

## **Marine Stewardship Council (MSC) Public Comment Draft Report**

### **SATHOAN French Mediterranean Bluefin tuna artisanal longline and handline fishery**

**On behalf of**

**CM des pêcheurs de Sète Môle – OP SATHOAN**

**Prepared by**

**Control Union Pesca Ltd**

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## QA PCDR

Role	Signature and date
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Reviewer:	MD – 20/03/2020
Approver:	TT – 20/03/2020

## Glossary

Acronym	Definition
AMOP	Mediterranean Association of POs
ASAP	Age Structured Assessment Program
$B_{0.1}$	Equilibrium biomass from fishing at $F_{0.1}$
BCD	Bluefin tuna Catch Document, now electronic (eBCD)
BFT	Bluefin tuna
BFT-e	Eastern Atlantic and Mediterranean stock of bluefin tuna
BFT-w	Western Atlantic stock of bluefin tuna
BSH	Blue shark
CFP	Common Fisheries Policy (EU)
CI	Confidence Interval
CICTA	Commission Internationale pour la Conservation des Thonidés de l'Atlantique (ICCAT)
CPCs	Contracting Party, Cooperating non-Contracting Party, Entity or Fishing Entity (ICCAT)
CP	Contracting Party (for RFMOs)
CPUE	Catch per Unit Effort
DCE	Directive Cadre Eau (UE – WFD)
DPMA	Direction des Pêches Maritimes et de l'Aquaculture, with the Ministère de l'Agriculture et de l'Alimentation since May 2017 (Ministerial Department)
BFT	Eastern Atlantic and Mediterranean bluefin tuna
EC	European Commission
EEZ	Exclusive Economic Zone
EFCA	European Fisheries Control Agency
ETP	Endangered, Threatened and Protected species
EU	European Union
$F_{0.1}$	The fishing mortality rate at which the marginal yield-per-recruit (i.e. the increase in yield-per-recruit in weight for an increase in one unit of fishing mortality) is only 10 percent of the marginal yield-per-recruit on the unexploited stock. The fishing mortality rate at which the slope of the yield-per-recruit curve is only one-tenth the slope of the curve at its origin.
$F_{\text{current}}$	Current level of fishing mortality (as per the stock assessment)
$F_{\text{MSY}}$	Fishing mortality rate at the level that would produce maximum sustainable yield from a stock that has a size of $B_{\text{MSY}}$
FAO	UN Food and Agriculture Organisation
FCR	MSC Fisheries Certification Requirements
GBYP	Atlantic wide research programme for Bluefin Tuna (ICCAT, since March 2010)

Acronym	Definition
GFCM	FAO General Fisheries Commission for the Mediterranean
GoM	Gulf of Mexico
GRT	Gross Register Tonnage
GUH	Gutted Head on– landed fish product (VDK)
h	Beverton-Holt steepness
HGT	Headed and gutted – landed fish product (VAT)
HCR	Harvest Control Rule
ICCAT	International Commission for the Conservation of Atlantic Tunas (CICTA)
IP	Indicateur de Performance (PI)
IPOA	International Plan of Action
IUU	Illegal, Unreported and Unregulated (fishing)
LDAC	Long Distance Advisory Council
M	Natural mortality
MCS	Monitoring, Control and Surveillance
MEC	ME Certification Ltd
MEDAC	Mediterranean Advisory Council
MLS	Minimum Landing Size
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield (RMS)
NGO	Non-governmental organisation
NUTS	Nomenclature of Territorial Units for Statistics
OP	Organisation de Producteurs (PO)
ORGP	Organisation Régionale de Gestion des Pêches (RFMO)
PI	Performance Indicator (IP)
PO	Producer Organisation (OP)
RBF	Risk-based framework
REFIT	Regulatory Fitness and Performance Programme (European Commission)
RFMO	Regional Fisheries Management Organisation (ORGP)
RMS	Rendement Maximum Soutenable (MSY)
SATHOAN	Client Producer organisation
SCRS	Standing Committee for Research and Statistics - ICCAT
SR relationship	Stock-Recruit relationship

Acronym	Definition
SS3	Stock Synthesis version 3 stock assessment model
SSB <sub>MSY</sub>	Spawning stock biomass at MSY
SSF	Spawning stock fecundity
SWO	Swordfish
TAC	Total Allowable Catch
UoA	Unit of Assessment
UoC	Unit of Certification
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring system
VPA	Virtual Population Analysis
WFD	Water Framework Directive (EU, extends to 1nm off coast - DCE)
XSA	Extended Survivor Analysis

## 1 Executive Summary

This report covers the MSC full assessment of the SATHOAN French Mediterranean Bluefin tuna artisanal longline and handline fishery. The assessment team consisted of Chrissie Sieben (Team Leader, Principle 2), Dr. Jo Gascoigne (Principle 1) and Dr. Sophie des Clers (Principle 3). A site visit was held in Sète, France from the 29<sup>th</sup> to the 31<sup>st</sup> October 2018. The assessment was undertaken in accordance with the MSC Fisheries Certification Requirements (FCR) version 2.0 for assessment procedure and scoring. The Risk-Based Framework (RBF) was applied to Performance Indicator 2.2.1 (Secondary species outcome).

The client fishery covers 24 vessels, all of which belong to the *petits métiers* group and are less than 18m in length overall. Except for one handline vessel, they are all pelagic longliners with membership of the Sète-based Producer Organisation (PO) *Société Coopérative Maritime des Pêcheurs de Sète Môle* (SATHOAN) and subscribe to the *Thon Rouge de ligne Pêche Artisanale* (TRL-PA) brand, which sets both environmental and product quality best practice through a code of conduct. The code of conduct covers the rules related to fishing, obligations related to the protection of the environment and sensitive species, and to the processing of fish on board to ensure quality. Not all SATHOAN members subscribe to this brand and these vessels are therefore not part of the UoA. The tuna in this fishery are caught and sold fresh on the French domestic market and sometimes in Spain. There are no other eligible fishers.

The fishery under assessment is a shallow-set pelagic longline fishery with hooks deployed between ca. 6 to 20m depth. Soak time is short, not exceeding 6 hours, and the line is deployed at nightfall with instrumented buoys placed at regular intervals to facilitate gear recovery. The bait is predominantly sardine sourced from the Adriatic, although other Mediterranean sardine stocks as well as mackerel are also sourced. Hook types are steel or iron circle hooks but may also include J hooks and Japan tuna hooks. The vessels are based along the French coast including at two ports in the North of Corsica, with fishing taking place at less than 20nm off the coast, inside the shallower waters of the Golfe du Lion and along the French Mediterranean coast and around Corsica. In all cases, fishing takes place within the UoA area as defined by GFCM statistical areas GSA 7 and GSA 8. The fishing season runs from when the bluefin tuna approach coastal waters in March/April, peaking in August/September and closing in November/December.

The bluefin tuna (BFT) Atlantic population is managed as two stocks, conventionally separated by the 45°W meridian. The eastern BFT stock (BFT-e) is a highly migratory stock of temperate tuna from the North Atlantic and Mediterranean; its main spawning ground is in the Mediterranean, and the UoA fishery targets relatively young fish that come close to the coast in pursuit of small pelagic fish. All vessels in the UoA require an '*Autorisation européenne de pêche*' (AEP) to target BFT. There are several key jurisdictions of relevance to this assessment: ICCAT is the regional tuna fisheries management organisation which provides the management framework, translated into European legislation as part of the Common Fisheries Policy and which has direct effect in all EU member States. France is the UoA vessels' country of registration (Flag State) and the Port State. Some fish may be landed in ICCAT BFT-registered ports in Spain, which carry the same landing protocol as if landing in France.

The BFT-e stock is managed by ICCAT and assessed using a range of different models, with one model (VPA) put forward as the basis for management advice, although the results of a second model (SS3) should also be considered. In this assessment, the team-based scoring primarily on the VPA model, whilst considering the results of the other models (mainly the SS3 model) as part of the team's evaluation of uncertainties in the VPA conclusions. Overall, regarding stock status, it was determined that there is a high degree of certainty that the stock is above the point of recruitment impairment



and is likely to be at or arriving at a level consistent with MSY. In terms of management, ICCAT have recently moved from a rebuilding plan to a multi-annual management plan, which came into force in 2019 (Rec. 2018-02). The stated goal of Rec. 2018-02 is to maintain the biomass around  $B_{0.1}$ , to be achieved by fishing at  $F_{0.1}$  (since  $B_{0.1}$  cannot be measured directly).  $B_{0.1}$  is a reasonable proxy for  $B_{MSY}$ . The main measure of the management plan is the total allowable catch (TAC), which has been increased stepwise to 36,000 tonnes, which will be reached in 2020. The plan also contains a series of technical measures; notably minimum size provisions and a series of seasons by gear, as well as a large quantity of provisions for reporting and inspection which are intended to ensure that the TACs and other management measures are respected. The harvest control rule (HCR) is based on the management objectives of Rec. 2018-02 with TACs set such that  $F=F_{0.1}$ . The team, however, identified several issues with the HCR, namely that it is fishing effort, rather than the exploitation rate, that is reduced as the PRI is approached, and that it cannot be argued that the HCR is robust to the main uncertainties. Finally, owing to the potential for significant IUU removals and recreational catches in mainly the Mediterranean, it is not clear that unquantified removals are sufficiently accounted for in the stock assessment. Conditions were raised accordingly.

Key data sources on interactions with non-target species were logbook and IFREMER observer data; the latter collected as part of the French national observer programme (Obsmer). For the UoA, observer coverage appears to be low, with on average 12 observed BFT trips per year between 2013 and 2017, corresponding to about 0.5% of the overall effort in terms of trips. The assessment team also questioned the quality and completeness of the logbook data. Recognising the short-comings with these data, SATHOAN are currently trialling a new system to record catches, called ECHOSEA, which all vessels subscribing to the TRL-PA brand are required to use for the recording of retained and discarded species, as well as for ETP species interactions. The intent is that this data will be summarised each year and analysed for trends. For this assessment, however, the team relied on the available logbook and observer data, as well as on the recently completed SELPAL study which provides a more qualitative indication of likely interactions in the UoA. Main primary species or stocks identified are Mediterranean swordfish, North Atlantic blue shark and Adriatic sardine. The only main secondary species identified was the pelagic stingray for which the Risk-Based Framework (RBF) was triggered, due to a lack of population data and stock assessments for this species in the Mediterranean. Although the available data provided some indication as to the likely order of magnitude of catches, and therefore the UoA's impact on the species concerned could be estimated, the quality of the data was concerning, and the team concluded that a meaningful strategy or partial strategy at UoA level should rely on more and better-quality data. For ETP species, the data were insufficient to determine whether the UoA is highly likely to not hinder recovery of the species concerned (sea turtles and seabirds). Furthermore, the fact that the UoA is currently not complying with the ICCAT requirement for 5% observer coverage in longline fisheries (ICCAT Rec. 16-14), was identified as an important weakness. Conditions were therefore raised throughout the primary, secondary and ETP species components. Impacts on benthic habitats or ecosystem structure and functioning, however, were not assessed as significant.

