the COVID-19 situation an off-site audit had to be carried out at the end. Moreover, the assessment team for this first surveillance was made up of 3 auditors instead of the 2 initally planned.

During this site visit, in addition to all the stakeholders interviewed, Alberto Martín (senior MSC fisheries manager for Spain and Portugal) attended all the meetings as observer.

All meetings were held normally with no significant connection problems and according to the planned schedule (**Table 7.1.1**).

**Table 7.1.1.** Details of the meetings held during the remote visit for the 1SA audit of the Sant Yago YFT fishery

| Date | Place | Time (CET) | Institution | Attendees |
|---|---|---|---|---|
| April 27 | Remote | 14:00-16:00h Impossible before 14h (our P2 expert is in US EDT, i.e., GMT-4) | Jealsa, Sant Yago Tuna Fisheries, Atunera Sant Yago, Atunera Nacional | Ángeles Claro - Sustainability manager<br>Abraham Cobas – Fleet Director Deputy<br>José Ramallo - Accounting and Finance Manager<br>Luis Miguel Rivas – Fleet Inspector<br>Javier Rico - Skipper F/V Sant Yago Tres |
| | Remote | 16:30-18:30h | AZTI | Josu Santiago – Head of Research Area<br>Jon Ruiz – Senior Researcher<br>Nerea Lezama – Researcher |
| April 28 | Remote | 17:00-19:00h | DIPESCA | Carlos Francisco Marín Arriola – Dipesca DIRECTOR<br>Carlos Alejandro Tejeda<br>Freddy Gongora<br>Manoel Cifuentes |

| | | | | |
|---|---|---|---|---|
| | Remote | 19:00-19:30h | | Gemma Quílez, Carola Kirtchner and Joe DeAlteris |
| | Remote | 19:30-20:00h | Jealsa, Sant Yago Tuna Fisheries, Atunera Sant Yago, Atunera Nacional | Ángeles Claro - Sustainability manager<br>Abraham Cobas – Fleet Director Deputy<br>José Ramallo - Accounting and Finance Manager<br>Luis Miguel Rivas – Fleet Inspector<br>Javier Rico - Skipper F/V Sant Yago Tres |

### 7.1.2 Stakeholder participation

The site visit for the surveillance audit was announced on the MSC website on the 12th of March 2020 (https://fisheries.msc.org/en/fisheries/sant-yago-tf-unassociated-purse-seine-atlantic-yellowfin-tuna-fishery/@@assessments).

In addition, a comprehensive list of 61 stakeholders identified during the initial assessment and revised before the current surveillance audit together with the assistance of the client was produced. This list included Guatemalan and Spanish management institutions (DIPESCA and MAGRAMA), ICCAT bodies (Secretariat, SCRS, Tropical Tunas Panel and COC), associations representing the Spanish tuna fishing companies (ANABAC and OPAGAC), research institutions (AZTI, IEO), consultancy companies (SEA EYE), NGOs (including WWF, NAMMCO, CMS, Oceana, Greenpeace, The Ocean Foundation, Seo-Birdlife, Birdlife Iternational, Bloom, or ISSF) and CABs from overlapping fisheries (MRAG).

After the announcement was published all these stakeholders were contacted via e-mail and were encouraged to participate in the site visit and also to provide feedback to the assessment team at any moment throughout the process. Comments from Sea Eye were received by email prior to the site visit (see details in **section 7.2.1.1**).

The team, with the assistance of the client, elaborated a final list of key stakeholders to be interviewed during the site visit which were again contacted via email and telephone in order to ensure their participation and arrange the meetings. The list of institutions and people finally interviewed during the site visit is detailed above in **Table 7.1.1**.

As mentioned in **section 7.1.1**, the assessment team performed a site visit which included meetings with relevant fisheries managers, scientists, and client's representatives (see **Table 7.1.1**). Feedback obtained from all the interviewed stakeholders (including Sea Eye's input via email) allowed the team to collect information on the Client's new protocol to identify FSC sets to avoid hindering the recovery of marine mammals, observers' program and data, scientific analyses, joint work between the client and the Guatemalan government, actions taken by both bodies regarding ICCAT, and other relevant issues. Information collected was used to elaborate Section 4.2 (Background) and to evaluate and re-score (when needed) sections 5.2 (Conditions) and 5.4 (Re-scoring Performance Indicators). A closing meeting with the client was held before finishing the surveillance audit as required by ISO 19011.