Three main jurisdictions involved in this fishery are the tuna RFMO ICCAT, the EU (as Policy maker for the fishery) and France (flag state, port state and market state). ICCAT provides the overarching framework to deliver cooperation with all parties in order to deliver outcomes for Principles 1 and 2 management of BFT-e. The international legal and administrative structure for the management of tuna is based on The International Convention for the Conservation of Atlantic Tunas (ICCAT, 2007). The management system includes several transparent and effective mechanisms for dispute resolutions at the different jurisdictional levels. Roles and responsibilities have been also identified and allocated at all jurisdictional levels. Information relative to the fishery and its management are collected and all parties are encouraged to participate. The management system includes some clear long-term objectives at all jurisdictional levels which are in line with Principles 1 and 2 of the MSC.

ICCAT's principle objective is to maintain fish stocks at levels that will permit the maximum sustainable catch. The ICCAT Convention (art.3) requires decisions to be taken by most Contracting Parties (CPs), each with one vote. Two thirds of the CPs constitute a quorum, but ICCAT mostly seeks consensus. The Commission receives advice from its Panels and Committees, e.g. scientific advice on issues such as stock status and catch limits comes from the SCRS. The ICCAT experience on bluefin tuna in the last 10 years is an example that, with the correct synergy between CPCs and with the ICCAT secretariat, such challenges can be addressed and overcome. As such, it is an example to other RFMOs faced with major conservation challenges." The French local decision-making processes for this fishery are clearly defined, informed by scientific information and advice from IFREMER scientists who are key contributors to ICCAT scientific working groups. For BFT-e overall, the monitoring control and surveillance system has been comprehensive for some years, but as the stock recovers, some CPCs, such as the EU may have relaxed some rules, such as increasing the number of small ports as designated ports, that have stretched their inspection capacity and increased the risk for over-quota or un-tagged BFT-e fish being landed. ICCAT relies on its Contracting Parties to implement effective sanctions over their flagged vessels. According to the PO, the vessels in the UoA demonstrate a high level of compliance by providing logbook (paper and electronic for vessels>12m), landing reports, and ICCAT daily electronic catch and sales declarations (e-BCD) for bluefin tuna. Furthermore, the SATHOAN PO also participates in and encourages research into the development of tools for additional at sea data collection and voluntary research cooperation on bycatch identification (ECHOSEA), mitigation measures (SELPAL) and ecosystem research.

The team's provisional determination is that the fishery meets the criteria for MSC certification. Aggregate scores for each Principle are as shown in the following table:

Principle	Score
Principle 1 – Target Species	83.3
Principle 2 – Ecosystem	80.7
Principle 3 – Management System	87.3

Eight conditions were raised overall: two in relation to Principle 1, six in relation to Principle 2.

Number	Condition	Performance Indicator
1	By Year 4 the client should be able to show that the HCR is able to ensure that the exploitation rate is reduced as the PRI is approached and is likely to be robust to the main uncertainties.	1.2.2
2	By Year 4 the client should be able to show evidence that there is good information on all other fishery removals from the stock.	1.2.3
3	By Year 4, some quantitative information should be available and adequate to assess the impact of the UoA on the main primary species with respect to status. The information collected should be adequate to support a partial strategy to manage these species.	2.1.3
4	By Year 4, there should be an objective basis for confidence that the partial strategy in place for pelagic stingrays will work, based on some information directly about the UoA and/or this species, including seasonal and spatial catch patterns.	2.2.2
5	By Year 4, the information available on interactions with pelagic stingray should be adequate to manage the UoA's impact on this species, considering seasonal and spatial catch patterns.	2.2.3

Number	Condition	Performance Indicator
6	By Year 4, direct effects of the UoA should be highly likely to not hinder recovery of sea turtles and ETP seabirds.	2.3.1
7	By Year 3, there should be a strategy in place for managing the UoA's impact on ETP species, designed to be highly likely to achieve national and international requirements for the protection of ETP species. There should be an objective basis for confidence that the strategy will work and evidence that it is being implemented successfully.	2.3.2
8	By Year 4, some quantitative information should be available and adequate to assess the impact of the UoA on ETP species. The information collected should be adequate to measure trends and to support a strategy to manage these species.	2.3.3

Two recommendations were made by the team, as follows:

#### **Recommendation 1 (bait):**

Fishers in the UoA purchase their bait directly from traders and there is currently no systematic means through which SATHOAN monitor their members' bait use. It is recommended that a more formal bait sourcing strategy is adopted that ensures that bait is sourced from sustainable fisheries, while endeavouring that bait use is optimized as much as possible (e.g. by exploring ways to minimize bait use per hook).

#### **Recommendation 2 (swordfish):**

One of the measures included in the Mediterranean swordfish rebuilding plan (ICCAT Rec. 17-03) is a minimum size: In order to protect small swordfish, CPCs shall take the necessary measures to prohibit catching, retaining on board, landing, transporting, storing, selling, displaying or offering for sale Mediterranean swordfish measuring less than 100 cm LJFL or, in alternative, weighing less than 11,4 kg of round weight or 10,2 kg of gilled and gutted weight (ICCAT Rec. 16-05). A recent peer-reviewed paper presented at ICCAT SCRS 2019 on reproductive biology of swordfish in the Strait of Gibraltar found that female swordfish attained larger sizes than males and mature at a larger size, at 170 cm, as opposed to 95 cm LJFL for males (noting that the reproductive characteristics of swordfish caught in the Strait of Gibraltar are similar to those of the Mediterranean) (see ICCAT-SCRS (2019) and Abid et al. (2019)). With a minimum landing size at 100 cm LJFL, there is therefore a real risk that immature individuals are being caught by the UoA. Although the team concluded that at the scale of the UoA, this will not have any effect on the recoverability of the stock, it is recommended that options are explored (e.g. changes in gear design, fishing practices or application of a voluntary minimum size) so that the UoA catch of juvenile swordfish is minimised.

## 2 Authorship and Peer Reviewers

### **Chrissie Sieben (Team Leader, Principle 2)**

Chrissie Sieben has a Master's Degree in Marine Environmental Protection which she obtained at the University of Wales, Bangor, and specialises in marine and fisheries ecology, marine environmental impact assessments and sustainable fisheries. She was the MSC fisheries scheme manager at ME Certification Ltd (which later became CU Pesca) up until December 2018. Before joining MEC, she worked as a fisheries consultant and marine ecologist on UK-based and international projects. Chrissie is now an independent assessor with over eight years' experience with the MSC certification requirements and has acted as team leader and P2 assessor on a range of preassessments, surveillance audits and full assessments of demersal and pelagic fisheries in the Atlantic, Mediterranean, Indian Ocean, Southern Ocean and Pacific. She also regularly participates in MSC training sessions and workshops. Chrissie speaks fluent French and Dutch in addition to English. She acted as the Team Leader for this assessment and was responsible for Principle 2. Chrissie has successfully completed the MSC online training on the application of the Risk-Based Framework (RBF), FCRv2.0.

### **Dr Jo Gascoigne (Principle 1)**

Dr. Gascoigne, a CU Pesca associate, is a former research lecturer in marine biology at Bangor University, Wales. She is an expert on fisheries science and management, with over 15 years' experience as a consultant, working mainly on MSC pre-assessments and full assessments, as well as FIP scoping, planning and implementation. Jo has been involved as expert and lead auditor in a significant number of full MSC assessments and pre-assessments covering a range of demersal and pelagic fisheries in the Northeast Atlantic, Mediterranean, Indian Ocean, Southern Ocean and Pacific. In addition to numerous pre-assessments, Jo has considerable experience with full assessments of tuna fisheries in the MSC programme. On 20 May 2016 a variation request was granted by MSC, qualifying Dr Gascoigne as Principle 1 (P1) assessor for tuna fisheries. She was therefore responsible for the assessment of Principle 1.

### **Sophie Des Clers (Principle 3)**

Sophie is an independent scientific expert in fisheries management systems. She is a qualified MSC auditor and a member of the MSC peer review college. She has over 30 years' experience in the formulation, monitoring, and evaluation of fisheries and aquaculture projects to build management capacity in the public and the private sector. Sophie is trained in databases, applied statistics, population dynamics, economics, law and public policy. Her past research and consultancy projects have taken her to fishing ports around the UK, EU, Norway, Africa, the North Sea, Mediterranean, Atlantic, Pacific, Indian oceans and the Caribbean. She has been involved in a number of previous MSC assessments and pre-assessments including lobster, cod, haddock, saithe, sole, herring, blue whiting, sardine, whelks (within the EU) and tuna and billfish fisheries. Sophie has completed the required Fishery Team member MSC training modules for the V2.0 Fisheries Certification Requirements; she was responsible for the assessment of Principle 3.

### **Peer Reviewers:**

The MSC Peer Review College compiled a shortlist of potential peer reviewers to undertake the peer review for this fishery. Two peer reviewers were selected from the following list:

- John Neilson
- Kevin Stokes

- Paul Medley
- Susana Sainz-Trapága

A summary of their experience and qualifications is available via this link:

<https://fisheries.msc.org/en/fisheries/sathoan-french-mediterranean-bluefin-tuna-artisanal-longline-and-handline-fishery/@@assessments>

### 3 Description of the Fishery

#### 3.1 Unit(s) of Assessment (UoA) and Scope of Certification Sought

##### 3.1.1 UoA and Proposed Unit of Certification (UoC)

CU Pesca confirms that the fishery under assessment is within the scope of the MSC Fisheries Standard (7.4 of the MSC Certification Requirements v2.0):

- The target species is not an amphibian, reptile, bird or mammal;
- The fishery does not use poisons or explosives;
- The fishery is not conducted under a controversial unilateral exemption to an international agreement;
- The client or client group does not include an entity that has been successfully prosecuted for a forced labour violation in the last 2 years;
- The fishery has in place a mechanism for resolving disputes, and disputes do not overwhelm the fishery;
- The fishery is not an enhanced fishery as per the MSC FCR 7.4.3; and
- The fishery is not an introduced species-based fishery as per the MSC FCR 7.4.4.

There are no other eligible fishers. Therefore, the UoC is the same as the UoA described below.

##### UoA

<b>Species</b>	Bluefin tuna ( <i>Thunnus thynnus</i> )
<b>Stock</b>	Eastern Atlantic and Mediterranean bluefin tuna
<b>Geographical range of the fishery</b>	French and EU shared Western Mediterranean waters
<b>Method of capture</b>	Pelagic longline (LLD) and handline and pole-line (LHP, LHM)
<b>Client group</b>	Member vessels of SATHOAN PO targeting bluefin tuna in the Mediterranean using pelagic longline, handline and pole-line that have signed up to the label "Thon rouge de ligne – pêche artisanale"
<b>Other eligible fishers</b>	None

### 3.1.2 Final UoC(s)

(PCR ONLY)

The PCR shall describe:

- The UoC(s) at the time of certification.
- A rationale for any changes to the proposed UoC(s) in section 3.1(c).
- Description of final other eligible fishers at the time of certification.

(References: FCR 7.4.8-7.4.10)

### 3.1.3 Total Allowable Catch (TAC) and Catch Data

The Eastern Atlantic and Mediterranean bluefin tuna (BFT) stock is managed by the International Commission for the Conservation of Atlantic Tunas (ICCAT) which, as part of a 15-year recovery plan running from 2007 to 2022, sets an annual Total Allowable Catch (TAC) through its Recommendation 17-07 (amending 14-04) on BFT in the Eastern Atlantic and Mediterranean. The 2018 TAC is given in Table 1. Details on quota allocations to the European Union, to France and to French vessels registered in the Mediterranean are also shown – this information was extracted from the *Arrêté du 08/02/18 établissant les modalités de répartition du quota de thon rouge (Thunnus thynnus) accordé à la France pour la zone « océan Atlantique à l'est de la longitude 45° O et Méditerranée » pour l'année 2018*. The UoA quota share and total green weight catch for 2017/18 were provided by SATHOAN.

**Table 1. TAC and Catch Data for the UoA. The total green weight catch was provided by SATHOAN.**

<b>TAC</b>	Year	2018	Amount	28,200 t
<b>Allocation European Union</b>	Year	2018	Amount	15,850 t
<b>Allocation France</b>	Year	2018	Amount	4,934 t
<b>Allocation French Mediterranean</b>	Year	2018	Amount	4,391 t
<b>Allocation Sathoan</b>	Year	2018	Amount	2,760.2 t
<b>UoA share of TAC</b>	Year	2018	Amount	271 t
<b>UoC share of total TAC</b>	Year	2018	Amount	As above
<b>Total green weight catch by UoC</b>	Year (most recent)	2018	Amount	271 t
	Year (second most recent)	2017	Amount	239 t

### 3.1.4 Scope of Assessment in Relation to Enhanced Fisheries

The MSC defines enhanced fisheries as: Any activity aimed at supplementing or sustaining the recruitment or improving the survival and growth of one or more aquatic organisms, or at raising the total production or the production of selected elements of the fishery beyond a level that is sustainable by natural processes. It may involve stocking, habitat modification, elimination of unwanted species, fertilisation or combinations of any of these practices.

The fishery under assessment is a wild capture fishery and does not meet the criteria for enhanced fisheries (see FCR v2.0 7.4).

### 3.1.5 Scope of Assessment in Relation to Introduced Species Based Fisheries (ISBF)

The MSC defines Introduced Species Based Fisheries (ISBF) as: Any fishery which prosecutes a target fin or shellfish species that was intentionally or accidentally transported and released by human activity into an aquatic environment beyond its natural distribution range. This does not include species that are “introduced” into a location due to an expansion in their natural geographic range. The fishery is not an ISBF (see FCR v2.0 7.4).

## 3.2 Overview of the fishery

### 3.2.1 History of the fishery and its management

Bluefin tuna has been targeted in Mediterranean fisheries since Neolithic times, with the main fishing gears initially consisting of handlines and beach seines. The species played a vital role in the economies and cultures of the region and cave paintings depicting bluefin tuna have been dated back to the third millennium BC (Longo et al., 2015). These ancient civilisations established practices that evolved much later in history into the bluefin tuna trap fishery, now referred to as *tonnara*, *madrague* or *almadraba*, consisting of a complex net system that leads the tuna through a maze, so they may be trapped and captured. From the second half of 20<sup>th</sup> century however, pelagic longlines and purse seines became the dominant fishing gears although some tuna trap fisheries still exist today.

The industrial longline fishery, initially prosecuted by Japanese vessels in the Northwest Atlantic in the 1950s, spread to the whole of the North Atlantic in the 1990s. The purse seine fishery also progressively fished throughout the North Atlantic and Mediterranean during this period. In the Mediterranean, the purse seine fishery initially targeted young BFT in coastal waters but shifted its focus to the spawning grounds in the 1980s. In the last two decades, Atlantic BFT has been exploited by more than 20 countries, although historically the main countries have been France, Spain, Italy and Japan. The European Union accounts for more than 50% of the total allowable catch (TAC), and the Mediterranean industrial purse seine fishery now accounts for more than 70% of the annual EU share of the TAC. The purse seine fleet is based in a small number of ports in Spain, France and Italy. Tuna caught using this method are transferred to cages at sea for fattening, before being sold.

The International Commission for the Conservation of Atlantic Tunas (ICCAT) is the Regional Fisheries Management Organisation (RFMO) in charge of Eastern Atlantic and Mediterranean BFT (BFT-e) stock. The objective of the Commission is to maintain the population of tuna and tuna-like fish in the Atlantic Ocean at levels that will permit maximum sustainable yields, as well as the implementation of research programmes, the analysis of fishing statistics and the formulation of stock conservation measures as recommendations.

A list and analysis of active and forthcoming recommendations is given Section 3.5 Principle Three: Management System Background. The intent and effect of these recommendations are also discussed under Principle 1 (Section 3.3) and Principle 2 (Section 3.4).

### 3.2.2 The Client fishery

The client fishery covers the 24 vessels listed in Table 2, all of which are less than 18m in length overall (LOA). Except for one handline vessel (HL), they are all pelagic longliners (LL). All vessels are members of the Sète-based Producer Organisation (PO) *Société Coopérative Maritime des Pêcheurs de Sète Môle* (SATHOAN) and subscribe to the *Thon Rouge de ligne Pêche Artisanale* (TRL-PA) brand, which sets both



environmental and product quality best practice. Note that not all SATHOAN members subscribe to this brand and these vessels are therefore not part of the UoA. The tuna in this fishery are caught and sold fresh on the French domestic market and sometimes in Spain.

**Table 2. Vessels in the client group.**

Fishing vessel	Homeport	LOA (m)	Fishing gear	Registration number	Tonnage (GT)
CHARLY CHRIST	AGDE	11.00	LL	FRA000923684	12
MORGANE	AGDE	11.00	LL	FRA000733736	5
ANDREA	AGDE	11.78	LL	FRA000741371	7.96
ANTOINE MARIUS	AIGUES MORTES	11.00	LL	FRA000480715	11
CHANT DES VAGUES II	FRONTIGNAN	9.00	LL	FRA000926635	4
LAURINE	FRONTIGNAN	11.95	LL	FRA000910501	7.22
NEPTUNE 3	GRAU D'AGDE	14.00	LL	FRA000859093	19
DOCHRIS	LE GRAU DU ROI	8.00	LL	FRA000900299	4
L'INFERNAL	LE GRAU DU ROI	17.76	LL	FRA000900272	19.11
MARINA	LE GRAU DU ROI	11.90	LL	FRA000925302	8.23
DEUX FRERES I	SETE	17.00	LL	FRA000926668	71
DEUX FRERES IV	SETE	17.00	LL	FRA000926671	71
PANTHERE III	SETE	9.00	LL	FRA000926014	4
TROIS FRERES II	SETE	17.00	LL	FRA000916523	48
LE MARCO II	MARTIGUES	13.00	LL	ESP000025951	14
NOTRE DAME DU GRAU	ST LOUIS DU RHONE	14.00	LL	FRA000330175	22
DIEU MER SI	FREJUS	11.00	LL	FRA000917302	9
GALLUS	LA CADIERE D'AZUR	10.00	LL	FRA000653113	11
LE TOURNEVIRE III	LE GRAU D AGDE	11.99	LL	FRA000598337	9.92
DRAGON II	SIX FOURS LES P	10.00	LL	FRA000901300	4
KRYSTINA	SIX FOURS LES P	7.30	HL	FRA000755672	3.8
MARIE ANNONCIADE II	SIX FOURS LES P	10.00	LL	FRA000925302	3
PEPE	FURIANI	9.00	LL	FRA000931352	6
SAINT CHRISTOPHE II	SAINT FLORENT	10.00	LL	FRA000924960	8

### 3.2.2.1 SATHOAN

SATHOAN is a French company (*société anonyme coopérative d'intérêt maritime à conseil d'administration*) established 27 years ago in Sète, specialised in the wholesale of fish and shellfish products. SATHOAN is also a Producer Organisation (PO), an officially recognised body set up by fishery or aquaculture producers, notably in charge of the day-to-day management of European fisheries

production quotas (bluefin tuna and swordfish in particular). POs play an essential role in running the European Common Fisheries Policy and Common Organisation of the Markets<sup>1</sup>. SATHOAN is a member of the French Mediterranean Federation of POs, the AMOP<sup>2</sup>, and the national federation ANOP.

SATHOAN stands for *sardine/thon/anchois* although since a historic drop in the Gulf du Lion sardine and anchovy stocks from 2002-2005 (GFCM, 2016) and the subsequent collapse of the local market for small pelagics, the importance of these species to the PO has reduced over the past decade. Currently, SATHOAN comprises three distinct fleets:

- A trawler fleet that, since the collapse of the small pelagics fishery, has shifted its focus onto demersal species;
- The artisanal '*petits métiers*' which includes bluefin targeting longliners, handliners and rod and line vessels. *Petits métiers* are defined in French legislation for Mediterranean fisheries as vessels 18m or less in length using passive gear<sup>3</sup>; and
- A bluefin tuna purse seine fleet (not included in the UoA)

The vessels in the UoA all belong to the *petits métiers* group. They all have a European fishing authorization (*Autorisation Européenne de Pêche – AEP*) for bluefin tuna, and some for swordfish. The AEP is mandatory for stocks managed with EU quota.

For BFT, the SATHOAN PO represents its members through participation in all relevant meetings at international, national, Mediterranean and local levels (e.g. ICCAT, the *Comité national des pêches maritimes et des élevages marins – CNPMM*, the Mediterranean Advisory Council – MEDAC, and PO federations). Within SATHOAN, members who target BFT are organised into two committees (*collèges*): the *petits métiers* and the purse seiners.

SATHOAN's responsibilities include the daily monitoring of quota uptake for each member. Quota is allocated to SATHOAN by ministerial order (see *Arrêté du 08/02/18 établissant les modalités de répartition du quota de thon rouge (Thunnus thynnus) accordé à la France pour la zone « océan Atlantique à l'est de la longitude 45° O et Méditerranée » pour l'année 2018*) which divides the French share of the European share of the TAC set by ICCAT. This allocation is proposed by the French government to the EU Commission as part of the annual fishing plan (*Plan de pêche*) to be submitted to ICCAT and is subject to consultation with the POs at the *Commission thon rouge* of the CNPMM. Within each PO, the quota allocation is divided up between individual members by *Décision* according to track record and some internal swaps. Following its policy to support the *petits métiers* in the Mediterranean, the French government has introduced a minimum 'socio-economic' BFT catch quota allocation per vessel, which was increased proportionally with the national quota, from 700 kg in 2017 to 825kg in 2018 and in 2019. The national policy also supports the quota transfers from seiners to liners, which was increased from 161 t in 2018 to 190 t in 2018. Management of EU quota uptake at PO level is very strict and each PO needs to ensure a 100% uptake without exceeding the quota. SATHOAN have developed a tablet/ smartphone 'app' that enables fishers to follow their own quota uptake. In the event that there is excess quota, this is redistributed on the 15<sup>th</sup> November of each year.