After gathering the information received before the site visit (from SEA EYE – **Section 7.2.1.1**); during the site visit interviews with the fisheries manageres (DIPESCA), scientists (AZTI), and the client (Sant Yago Tuna Fisheries, N.V. and associated companies); the additional information sent by these stakeholders after the site visit; and ICCAT's new stock assessments the following sections were updated: PI 1.1.1, PI 1.1.2, PI 1.2.3, PI 1.2.4, PI 2.1.1, PI 2.1.2, PI 2.1.3, background information provided in Section 4.2 and Conditions 1, 2, 3, 4, 5 and 6 (the sections on Progress, Status and Additional Information).

## 7.2 Stakeholder input

Not applicable.

### 7.2.1 Site visit stakeholder input

Apart from an email received after the announcement of the surveillance audit by Sea Eye (see **section 7.2.1.1**), the stakeholder input was restricted to the information gathered during the site visit meetings and the documents sent by the stakeholders as a result of the requests made by the team during those meetings.

**Table 7.2.1** presents the main topics discussed with the different stakeholders during the different meetings. All relevant information collected on updates or modifications affecting the fishery is summarized in **Sections 4** and **5** of the current report, while harmonisation activities with overlapping fisheries are presented in **Appendix 7.4**. All the documents used for the assessement are listed in **Section 6** (References).

No other stakeholder inputs were received by email using the template provided by MSC.

**Table 7.2.1.** Details of the main topics discussed during the remote visit carried out as part of the current surveillance audit

| Stakeholder | Topics discussed |
|---|---|
| **Client (Jealsa, Sant Yago Tuna Fisheries, Atunera Sant Yago, Atunera Nacional)** | - Potential or actual changes in management systems<br>- Changes or additions/deletions to regulations<br>- New agreements with African countries<br>- Personnel changes in industry and their impact on the management of the fishery<br>- Changes affecting traceability<br>- Evidence that data updates have been carried out each year within the assessment body (led by the tropical tuna species group within the SCRS)<br>- Proof that changes in the fishery, including shifts in relative abundance are monitored on a regular basis.<br>- For P1 Conditions - Has the client carried out the following actions (and provide evidence/a summary of the actions taken by the Client)?<br>o Is it actively working through DIPESCA and with other appropriate groups, such as its representatives in the ICCAT meetings (i.e., ISSF, OPAGAC), to transfer the MSC certification requirements related to Yellowfin stock status and to promote the adoption by ICCAT of well-defined harvest control rules as well as to promote the development or adaptation of appropriate tools for Atlantic Yellowfin Tuna? Has any work already been established by the SCRS in this regard?<br>o Has it continued collaborating with the scientific teams of the ICCAT, providing them with information on both catches and sales to contribute to a better collection of data?<br>o Has it continued having on-board observers who report information to AZTI so they can prepare the reports that DIPESCA sends to ICCAT?<br>o Has it continued reporting the position of their vessels (VMS) to the Spanish fishing authorities as well as the flag state and the coastal states of which it has licenses?<br>- For P2 Conditions – Specific statements and evidence on the fishery progress against the year 1 milestones for conditions 3, 4 and 5 are needed.<br>- For P2 Conditions – Has the client carried out the following actions (and provide evidence/a summary of the actions taken by the Client)?<br>o Ask AZTI about the implications in the data reported to ICCAT of modifying their FAD-FREE protocol to consider whale sets as FADs (planned for September 2018).<br>o Once AZTI has confirmed that the data reported to ICCAT would not be affected by the modification referred to in the previous point, the company has informed the coordinator of employers and captains of the company. Has this been done? If so: |