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<sup>1</sup> [https://ec.europa.eu/fisheries/cfp/market/producer\\_organisations\\_en](https://ec.europa.eu/fisheries/cfp/market/producer_organisations_en)

<sup>2</sup> <http://www.amop.fr/lamop/>

<sup>3</sup> Arrêté 19 décembre 1994 regarding professional fishing in the Western Mediterranean (art.2)

### 3.2.2.2 VALPEM

VALPEM, or *Association pour la valorisation des produits de la pêche en Méditerranée*, is an association created through collaboration between the producer and processing sectors with the aim of adding value to Mediterranean fisheries products in France by working with local actors. VALPEM is the representative body for all quality and origin certifications (*Signes d'Identification de la Qualité et de l'Origine* – SIQO) it helps the fisheries sector set up, which currently include a quality label (Label Rouge) for fish soup, line-caught swordfish, and line-caught bluefin tuna (Figure 1). For BFT, the *THON ROUGE DE LIGNE - Pêche Artisanale* (TRL-PA) label commits to the following:

- 1) A collective label identifying bluefin tuna that has been caught with respect, by artisanal fishermen;
- 2) To promote a socially responsible and biologically sustainable approach;
- 3) A product stemming from small-scale, inshore fisheries (petite pêche and pêche côtière) prosecuted by French-registered vessels, based along the French Mediterranean coast between Spain and Italy, including in Corsica;
- 4) All BFT are caught with hooks by longline, handline or rod and line vessels;
- 5) The protection of cultural identity to safeguard employment and local economic development;
- 6) Full and accessible traceability to the consumer with information on vessel identity, catch records, fishing techniques, location and day of catch (note traceability is further discussed in Section 5);
- 7) Freshness and impeccable quality of the product – note that this requires all fishing trips to be less than 24 hours;
- 8) A control plan that ensures that all commitments are adhered to by its participants.



**Figure 1.** Bluefin tuna with the *THON ROUGE DE LIGNE, Pêche Artisanale* quality label, created in 2015. The label is managed by VALPEM, <https://www.valpem.fr/thon-rouge/>

All fishers subscribing to the TRL-PA are required to follow a code of conduct (*cahier de charges*) which they are trained in upon entry into the programme. The code of conduct covers the rules related to fishing, obligations related to the protection of the environment and sensitive species, and to the processing of fish on board to ensure quality. The code of conduct is summarized in Table 3. Compliance with the code is verified internally at VALPEM although reduced staff availability means that vessel inspections are limited. Non-compliance may result in suspension from the programme.

**Table 3. Summary of TRL-PA code of conduct on sustainability. Practices to ensure quality are not listed**  
(<https://www.valpem.fr/thon-rouge/>)

<b>Quota management</b>	Each vessel must have an AEP (European fishing authorisation or permit) and individual BFT quota, which is managed by the PO
<b>Vessel type</b>	Less than 18m LOA (Mediterranean 'petit métier')
<b>Gear</b>	Longline, handline or rod and line
<b>Length of trip</b>	Less than 24hrs (Mediterranean)
<b>Gear restrictions</b>	No wire leaders
<b>Data</b>	All vessels must carry onboard an observation log on 'vulnerable' species such as sharks, rays, turtles and seabirds.
<b>Bycatch</b>	All fishers must return to the water as quickly as possible any of the above species (if still alive) in order to ensure their survival by using the good practice guide and associated instruments (e.g. dehookers) ( <a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a> )
<b>Environment</b>	No discarding at sea of plastic, glass or metal waste
<b>Research</b>	Engagement in scientific research initiatives

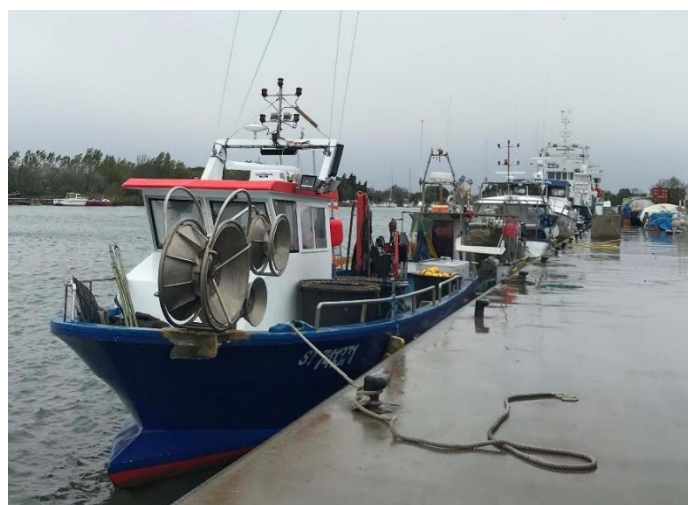
### 3.2.3 Gear and operation of the fishery

The formal ICCAT gear designations for the fishery under assessment are as follows:

- Drifting longlines (LLD);
- Hand operated handline and pole-lines (LHP)
- Mechanised handline and pole-lines (LHM)

All UoA vessels listed in Table 2 fall under the ICCAT longliners LL category or in French, *palangriers*, which also includes one handliner vessel. This is in fact a rod and reel vessel (in French, *à la canne*), not a typical pole and line vessel using live bait, which would be included in the baitboat category (designation BB), not covered by this assessment.

Most of the boats in the UoA are small (all are <18m LOA), carrying two crew with one skipper, although there are variations between vessels (Figure 2).



**Figure 2. The Andrea, one of the longliners in the UoA (Image: CU Pesca)**



The longline gear used in this fishery consists of a 8 – 9nm long monofilament nylon main line, with branch lines placed at regular intervals, carrying between 500 to 1,500 baited hooks (Poisson et al., 2016). Hook depth varies from *ca.* 6 to 20m, although this depends on the lunar cycle with deeper lines set during the full moon. The soak time is short, typically not exceeding two hours although it may be up to 6 hours. The line is deployed at nightfall, either manually or automatically, and instrumented buoys with geo-positioning capability are placed after each mile to facilitate gear recovery – according to the fishers, loss of gear is therefore very rare and although other fishing vessels such as trawlers do operate in the UoA area, this is mainly during the day. There is therefore limited overlap, further reducing the likelihood of gear loss. The bait is predominantly sardine sourced from the Adriatic, although other Mediterranean sardine stocks as well as mackerel are also used, albeit in lesser quantities (see Section 3.4.3). Most of the fishers use steel or iron circle hooks although J hooks and Japan tuna hooks are also used according to Poisson et al. (2016). The choice of hooks appears mainly related to selectivity and retention capacity and is not a requirement in the TRL-PA code of conduct. The handline vessel uses the same bait and hook types as the longline vessels although trips are shorter. Generally, 4 to 8 lines are deployed at a time.



**Figure 3. Examples of circle hook and longline gear used in the UoA. Last image depicts gear being baited with frozen sardines. (Images by CU Pesca and courtesy of B. Wendling, SATHOAN)**



**Figure 4. Overview of hook types used in the bluefin tuna fishery according to Poisson et al. (2016). From left to right: circle hook (*hameçon circulaire*); J-hook (*hameçon droit*); swordfish J-hook (*hameçon droit à espadon*); Japan tuna hook (*hameçon à thon japonais*).**

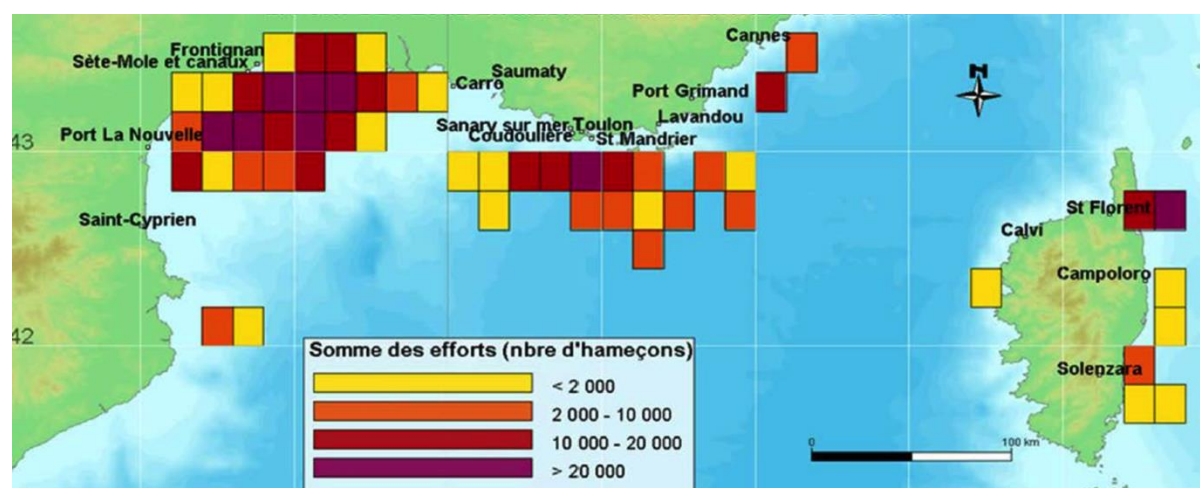
### 3.2.4 Fishing areas and seasons

Vessels in the UoA are based along the French coast including at two ports in the North of Corsica (Table 2). Poisson et al. (2016) mapped fishing effort between 2012 and 2016, for a sample of 27 vessels out of the 44 member vessels of AMOP, the *Association Méditerranéenne des Organisations de Producteurs*, which SATHOAN belongs to. The fishing effort shown is therefore representative of the entire French Mediterranean longline fleet, not just those in the TRL-PA brand, and includes fishing trips that target both bluefin and swordfish (Figure 5). The map shows that fishing takes place at less than 20nm off the coast and that there are two main fishing areas, inside the shallower waters of the

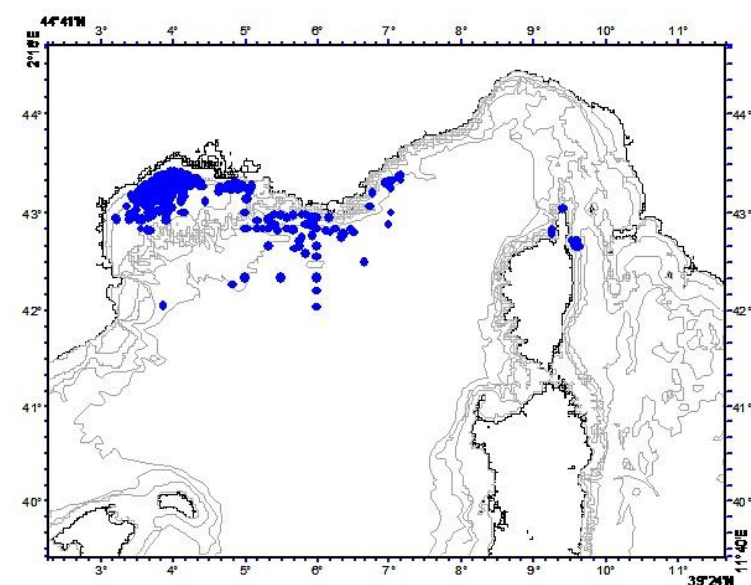
Golfe du Lion and off the French Mediterranean coast (GFCM geographical subarea - GSA 7), and around Corsica (GSA 8). The fishing area specific to the SATHOAN vessels is illustrated for 2016 in Figure 6.