| | |
|---|---|
| | ▪ The coordinator has given clear instructions to the skippers and captains about how to proceed according to the new protocol and has communicated it to the crew of each vessel (planned for October 2018).<br>o From October 2018 onwards, all sets in which there has been interaction with whales have been considered sets on FADs (and therefore are outside the UoA of the MSC certification).<br>o Have interactions with whales been avoided by almost 100% since the new protocol?<br>o An exhaustive analysis of fishing logbooks are being done at the end of each trip to check the level of interaction and see if it is necessary to implement more stringent measures (planned for October 2018).<br>o The Company will cross-check the information of the logbooks with the data of the observers for a greater security of the effectiveness of the measure (Since October 2018 and every time they receive the reports).<br>o The Company reports annually to BV all the actions carried out, including the interactions reported by the observers.<br>o A company policy to address the issue (i.e. the direct effects of the UoA do not hinder recovery of marine mammals, especially large whales) has been developed (provide evidence).<br>o Alternative options for a strategy to reduce interactions with large whales has been evaluated (provide evidence).<br>o All historical observer data for the last five years (2014-2018) have been critically evaluated, and corrections regarding interactions with marine mammals have been made as required (see Condition 5).<br>o Systems and guidelines for the collection, verification and presentation of all observer data in formats compatible with MSC catch analysis requirements for primary, secondary and ETP species (in particular marine mammals and sharks) have been developed.<br>- For P3 Condition – Has the Client carried out the following (and provide evidence)?<br>o It is working actively through DIPESCA and with other appropriate groups to promote that ICCAT reviews relevant yellowfin tuna conservation and management measures in place, so TAC can be effectively enforced.<br>o Any news on a quota allocation based on flag? |
| **AZTI** | - Personnel changes in science and their impact on the management of the fishery<br>- Potential changes to the scientific base of information, including stock assessments<br>- Most recent reports from the on-board observers prepared for DIPESCA that are sent to ICCAT.<br>- Has the following been accomplished by ICCAT?<br>o Finalize reference set of Operating Models (mathematical-statistical models used to describe the fishery in simulation trials), complete their conditioning and start development of candidate management procedures; Conduct independent peer review of MSE code<br>- Has AZTI confirmed that the data reported to ICCAT would not be affected by the modification in their FAD-FREE protocol to consider whale sets as FADs? If so, have they proceeded to: modify their protocol and inform Sea Eye so that it can conveniently instruct their observers?<br>- Have interactions with whales been avoided by almost 100% since the new protocol?<br>- An exhaustive analysis of fishing logbooks are being done at the end of each trip to check the level of interaction with whales and see if it is necessary to implement more stringent measures (planned for October 2018).<br>- All historical observer data for the last five years (2014-2018) have been critically evaluated, and corrections regarding interactions with marine mammals have been made as required (see Condition 5).<br>- Systems and guidelines for the collection, verification and presentation of all observer data in formats compatible with MSC catch analysis requirements |

| | |
|---|---|
| | for primary, secondary and ETP species (in particular marine mammals and sharks) have been developed.<br>- Which institution is responsible for reporting the observer data to ICCAT (AZTI or SeaEye)? It was recommended that functions, roles and responsibilities are explicitly defined and well understood regarding this topic. |
| **SEA EYE** | - Has there been any change on the logistics regarding the selection of observers, or the contact with the vessels or any other significant change since the fishery was certified last year?<br>- Has the Client's FAD-FREE protocol changed in order to consider whale sets as FADs?<br>- If the FAD-FREE protocol has changed, have you instructed your observers on this change?<br>- At the time of the fishery certification, it was not clear which institution was responsible for reporting the observer data to ICCAT (AZTI or SeaEye) and it was recommended that functions, roles and responsibilities should be explicitly defined and well understood regarding this topic. Has this been defined? |
| **Guatemalan fisheries administration (DIPESCA)** | - Potential or actual changes in management systems<br>- Changes or additions/deletions to regulations<br>- Personnel changes in management and their impact on the management of the fishery<br>- Changes affecting traceability<br>- Has the Client continued reporting the position of their vessels (VMS) to Guatemalan authorities?<br>- Summary of the actions taken by the Guatemalan government regarding the work of the Client with DIPESCA and with other appropriate groups to promote the adoption by ICCAT of well-defined harvest control rules as well as to promote the development or adaptation of appropriate tools for Atlantic Yellowfin Tuna.<br>- Summary of the actions taken by the Guatemalan government regarding the work of the Client with DIPESCA and with other appropriate groups to promote that ICCAT reviews relevant yellowfin tuna conservation and management measures in place, so TAC can be effectively enforced.<br>- Any news on a quota allocation based on flag. |

#### *7.2.1.1 SEA EYE's input*

Prior to the site visit, an email was sent to Sea Eye on April 17, 2020, with the topics shown in **Table 7.2.1** and they replied on April 20, 2020.

From their replies the team learned that:

- The logistics regarding the selection of observers and the contact with the vessels has not changed since the fishery was certified last year.
- The Client's FAD FREE protocol has been implemented and specifically large whales or any other floating element are considered as FADs (which are avoided). FAD FREE sets are all those sets where no floating elements are associated with them.
- The institution responsible for reporting the data to ICCAT is AZTI.

From this reply, which was later further explained by AZTI during the site visit, the recommendation raised during the initial assessment (see **Section 5.1.3**) was closed.

### *7.2.1.2 Client's input*

a) ISSF Participating Company (Jealsa) Audit Report - MRAG

The Client provided the assessment team with the latest ISSF Participating Company (Jealsa) Audit Report for activities in 2019 carried out by a third party and issued on 9th March 2020 (available at: https://iss-foundation.org/what-we-do/verification/participating-company-audit-reports/download-info/jealsa-rianxeira-s-a-u-final-compliance-report-for-activities-in-2019/) where no non-conformities (**Table 1**), including traceability issues (**Table 2**), had been found.

**Table 1**. Compliance snapshot of the Jealsa Audit Report carried out by MRAG.

| Compliance Snapshot | | | | | | | |
|---|---|---|---|---|---|---|---|
| Conservation Measure | Current | 2018 | 2017 | 2016 | 2015 Update | 2015 | 2014 |
| 1.1 RFMO Authorized Vessel Record | OK | OK | OK | OK | OK | OK | OK |
| 1.2 RFMO Participation | OK | OK | OK | OK | OK | OK | OK |
| 2.1 Product Traceability | OK | OK | OK | OK | OK | MINOR | OK |
| 2.2 Quarterly Data Submission to RFMO | OK | OK | OK | OK | OK | OK | MINOR |
| 2.3 Product Labelling by Species and Area of Capture | OK | OK | - | - | - | - | - |
| 3.1(a) Shark Finning Policy | OK | OK | OK | OK | OK | OK | OBS |
| 3.1(b) Prohibition of Transactions with Shark Finning Vessels | OK | OK | OK | OK | OK | OK | OK |
| 3.1(c) Prohibition of Transactions with Companies without a Public Policy | OK | OK | OK | OK | OK | OK | OK |
| 3.2 Large-scale Pelagic Driftnets | OK | OK | OK | OK | OK | OK | OK |
| 3.3 Full Retention of tunas | OK | OK | OK | OK | OK | OK | OBS |
| 3.4 Skippers Best Practices | OK | OK | OK | OK | OBS | OBS | OK |
| 3.5 Transactions w/ Vessels that use Only Non-Entangling FADs | OK | OK | OK | - | - | - | - |
| 3.6 Transactions with Vessels Implementing Best Practices for Sharks & Sea Turtles | N/A | N/A | - | - | - | - | - |
| 4.1 UVI-IMO | OK | OK | OK | OK | OK | OK | OK |
| 4.2 Purse Seine Unique Vessel Identifiers | OK | OK | OK | OK | OK | OK | OK |
| 4.3 Observer Coverage | OK | OK | OK | OK | OK | OK | OBS |
| 4.4(a) Transshipment | OK | OK | OK | OK | OK | OK | OK |
| 4.4(c) Transshipment at Sea – Observer Coverage | N/A | N/A | - | - | - | - | - |
| 5.1 IUU Fishing | OK | OK | OK | OK | OK | OK | OK |
| 5.2 IUU Product Response | OK | OK | OK | OK | OK | OK | OK |
| 6.1 Transaction Ban for LPS vessels not Actively Fishing for Tuna on Dec. 31, 2012 | OK | OK | OK | OK | OK | OK | OBS |
| 6.2(e) Purchases from PS Vessels in Fleets with Other Vessels not in Compliance w/ CMs 6.1 and 6.2(a) | OK | OK | - | - | - | - | - |
| 7.1 Registration of Controlled Vessels | OK | OK | OK | OK | OK | OK | OK |
| 7.2 Threshold Requirement for PVR Listing | OK | OK | - | - | - | - | - |
| 7.3 Purchases from PVR Vessels | OK | OK | OK | OK | - | - | - |
| 7.4 Supply and Tender Vessels | OK | OK | - | - | - | - | - |
| 8.1 Exemption for Very Small Purse Seine Vessels | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