In the Mediterranean, access to Territorial waters (12 nm) is restricted to vessels of the European coastal state (CS: France, Spain, Italy etc.). Beyond 12 nm, the rest of each CS « EEZ » are shared European Community waters, which are restricted to vessels registered with EU member states unless through an access agreement with the EU. Some of the SATHOAN vessels longer than 15 m LOA (4 vessels at present, see Table 2) may fish outside 12nm off the coasts of Spain, south of the Golfe du Lion, between the continent and the Balearic Islands. In this case, they may land their catch in Spain, at ICCAT BFT-registered ports. However, this fishing activity is still within the UoA area as defined in Section 3.1.

The fishing season dates are set by ICCAT per type of vessel and gear. The vessels in the UoA are all under 24m and qualify as “other gears” – see ICCAT Rec. 17-07, for which the fishery is permitted throughout the year. For this fishery, the fishing season runs from when the bluefin tuna approach coastal waters in March/April, peaking in August/September and ending in November/December.



**Figure 5. 2012 – 2016 fishing effort (hooks set) for a sample of AMOP longliners by statistical square** (Poisson et al., 2016)



**Figure 6. Fishing operations by SATHOAN TRL-PA vessels in 2016** (Map courtesy of B. Wendling)

### 3.3 Principle One: Target Species Background

#### 3.3.1 Biology

The information in this section is taken from the summary of bluefin biology provided in ICCAT (2017a), except where otherwise indicated.

Atlantic bluefin tuna (*Thunnus thynnus*) (BFT) are one of three species of bluefin tuna: the others are Pacific bluefin (*T. orientalis*) and Southern bluefin (*T. maccoyii*). Bluefin tuna have a more temperate distribution than the other large tuna species, with Atlantic bluefin living in the temperate North Atlantic, including the Gulf of Mexico, Gulf of St. Lawrence and Mediterranean; seasonally reaching quite high latitudes (e.g. Exclusive Economic Zones (EEZ) of Iceland and Norway). These high-latitude areas are historically known to have bluefin, which disappeared during the period of population decline but have recently reappeared; it is supposed that this relates to the overall recovery of the population with environmental factors also involved.

Archival tagging data suggest that BFT can maintain a stable internal body temperature over a wide range of external conditions, and also that they can dive to >1000 m, although they usually spend their time in the surface / immediate subsurface layers. Although BFT are highly mobile and migratory, they appear to return to the same spawning sites annually. The two main spawning areas known are in the Mediterranean Sea and the Gulf of Mexico, and it was thought that these sites correspond to the eastern Atlantic (BFT-e) and western Atlantic (BFT-w) stocks of *T. thynnus*. However, other potential spawning sites have recently been located (Richardson et al., 2016), suggesting that the situation may be more complex than thought (this is further discussed in Section 3.3.2).

Bluefin tuna grow fast when young, although not as fast as the tropical tunas. Fish grow to ~30-40 cm and 1 kg in the first 6 months; at 10 years, a bluefin tuna is ~2 m fork length (FL) / 170 kg and can reach 2.7 m / 400 kg at age 20. Natural mortality is estimated to be low for larger fish (estimated in Canada from acoustic tags at 0.04-0.09; < 0.12) (see Lauretta (2017)). BFT are a long-lived fish, estimated by radiocarbon dating to have a lifespan of ~40 years, by which time they will be >3 m long and can weigh ~0.75 tonnes.

Life history attribute	Assumption used by the SCRS	Source (see also ICCAT Manual)	Notes
Growth (length at age)	<u>West:</u> Richards model $A_1=0; A_2=34; L_1=33.0; L_2=270.6; K=0.22; p=-0.12$  <u>East &amp; Med:</u> Von Bertalanffy model $K=0.093; L_{\infty}=319 \text{ cm}; t_0=-0.97$	Ailloud <i>et al.</i> (2017)  Cort (1991)	For the west, the SCRS adopted the growth curve of Ailloud <i>et al.</i> (2017) in 2017.
Growth (length-weight)	Area and season specific conversions are used, overall equations:  <u>West:</u> $W=0.0000177054 \cdot L^{3.001251847}$  <u>East &amp; Med:</u> $W=0.0000350801 \cdot L^{2.878451}$	Rodriguez-Marin <i>et al.</i> (2015)	The seasonal specific conversions by area are in ICCAT Manual (BFT-Table2, conversion factor)
Natural mortality	West and East & Med: Starting at age 1: 0.41, 0.32, 0.26, 0.22, 0.19, 0.17, 0.15, 0.14, 0.13, 0.12 (ages 10-11), 0.11 (ages 13-20), and 0.10 yr <sup>-1</sup> (ages 20 plus)	Lorenzen (1996) mortality vector based on the growth model (Ailloud <i>et al.</i> , 2017) and rescaled to have a value of 0.1 at age 20	SCRS/2017/083  Size-weight relationship (Rodriguez-Marin <i>et al.</i> , 2015)
Longevity	<u>West:</u> 32 yr  <u>East &amp; Med:</u> > 20 yr	Neilson and Campana (2008)  Fromentin and Fonteneau (2001)	Based on radiocarbon traces.  Based on tagging data.
Spawning-at-age	<u>West older spawning:</u> Starting at age 1: 0, 0, 0, 0, 0.001, 0.007, 0.039, 0.186, 0.563, 0.879, 0.976, 0.996, 0.999, 1, 1 (age 20)  <u>West younger spawning:</u> Same as East Atlantic  <u>East &amp; Med:</u> 50% spawning at age 4 (115 cm / 30 kg). Starting at age 1: 0, 0, 0.25, 0.5, 1 (ages older 5)	Porch and Hanke (2017)  Anon. 1997	Porch and Hanke (SCRS/2017/164) estimated spawning fraction oocyte based on age composition data from the U.S. longline fishery in the Gulf of Mexico 2009-2014. Recent findings indicate fish were mature at age 5 (SCRS/2012/161).  M <sub>50</sub> at 105cm, (age 3.5) from Corriero <i>et al.</i> (2005)
Spawning area	<u>West:</u> Gulf of Mexico.  <u>East &amp; Med:</u> Around Balearic Islands, Tyrrhenian Sea, central Mediterranean and Levantine Sea.	Multiple sources, see Rooker <i>et al.</i> (2007) and Fromentin and Powers (2005) or Mather <i>et al.</i> (1995) for reviews.	Other spawning areas have been identified, but not yet demonstrated to be important.  See presentation 2012/149 for further information on spawning in the Mediterranean.
Spawning season	<u>West:</u> April to mid-June.  <u>East &amp; Med:</u> eastern Med.: mid-May to mid-June western Med.: mid-June to mid-July	As above.	Timing of the spawning season can change from year to year due to environmental conditions.

**Figure 7. Life history parameters used in the stocks assessments of BFT. Source: ICCAT (2017b)**

### 3.3.2 Stock Definition

The BFT Atlantic population is managed as two stocks, conventionally separated by the 45°W meridian, however efforts to understand the population structure through tagging, genetic and microchemistry studies indicate that mixing is occurring at various rates in the eastern, western and north-western Atlantic.

The BFT-e and BFT-w stocks are assumed based on spawning grounds; known in the Mediterranean and Gulf of Mexico (GoM), with GoM fish spawning at larger size. A third spawning ground off North-eastern US has also recently been identified, with evidence of fish visiting this ground and the Mediterranean in different years (Richardson *et al.*, 2016). This implies two things: i) if the spawning ground is used by BFT-w fish, they might be spawning at smaller sizes or a younger age than previously



thought (which would be more consistent with the BFT-e stock); and ii) there may be stronger links between the two stocks than previously thought; both of which suggest that the BFT-w stock might be less vulnerable to overfishing than previously thought (although see Walter et al. (2016)).

In the Atlantic, there are different rates of mixing between the two stocks in different areas, complicating the stock assessment process (in particular for BFT-w), but the fish in the Mediterranean are considered to be 100 % BFT-e.

### 3.3.3 Reference points

The objective of the BFT-e recovery plan (discussed in Section 3.3.8) is to achieve  $B_{MSY}$  with at least 60 % probability over the course of 15 years, starting in 2007 and initially running to 2022 (ICCAT Recommendation 2014-04, replaced by Rec. 17-07). Rec. 2014-04 (para. 4) also set an interim management objective to maintain catches below the most precautionary estimate of MSY for two years (i.e. 2015-16), then subsequently at this estimate of MSY after three years (i.e. 2017); after which the situation was revised through Rec. 17-07, based on the results of the 2017 stock assessment (ICCAT, 2017b).

Despite  $B_{MSY}$  being the stated objective of the recovery plan, the 2017 stock assessment group decided to base their management advice on  $F_{0.1}$  as a proxy for  $F_{MSY}$ , as has been the practice in previous assessments (ICCAT, 2017b). This is because the biggest problem in evaluating the status of this stock is in understanding recruitment dynamics and, hence estimating likely future recruitment. Estimating MSY reference points depends on making assumptions about recruitment, as does estimating associated equilibrium biomass reference points from  $F$  reference points (e.g. estimating  $B_{0.1}$  from  $F_{0.1}$ ). However, the scientists point out that fishing at or around  $F_{0.1}$  over the long term will result in the stock stabilising at around  $B_{0.1}$  – even if we cannot put a figure on this biomass level.