**Table 2**. Conservation Measure 2.1 – Product Traceability – and Conformance Level (modified from the Jealsa Audit Report carried out by MRAG)

| CM | Category | Category Guidance | Gear Type | Means of Verification | Grade | Evidence | Corrective Action |
|---|---|---|---|---|---|---|---|
| 2.1 | Product Traceability | Demonstrate ability to trace products from can code or sales invoice to | All | Auditor will review recent mock recalls, if available, and select a sample (i.e. all sales for a specific month) of can codes or sales invoices by label and destination from which the company will | OK | The company has suitable traceability system in place that allows all product codes and produced | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | vessel and trip. | | conduct traceability exercises. If the company produces cans from loins, or sells loins as a finished good, these products must be included in the assessment and the traceabilty exercise will cover a 3-month period. | | volumes to be traced through all stages of the supply chain back to the vessel and vessel trip. | |

b) Protocol FAD FREE – MSC

Immediately following the certification of the fishery in 2019 that included the condition that the fishery would not hinder the recovery of marine mammals, Sant Yago issued a policy statement for vessel captains, crew and observers for the Sant Yago fleet clarifying the need to properly identify FSC sets from FAD sets. The original version (in Spanish) of the statement includes a formal reiteration of the company policy that prohibits the setting of a purse seine on large whales. After the site visit, the client sent this protocol to the assessment team as part of the requests made by the team during the site visit meetings:

**Procedimiento para la identificación de capturas a banco libre: Pescado FAD FREE - MSC**

Debido a la necesidad tanto de la comunidad científica, ORPs, así como de un segmento importante del mercado actual de diferenciar las capturas realizadas a banco libre (*pescado FAD FREE-MSC*) de aquellas otras asociadas con objetos, se deberá realizar una separación a bordo tanto física como documental de las capturas obtenidas de un modo u otro, dotando así a este pescado de la trazabilidad necesaria para su control.

**1. Definición de FAD**

Debemos considerar la definición más restrictiva de los DCPs (dispositivos concentradores de peces) o FADs (fishing aggregating devices, por sus siglas en inglés) considerando estos como cualquier objeto o grupo de objetos, de cualquier tamaño y diseño, vivo o no vivo, que haya sido o no implementado, este fondeado o a la deriva, haya sido balizado o no, incluyendo pero no limitando esta definición a boyas, flotadores, redes, plásticos, hierbas, algas, bambú, troncos, monte submarino, barcos fondeados, tiburones ballena y ballenas, flotando en o cerca de la superficie del agua, con la que los peces se puedan asociar.

*Es importante matizar en este punto que realizar lances intencionados sobre cetáceos o tiburón ballena está prohibido por la UE, ORPs, así como la gran mayoría de Estados Ribereños con los que hemos subscrito acuerdos privados de pesca*.

**2. ¿Que consideramos como FAD FREE - MSC?**

Consideramos el pescado FAD FREE como aquel que ha sido capturado procedente exclusivamente de lances realizados a sonar, saltos o manchas durante las horas de luz del día, que se hayan efectuado al menos a 1 milla de distancia de cualquier objeto o buque capaz de asociar pescado, y como mínimo a 1 milla de distancia de la localización donde se haya avistado un objeto dentro de las 24 horas anteriores a la realización del lance.

**3. Procedimiento a seguir para certificar pescado FAD FREE - MSC:**

Es muy importante garantizar la trazabilidad y origen de las capturas FAD FREE o capturas MSC, para ello el capitán deberá seguir las siguientes pautas:

**A. Registro:** Cuando se realice un lance FAD FREE (atendiendo a la definición arriba indicada), el capitán deberá registrarlo en el diario de pesca correspondiente, identificando el mismo como **FAD FREE – MSC**, especificando como mínimo la siguiente información: día, hora, posición, especies, tallas, capturas y la cuba o cubas en las que está almacenado a bordo. Del mismo modo se deberá identificar este pescado en un plano de cubas elaborado a tal fin.

**B. Almacenamiento:** La cuba o cubas que contengan pescado **FAD FREE - MSC** no se deberán mezclar con pescado procedente de lances no considerados como tal, de acuerdo a las definiciones indicadas en el punto **Nº 2** del presente documento. En caso de hacerlo, todo el pescado existente en la cuba perdería la consideración de FAD FREE-MSC. En cualquier caso, las instrucciones se consensuarán con la oficina.

**C. Descarga:** El pescado FAD FREE – MSC que se ha almacenado a bordo de forma independiente del resto del pescado se deberá descargar por separado y sin mezclar con el pescado procedente de otras cubas. En caso de trasbordo al mercante o contenedor, el pescado FAD FREE-MSC se separará mediante una red de separación para que se pueda identificar y descargar en destino. En caso de desembarque a fábrica local, el pescado FAD FREE – MSC se descargará en cajones separados e identificados como tal.

**D. Personal implicado:** El capitán del atunero, el observador, el consignatario, el capitán del mercante receptor o una persona responsable cuando la descarga se realice a fábrica o contenedor (en su caso) certificarán en un documento elaborado a tal fin, que efectivamente la pesca capturada y almacenada en las cubas identificadas en el plano de cubas es FAD FREE - MSC.
Este documento identifica el pescado FAD FREE-MSC y garantiza su trazabilidad.

**D.1) Capitán del atunero**: como responsable de la asignación de pesca FAD FREE-MSC.
**D.2) Observador:** como fiel garantía de que una entidad externa e independiente ha estado presente durante el lance, embarque del pescado FAD FREE-MSC y su posterior congelación en una cuba separada.
**D.3) Consignatario**: como fiel garantía de que una entidad externa e independiente ha estado durante la descarga del pescado FAD FREE-MSC y certifica las cantidades descargadas/trasbordadas.
**D.4) Capitán del mercante**: El capitán como fiel garantía de que una entidad externa e independiente certifica que el pescado FAD FREE-MSC ha sido depositado de forma separada en la bodega del mercante con la debida separación de red.
**D.5) Persona responsable si la descarga se realiza a fábrica o contenedor**: como fiel garantía de que una entidad externa e independiente ha estado durante la descarga del pescado FAD FREE-MSC a fábrica o contenedor y certifica que este ha sido descargado y depositado de forma separada en el contenedor o durante su traslado y almacenamiento en fábrica.

**4. Registros documentales**

En cualquier momento, y como garantía de trazabilidad y transparencia, un cliente o una entidad tercera podrán solicitar pruebas de que realmente el pescado capturado es FAD FREE-MSC. Por ello, es muy importante asignar el pescado FAD FREE - MSC en los siguientes documentos:

- Plano de Cubas.
- Diario de pesca.
- Certificado FAD FREE-MSC.
- Plano de estiba del mercante.
- Identificación/plano de estiba del contenedor (si aplica).

#### *7.2.1.3 AZTI's input*

Review of historical observer data:

During the remote site visit, AZTI confirmed that they had reviewed and corrected, as required, the SEA EYE observer data for 2017 and 2018, however they were unable to obtain the original observer data for the period prior to 2017 in a format that would allow them to include those trips in their server and exploit them as they were provided by another company. AZTI also provided a written confirmation of this statement in an email sent on 19 May 2020. (A copy of the important portion of the email message in Spanish is found below:

*"Los datos de observadores recopilados en buques de Jealsa a partir del 2017 (recopilados por Sea Eye) los hemos recibido en el mismo formato en el que trabajamos habitualmente en nuestra base de datos de observadores (postgresql). Esto nos ha permitido subir la información a nuestro servidor y explotarla (depurarla & analizarla) de una manera conjunta. Sin embargo, en lo referente al periodo anterior (2015-2016), no hemos recibimos la información en un formato que nos permitiera incluir esas mareas en nuestro servidor, y por lo tanto explotarla."*

#### *7.2.1.4 DIPESCA's input*

During the remote site visit, DIPESCA showed to the assessment team a system they are developing to improve the control and monitoring of the vessels, as well as to be able to better interpret the catches or the relationship between tuna species and by-catch species.

After the site visit, DIPESCA sent via email the information requested during the interview. Among other documents, they provided the assessment team with the draft (and still confidential) report of the abovementioned system entitled "REPORT OF LANDINGS OF TROPICAL TUNAS IN THE ICCAT AREA". This report provides an analysis of the georeferencing data of the sets that correspond to floating objects (FADs) and free sets (FSCs) carried out by the fishing activity of the vessels Sant Yago I and Sant Yago III and a brief analysis of the the main species catch information for 2019: Yellowfin Tuna, *Thunnus albacares*; Bigeye Tuna, *Thunnus obesus*; and Skipjack Tuna, *Katsuwonus pelamis*. In addition, digital files in Microsoft Excel format were generated from the captains' logbooks of both vessels that were used to create KML files that can be viewed on the Google Earth program, which complements this report.