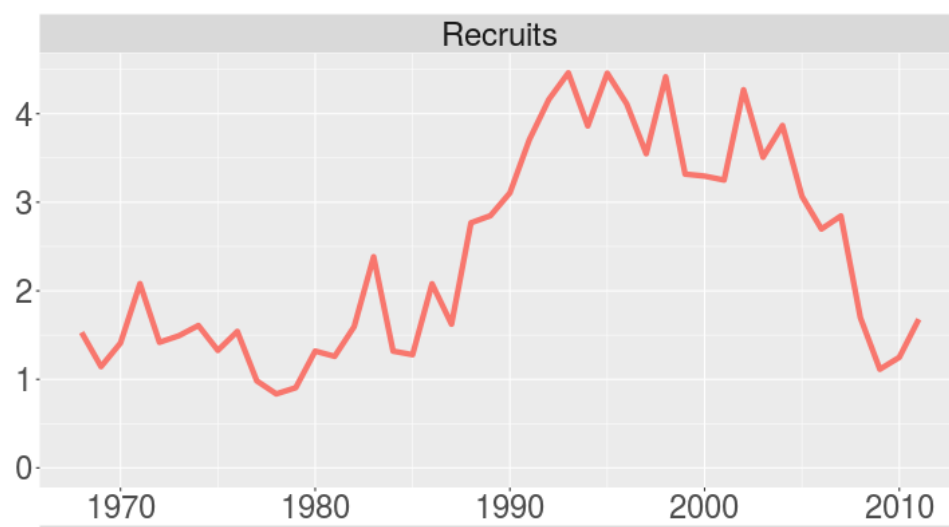
For a given recruitment time series, the equilibrium yield from  $F_{0.1}$  should be somewhat lower than from  $F_{MSY}$ , while the equilibrium stock biomass can be higher or lower (e.g. Brodziak and Overholtz (1995)). Rademeyer and Butterworth (2018) looked at the relationship between  $F_{0.1}$  and  $F_{MSY}$  for different stock-recruit relationships (different values of  $h$  – Beverton-Holt steepness) and found that  $F_{0.1}$  was lower (more precautionary) than  $F_{MSY}$  for high  $h$ , but higher (less precautionary) for low  $h$ , with the transition value at  $\sim 0.68$  for BFT-e. Steepness is estimated at roughly this level in similar species (e.g. southern bluefin estimated at 0.6-0.8; tropical tunas usually in the range 0.7-0.9), suggesting that  $F_{0.1}$  is a suitable proxy for  $F_{MSY}$  in this case.

It is worth noting that this inability to estimate recruitment and hence reference points which require such estimates (or an SR relationship) is not likely to change. The SCRS in 2018 noted *‘the Committee does not expect to provide further clarity regarding future recruitment’*, and in 2017 *‘the 2017 Committee has not gained any further insights into future recruitment potential ... the Group expects such insights to remain elusive’* (ICCAT, 2017a, 2018a). The harvest strategy based on  $F_{0.1}$  as a proxy for  $B_{MSY}$  should therefore be considered to be the definitive rather than interim strategy.

### 3.3.4 Recruitment

As noted above, the key problem with estimating reference points and projecting future stock status is recruitment. Recruitment (as estimated from the Virtual Population Analysis or VPA stock assessment base model) was low from the start of the time series (1968) to the early 1980s, then increased; was high from the early 1990s to  $\sim 2003$ , then apparently decreased back to the earlier low level (although recruitment since 2012 cannot be estimated with any confidence) (Figure 8). Stock assessment projections are based on three potential levels of long-term future recruitment: low

(1968-1980 average), medium (1968-2012 – average of whole time series) and high (1990-2005 average).



**Figure 8. Trends in recruitment as estimated from the VPA assessment model (ICCAT, 2018a) (BFTE-Figure 4).**

### 3.3.5 Stock status

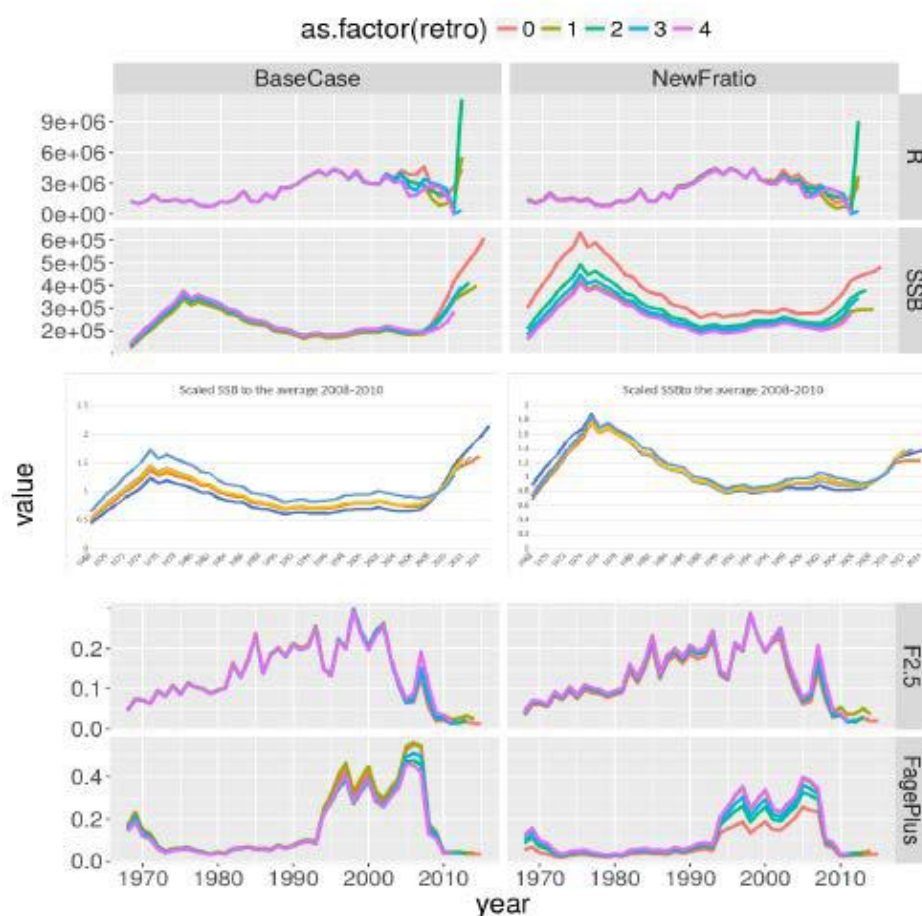
Five different stock assessment models were tried during the stock assessment workshop in 2017 (see Section 3.3.11 below). Only one (VPA) was considered advanced enough at the end of the meeting to provide the primary basis for management advice, but the group recommended ‘considering’ the results of the other models in scientific advice as well (ICCAT, 2017b). This is done by emphasising the uncertainty in the assessment and by recommending a step-wise rather than immediate increase in the TAC (discussed in Section 3.3.8), rather than by explicitly discussing alternative stock status scenarios. The problems with the VPA model are discussed in detail in Section 3.3.11, but in brief the main issues are that:

- i. The model is unstable, with the results strongly influenced by the final year of data; and
- ii. One of the key assumptions of a VPA, that catch-at-age is known exactly, is not met.

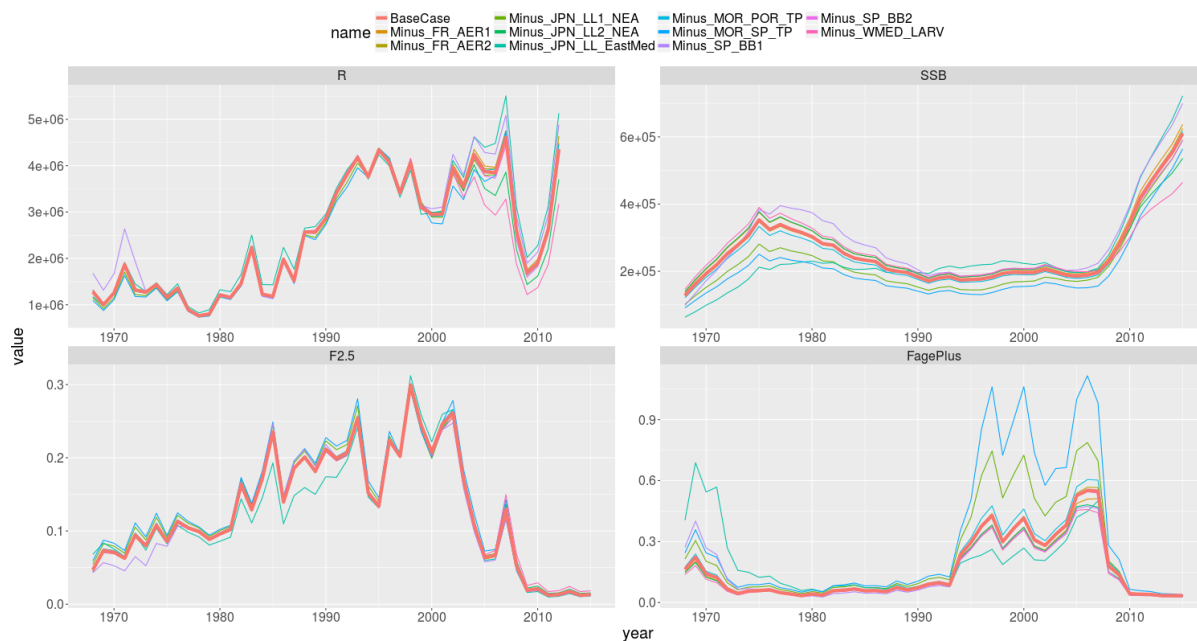
Despite this, the SCRS (ICCAT, 2017c) notes that *‘the committee considers the following advice more reliable than that previously provided to the Commission’*. Nevertheless, NGOs have expressed concern that the results of the SS3 model (which was used for the BFT-w stock assessment) were not taken more into account for the BFT-e stock assessment – particularly since they were less optimistic. During site visit interviews, it was reported to the team that a key reason for this was that at the end of the stock assessment workshop, the SS3 model was not yet completed (T. Rouyer, IFREMER, pers. comm.).