## 7.3 Revised surveillance program

At the time of the certification of the fishery, a default surveillance level 6 was programmed, which means 4 on-site surveillance audits. Therefore, for the first surveillance audit an on-site visit was planned. However, due to the COVID-19 situation, an off-site audit had to be carried out, hence, changing from Level 6 to Level 5 (see **Table 7.3.1**). In addition, the team for this first surveillance was made up of 3 auditors instead of 2.

At the time of writing this report, **Table 7.3.2** remains the same as in the PCR, pending what the situation with the COVID-19 will be in 2021. In actual fact, due to MSC's 6-month derogation for the COVID-19 situation, the Anniversary date of certificate and the proposed date of surveillance audit have both been postponed 6 months (see **Table 7.3.3**).

**Table 7.3.1.** Fishery surveillance program

| Surveillance level | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|
| **Level 5** | Off-site surveillance audit | On-site surveillance audit | On-site surveillance audit | On-site surveillance audit & re-certification site visit |

**Table 7.3.2.** Surveillance level rationale

| Year | Surveillance activity | Number of auditors | Rationale |
|---|---|---|---|
| 2 | On-site audits | 2 auditors | Default surveillance level |
| 3 | On-site audits | 2 auditors | Default surveillance level |
| 4 | On-site audits | 2 auditors | Default surveillance level |

**Table 7.3.3.** Timing of surveillance audit

| Year | NEW Anniversary date of certificate | Proposed date of surveillance audit | Rationale |
|---|---|---|---|
| 2 | 05th of September 2021 | 30 days prior to the anniversary date | Not applicable |
| 3 | 05th of September 2022 | 30 days prior to the anniversary date | Not applicable |
| 4 | 05th of September 2023 | 30 days prior to the anniversary date | Not applicable |

## 7.4 Harmonised fishery assessments

All fisheries operating in the Atlantic and targeting tunas or tuna-like species (and therefore subject to ICCAT management) which have entered an MSC assessment process are listed in **Table 7.4.1**, regardless of whether they are currently certified, withdrawn or exiting.

**Table 7.4.1** Other MSC tuna certified or in assessment fisheries operating in the Atlantic.

| Fishery | Fishing Method | Geographical area | P1 species | P2 main species | Certification status |
|---|---|---|---|---|---|
| St Helena pole & line and rod & line yellowfin, bigeye, albacore and skipjack tuna | Handlines and pole-lines | SE AT (FAO 47) | YFT, BET, SKJ, ALB | - | Exiting |
| North Atlantic Albacore Artisanal Fishery | Pole-lines and trolling | NE AT (FAO 27) | ALB | none | Certified |
| North West Atlantic Canada harpoon swordfish | Harpoons | NW AT (FAO 21) | SWO | none | Certified |
| North West Atlantic Canada longline swordfish | Longlines | NW AT (FAO 21) | SWO | BET, BFT, BSH | Certified |
| SSLLC US North Atlantic swordfish Longline | Longlines | NW AT & WCentral AT (FAO 21 & 31) | SWO | YFT, BET, ALB, BFT, SMA, DOL, BSH, BUM, WHM, FAL | Withdrawn |
| US North Atlantic swordfish, yellowfin, and albacore tuna fishery | Longlines | W Central AT (FAO 31) | SWO, ALB, YFT | BET, BFT, DOL, SMA, BUM, WHM, BSH, BTH, LMA | Certified |
| Southeast US North Atlantic swordfish | Longlines | W Central AT (FAO 31) | SWO | BET, YFT, ALB, BFT, DOL, SMA, BUM, WHM, SAI, DUS | Withdrawn |
| North and South Atlantic swordfish Spanish longline fishery | Longlines | E central AT, NEAT, NW AT, SE AT, SW AT (FAO 34, 27, 21, 47, 41, 31) | SWO | BSH, SMA | Withdrawn |
| ACTEMSA-LEAL SANTOS pole and line West Atlantic skipjack fishery | Pole-lines | SW AT (FAO Area 41) | SKJ | - | Exiting |
| Usufuku Honten Northeast Atlantic longline bluefin tuna fishery | Longlines | NE AT (FAO 27) | BFT | - | |
| ANABAC Atlantic unassociated purse seine yellowfin tuna | Purse seines | E AT FAO 34 (Atlantic, | YFT | SKJ | Under assessment |

| | | | | | |
|---|---|---|---|---|---|
| | | Eastern Central), 47 (Atlantic, Southeast) | | | |
| AGAC four oceans Integral Purse Seine Tropical Tuna Fishery | Purse seines | FAO 31 (Atlantic, Western Central), 34 (Atlantic, Eastern Central), 41 (Atlantic, Southwest), 47 (Atlantic, Southeast) | SKJ, YFT, BET | - | Under assessment |

At the time of writing this surveillance, there are three other certified or under assessment fisheries with the Atlantic yellowfin tuna assessed under P1: the US North Atlantic swordfish, yellowfin, and albacore tuna fishery (assessed by MRAG Americas), ANABAC Atlantic unassociated purse seine yellowfin tuna (assessed also by Bureau Veritas), and AGAC four oceans Integral Purse Seine Tropical Tuna Fishery (assessed by LR). This last one has also skipjack tuna as P1 (UoA3). The Sant Yago TF has also announced a scope extension to upgrade skipjack tuna from P2 to P1.

Therefore, in accordance with Annex PB3.1 and PB3.2, BV, LR and MRAG-Americas will have to engage in a harmonisation process (**Table 7.4.1**). The scores of the two fisheries that were harmonized and published in the PCR are shown in **Table 7.4.3**.

All fisheries listed in **Table 7.4.1** are managed by ICCAT. Therefore, in accordance with PB3.3 it will be necessary to ensure consistency of outcomes in certain P3 PIs.

**Table 7.4.2 – Overlapping fisheries**

| Supporting information | |
|---|---|
| From the three fisheries with which the current fishery will have to harmonize, i.e., ANABAC Atlantic unassociated purse seine yellowfin tuna, AGAC four oceans Integral Purse Seine Tropical Tuna Fishery, and the US North Atlantic swordfish fishery, the only one so far that had the scores for the yellowfin tuna harmonised is the US North Atlantic swordfish fishery. The harmonization activities were accomplished both by BV and MRAG Americas in accordance with Annex PB3.1 and PB3.2 and they are explained in detailed in their ACDR and PCR, respectively.<br>In addition, some email exchanged had occurred with overlapping CABs in relation to the bigeye tuna (Primary main species). There will be more harmonization exchanged in the following months to agree on the scope extension for skipjack tuna P1 outcome and management and the final BET outcome as a primary main species.<br>Furthermore, BV is part of the Tuna Alignment Group Mega Variation request (MEGVAR). | |
| Was either FCP v2.1 Annex PB1.3.3.4 or PB1.3.4.5 applied when harmonising? | **Not covered yet** |
| Date of harmonisation meeting | **Pending** |
| If applicable, describe the meeting outcome | |
| Not covered yet. | |

**Table 7.4.3 – Scoring differences**

| Performance Indicators (PIs) | Sant Yago TF Unassociated purse seine | US North Atlantic swordfish |
|---|---|---|

| | Atlantic yellowfin tuna fishery | |
|---|---|---|
| **1.1.1** | 70 (90 – score obtained in the current surveillance) | 70 |
| **1.1.2** | **NA** | 90 (PI 1.1.3 v1.3) |
| **1.2.1** | 95 | 95 |
| **1.2.2** | 65 | 65 |
| **1.2.3** | 80 | 80 |
| **1.2.4** | 95 | 90 |

**Table 7.4.4 – Rationale for scoring differences**

| If applicable, explain and justify any difference in scoring and rationale for the relevant Performance Indicators (FCP v2.1 Annex PB1.3.6) |
|---|
| The current difference in the PI 1.1.1 score between both fisheries shown in **Table 7.4.3**, is due to the fact that the score shown here is the one achieved after the current surveillance (i.e. using the new stock assessment for the YFT – see Section 5.2 - Condition 1 and Section 5.4 – Evaluation Table for PI 1.1.1 for further details). At the time of writing this report, the team is still in harmonization process with the other overlapping fisheries. |
| If exceptional circumstances apply, outline the situation and whether there is agreement between or among teams on this determination |
| No exceptional circumstances were applied for the fisheries in **Table 7.4.3** |