The VPA model was tested in various ways during the stock assessment meeting (sensitivity runs with different assumptions, jack-knife runs removing individual datasets, retrospective runs removing the most recent years from the time series) and was also adjusted during the subsequent species group meeting (ICCAT, 2017d); details are given in Section 3.3.11. Nearly all these various model iterations, however, give the same qualitative pattern in spawner biomass; i.e. a biomass maximum in the 1970s, followed by a decline to a minimum from 1990 to ~2000s, followed by an increase in the most recent data (Figure 9; Figure 10; Figure 11; Figure 12). The magnitude of the recent increase in biomass, relative to the previous minimum and the previous maximum is, however, uncertain. The other

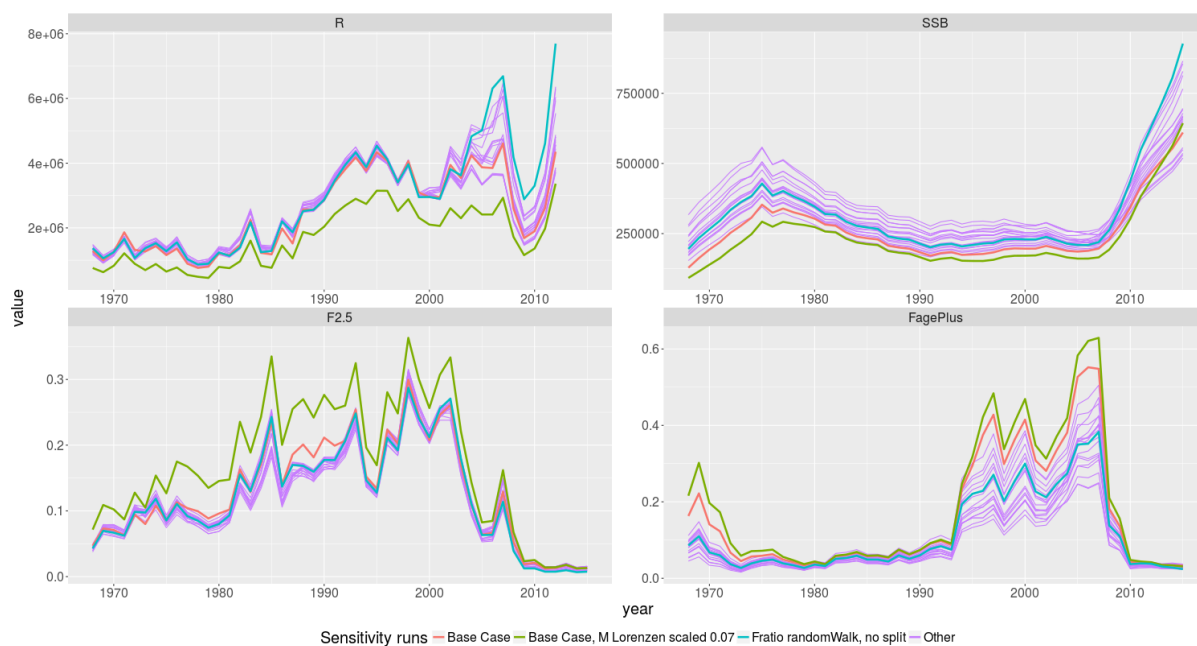
models for which results are presented (ASAP, SS3 and SCAL) showed the same increasing trend in recent years, but with different trends prior to the mid-2000s and different quantitative levels of spawner biomass (Figure 12). The SCRS concludes, however, that despite uncertainties, the 2017 assessment gives higher confidence in the recent increase in spawner biomass, and notes that  $F_{\text{current}}$  'appears to be clearly below'  $F_{0.1}$  ( $F/F_{0.1}=0.34$  (0.25-0.44, corresponding to approx. 10 % and 90 % CIs), with  $B$  already above  $B_{0.1}$  for low and medium future recruitment scenarios (see Section 3.3.4 above) but still below it under the high recruitment scenario. This is based on the VPA model (base case as adjusted by the Species Group; ICCAT (2017d)). The SS3 model, conversely, estimated spawner biomass at ~90 % of  $SSB_{\text{MSY}}$ .



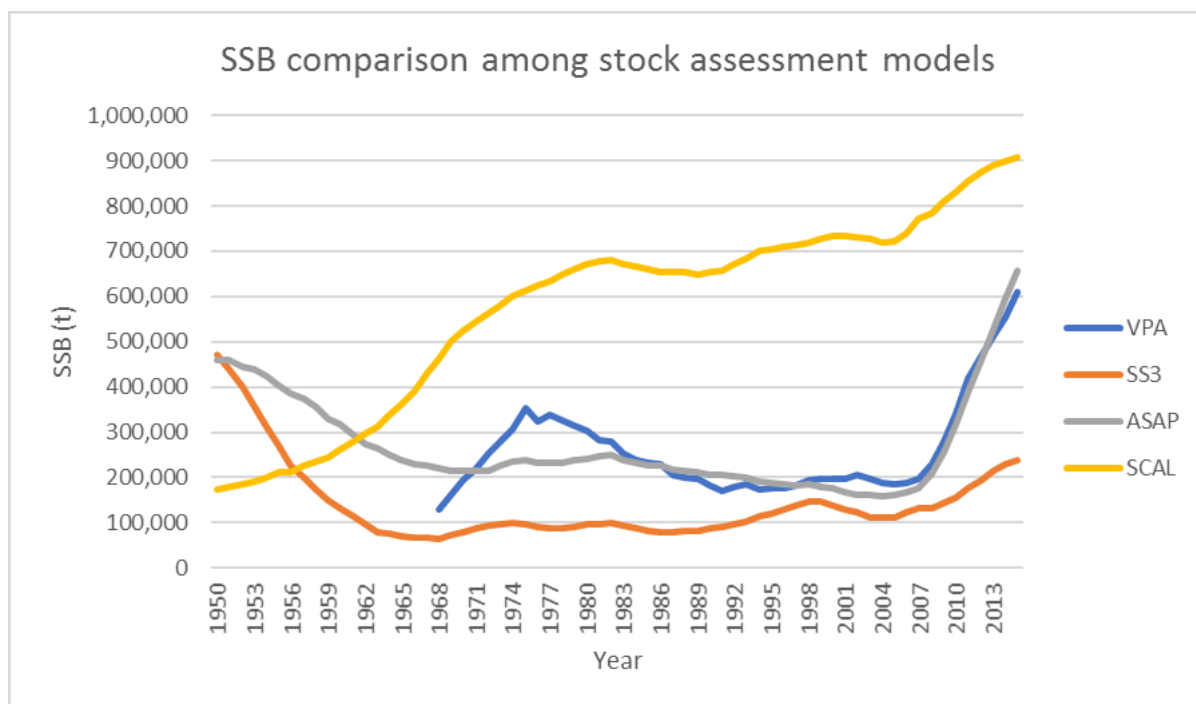
**Figure 9. VPA original (left) and revised (right) base case model: from top to bottom, time series of recruitment, SSB, SSB scaled to 2008-10 average,  $F$  for ages 2-5 and  $F$  for ages 10+. Colours show retrospective analysis (sequential removal of years of data from the end of the input time series) as indicated by the scale at the top. (ICCAT, 2017d)**



**Figure 10. VPA base case model (original): top left – recruitment; top right – SSB; bottom left – F ages 2-5; bottom right – F plus group. Colours show jack-knife analysis (removal of individual abundance indices), as indicated in the scale at the top. From (ICCAT, 2017b)**



**Figure 11. Sensitivity runs for the VPA: Red – base case; other colours show a range of other scenarios (ICCAT, 2017b)**



**Figure 12. SSB time series from the various models tried during the stock assessment: blue – VPA; orange – SS3; grey – ASAP; yellow – SCAL (see also Section 3.3.11 below). From (ICCAT, 2017b)**

### 3.3.6 Stock status projections

Short-term projections from 2017-2022, for the base case VPA under the recent recruitment scenario, are provided by the SCRS under different TAC scenarios. Unfortunately, they are all based on a constant TAC from 2018 onwards, hence none of them project the actual agreed TAC scenario of stepwise increases (details given in Section 3.3.8). A constant TAC of 36,000 or less over the period 2018-2022 maintains the probability of  $F < F_{0.1}$  at above 60% throughout the time series (64% by 2022); in practice the 2018 and 2019 TAC are lower than this so the associated probability should be a little higher. Biomass projections suggest that fishing at  $F_{0.1}$  throughout the time series would result in a constant TAC of ~40,000 t (logically giving a mean probability of  $F < F_{0.1}$  across the time series of about 50%), and result in a decline in SB; a constant TAC of 36,000 t also results in a decline in SB of ~10% relative to 2017 levels. This makes sense in as much as this stock assessment configuration concluded that B was already above  $B_{0.1}$ .

SCRS (2018) does not provide projections under different assessment scenarios, but the stock assessment (ICCAT, 2017b, 2017d) gives VPA projections under low (recent), medium and high recruitment scenarios in terms of  $F$ , with the medium and high recruitment scenarios more optimistic (medium:  $F < F_{0.1}$  with >60% probability to 2022 (and 2025) for constant TAC up to 45,000 t; high:  $F < F_{0.1}$  with 80% probability or greater up to constant TAC of 50,000 t). They also provide projections from the SS3 model, which are conversely much less optimistic, suggesting that fishing at  $F_{0.1}$  would result in a TAC of ~12-13,000 t to 2022 ( $F_{0.1}$  being considerably lower than  $F_{MSY}$  under this model configuration), while a constant TAC of 30,000 t puts the SB at ~80% of the MSY level in 2022, or at 70% $SB_{MSY}$  for a constant TAC of 35,000 t.

Returning, however, to the VPA base case / recent recruitment projections, some examples of the estimated SB under different constant TAC scenarios are set out in Table 4 below. It is worth noting that for a 60% difference in the TAC there is a ~15% difference in the projected SB in 2022 (the rebuilding target date). In other words, the level of the TAC is likely to be considerably less significant

in defining the stock trajectory than other factors such as uncertainties in the stock assessment models and variability in recruitment. While it is important to be precautionary, changes of a few thousand tonnes in the TAC are not likely to have much discernible impact on the stock trajectory relative to these much greater uncertainties.

**Table 4. Projected SB (2022) under different scenarios of constant TAC (2018-2022) (t) for the VPA base case model with recent recruitment assumed to continue (ICCAT, 2018a)**

Constant TAC 2018-2022 (t)	Projected SB (2022) (t) (approx.)
24,000 (2017 TAC)	575,000
36,000 (2020 TAC)	520,000
40,000 ( $\sim F_{0.1}$ )	500,000

It is important to bear in mind with these projections, that neither the stock assessment group nor the SCRS had much confidence in the estimates of biomass relative to reference points and in fact declined to provide a Kobe plot on this basis. It is therefore preferable to focus on the estimates and projections relating to  $F$  in order to evaluate the likely consequences of a given management strategy.

### 3.3.7 Stock status summary of different models

Stakeholders requested that the report be clear about the different conclusions of different stock assessment models, and for the VPA, recruitment scenarios. In an attempt to do this, we have provided Table 5, noting that because the models estimate different parameters in different ways, and projections have been done for different scenarios for each model, they are not particularly easy to compare.

For the VPA model,  $F_{0.1}$  is considered likely to be a good proxy for  $F_{MSY}$ , while for the SS3 model they are very different, with  $F_{0.1}$  much lower than  $F_{MSY}$ . The projections (2018, 2025) for the VPA model have been done under three different recruitment scenarios, while the SS3 model estimates a Beverton-Holt stock-recruit curve within the model (which is likely to be a significant source of process error). Unfortunately, there are no estimates of SB or  $F$  relative to reference points for the ASAP or SCAL models; the VPA projections have been done in terms of  $F$  while the SS3 projections were done in terms of catch and SB; and the TAC scenarios for the two sets of projections (VPA and SS3) are not the same. Therefore, any comparison should be interpreted with caution.

**Table 5. An attempted comparison of the results of the four different stock assessment models considered during the stock assessment workshop (ICCAT, 2017b). Note: VPA low / med / high refers to the different recruitment scenarios applied to the projections under the VPA model.**

	VPA low	VPA med	VPA high	SS3	ASAP	SCAL
<b>SSB 2015</b>	610 kt (sensitivities 500-900 kt)			240 kt	660 kt	910 kt
<b><math>F &gt; F_{0.1}</math> 2015</b>	'not likely'					
<b><math>SB &lt; SB_{0.1}</math> 2015</b>	no	no	yes			
<b><math>SB &lt; SB_{0.1}</math> 2018</b>	no	no	no			
<b><math>F &gt; F_{0.1}</math> 2018 (28 kt TAC)</b>	prob 2%	prob 0%	prob 0%			
<b><math>F &gt; F_{0.1}</math> 2025 (35 kt TAC)</b>	prob 62%	prob 3%	prob 0%			
<b>SB / <math>SB_{MSY}</math> 2018 (30 kt TAC)</b>				0.85		
<b>SB / <math>SB_{MSY}</math> 2025 (35 kt TAC)</b>				0.63		



	VPA low	VPA med	VPA high	SS3	ASAP	SCAL
2018 TAC for $F=0.8F_{MSY}$				20,723 t		
2018 TAC for $F_{0.1}$				11,802 t		

### 3.3.8 Harvest strategy and control rule

ICCAT adopted a rebuilding plan for BFT-e in 2006, which was amended in 2013, 2014 (Rec. 2014-04) and 2017 (Rec. 2017-07). A catch limit, first set in 1998 at 32,000 t was gradually reduced from 2007 onwards to a minimum value of 12,900 t in 2010. A key element of the management strategy has been the introduction of a minimum size, raised from 6.4 kg in 2002 to 10 kg in 2004 to 30 kg currently (with some exceptions; see below).

Rec. 2014-04 set TACs for 2015-17, and Rec. 2017-07 set TACs and quotas for 2018-2020 (Table 1). In 2017, SCRS recommended based on the results of the stock assessment that the Commission move from a rebuilding plan to a multi-annual management plan; this was adopted in 2018 (Rec. 2018-02) and started in 2019.

The management plan is consistent with SCRS advice for 2018, which can be summarised as follows:

- It is too early to evaluate the impact of Rec. 17-07.
- The combination of size limits and catch reduction has '*certainly contributed to a rapid increase of the abundance of the stock*'.
- The stepped increase in TAC for 2019, set out in Rec. 17-07, can be maintained.
- ICCAT should move from a rebuilding plan to a management plan.

The management objective of Rec. 17-07 and previous iterations of the rebuilding plan was to achieve  $B_{MSY}$  with at least 60% probability. The management objective of Rec. 18-02 is slightly different: to achieve  $B_{0.1}$  (proxy for  $B_{MSY}$ ) by fishing 'at or below'  $F_{0.1}$ ; i.e. a slightly lower objective. Nevertheless, the key management measure (the TACs up to 2020) has not changed from Rec. 2017-07 to Rec. 2018-02 (Table 6), on the basis that TACs are being increased incrementally to the  $F_{0.1}$  level. Some other measures have, however, been slightly relaxed (e.g. some longer open seasons, additional derogations from the minimum size, provisions for quota exchange and small amounts of carry-over) (Table 7).

**Table 6. Eastern bluefin TACs, 2015-2020.**

Year	TAC (tonnes)		
	Rec. 2014-04	Rec. 2017-07	Rec. 2018-02
2015	16,142		
2016	19,296		
2017	23,155		
2018		28,200	
2019		32,240	32,240
2020		36,000	36,000

Stakeholders have noted that the 2020 TAC is the highest ever set for this stock, which is true since the first TAC which was set in 1998 was ~34,000 t and TACs subsequently decreased to a low in 2009-2014 before starting the incremental increase set out above. There are, however, two elements which

need to be borne in mind in relation to this before/after comparison: i) in the period 1998-2008, TACs were not respected at all – estimated annual catch was of the order of 50,000 t or higher; and ii) the size-frequency in the catch is now completely different from the size-frequency in the 1990s, as a consequence of the minimum size limits in the various rebuilding plans. From the bottom-left figure in Figure 10 (Section 3.3.5) it is clear that  $F$  on small size-classes (ages 2-5) has decreased by an order of magnitude (*ca.* 0.25-0.02) since approximately the year 2000. This means that absolute estimates of biomass reference levels such as  $B_{0.1}$  and  $B_{MSY}$  will be different, and hence the two situations (before vs after) are not comparable in that way.

**Table 7. Comparison of the provisions of the 2017 rebuilding plan (to end 2018) and the 2018 multiannual management plan (starting 2019). From ICCAT Rec. 17-07 and 18-02.**

Provision	Recovery plan (17-07)	Multiannual management plan (18-02)
Management target	$B_{MSY}$ with at least 60 % probability by 2022 (para. 1) ( $B_{0.1}$ as a proxy for $B_{MSY}$ , evaluated via $F_{0.1}$ )	Maintaining the biomass around $B_{0.1}$ , via fishing at or less than $F_{0.1}$ (para. 1)
TAC 2019 (t)	32,240 t; 650 t unallocated reserve (para. 5)	32,240 t; 100 t unallocated reserve (para. 5)
TAC 2020 (t)	36,000 t; 750 t unallocated reserve (para. 5)	36,000 t; 115 t unallocated reserve (para. 5)
Transfer of quota / research	Minor provisions (para. 5)	Same except Libya→Algeria transfer provision removed (para. 5)
Provisions for stock decline / collapse	Commission may suspend fishery based on 'serious threat of fishery collapse' (para. 6)	No such provision, but if stock assessment suggests that $B_{0.1}$ is not being achieved, SCRS shall provide new TAC advice for the following year (para. 114)
Annual fishing plans	Required from each ICCAT CPC by 15 Feb., covering quota allocations, inspection, capacity management and farms (paras 8,10)	Same; requirements of plans a bit more clearly specified (paras 14-16,19)
Individual quotas	For catching vessels >24m (para. 9)	Not required
Sport / recreational fisheries	Quota allocation optional by CPC (para. 11); authorisation required (para. 31); bag limit one fish/day/vessel for private consumption (para. 32,33)	Same (paras 39-44); sport tag/release vessels do not require quota if in the context of a scientific research programme (para. 45)
Quota carry-over	Not allowed (para. 14)	A CPC may carry over up to 5 % of 2019 quota to 2020, as long as included in fishing plan (para. 7)
Quota transfer	By authorisation of CPCs and Commission (para. 15)	By authorisation of CPCs; Commission to be informed in advance (para. 10); allowed between gear groups / fleets within a CPC as long as Commission informed (para. 17)
Chartering	Not allowed (para. 16)	Not allowed (para. 11)
Joint Fishing Operations	Provisions for CPCs with <5 purse seine vessels, under strict regulation (para. 17)	Same, but also provisions for other gear types (paras 59-62)
Open fishing season: longline	1 Jan-31 May, except west of 10°W and north of 42°N and in Norwegian zone (NEZ) – 1 Aug-31 Jan (para. 18)	Same (para. 31)



Provision	Recovery plan (17-07)	Multiannual management plan (18-02)
: purse seine	26 May-24 June, except NEZ – 25 Jun-31 Oct (para. 19)	26 May-1 July, except E. Med (open 15 May), Adriatic (to 15 July), NEZ and Iceland zone (25 June-15 Nov), Morocco (1 May-15 June) (para. 29); may be expanded up to 10 days to allow for bad weather (para. 30)
baitboats, trolling	1 Jul-31 Oct; CPCs outside Mediterranean may stipulate a different starting date but same duration (para. 20)	To be set by CPCs and approved by Panel 2 (para. 32); complete review of seasons for all gears by Commission by 2020 (para. 33)
pelagic trawlers	16 Jun-14 Oct (E. Atlantic only) (para. 21)	
recreational	16 Jun-14 Oct (para. 22)	
other gears	any time (para. 23)	
Aerial searching	Not allowed (para. 25)	Not allowed (para. 48)
Minimum size	30 kg or 115 cm FL with derogations to 8 kg / 75 cm for some fleets; max. 5 % undersized bycatch for catching vessels / traps (paras 26-8)	Same, except additional derogation to 6.4 kg/66 cm or 70 cm for some fleets with % tolerance to be fixed by CPCs (7 % for Croatia) (paras 34-35); rules for catching vessels / traps the same (para. 36)
Bluefin bycatch for non-bluefin vessels	5 % max by weight and piece (para. 29)	Quota to be allocated for bycatch by CPCs; not to include 20 % of catch onboard; to be kept separate; dead discards to count against quota (para. 38)
Capacity management	Number and GRT of fishing vessels by gear type limited to level of 2007-8; traps limited to number on 1 July 2008; purse seiners limited to 2013/14 level for fishing plans 2018-20; farm input not to increase over 2005-8 levels; fishing and farm management plans required (paras 35-50)	Fishing and farming capacity to be adjusted in line with quota availability via a capacity management plan to be approved by ICCAT Panel 2; farming capacity not to increase over 2018 level; farm input not to increase over 2005-8 levels (paras 18-27)
Control measures	ICCAT to maintain a record of all catching and other vessels and traps; catch and effort to be reported by CPCs by vessel, no later than April 1 of the subsequent year (paras 51-57); logbooks required (paras 61-62); catch reporting for quota consumption to be done monthly (paras 67-9)	Same, except data to be provided by 31 July of the following year (paras 49-58,74-76)
Landing and transshipment	Only in designated ports of CPCs (paras 58-60) with reporting and control requirements (paras 59-60,64-65)	Same (paras 69-73,77-82)
Transfer and caging operations	To be authorised in advance (paras 71-72,79), reporting (paras 73,82,86), video monitoring (paras 75,81,83), observer (paras 76-77,84), video to be made available to ICCAT and observers; tamperproof (para. 93)	Same (paras 86-104)

Provision	Recovery plan (17-07)	Multiannual management plan (18-02)
CPC observer coverage	Pelagic trawlers, longliners, baitboats >15m: 20 %; towing vessels and trap harvesting: 100% (para. 88)	Same (para. 83)
ICCAT Regional Observer	100 % coverage on purse seiners and transport and farm activities (transfer, transport, harvesting) (para. 89)	Same (paras 84-5)
Growth rates, conversion factors	To be provided by SCRS	To be provided by SCRS (para. 28)
VMS	No mention	Required for vessels >15 m (see also Rec. 18-10)
Review of the management plan	n/a	2020 and after confirmation of 'full recovery of the stock'

A Management Strategy Evaluation (MSE) process is underway at ICCAT for eastern bluefin; a preparatory meeting was held in April 2018 (ICCAT, 2018b). SCRS (2018) (ICCAT, 2018a) provides a workplan for the remainder of the MSE process for bluefin tuna (see Appendix 15), which aims to have a revised management plan based on an MSE for adoption by the Commission at the end of 2020.

### 3.3.9 Bluefin MSE process

An Management Strategy Evaluation (MSE) process is underway at ICCAT for BFT-e; a preparatory meeting was held in April 2018 (ICCAT, 2018b). SCRS (ICCAT, 2018a) provide a workplan for the remainder of the MSE process for BFT (see Appendix 15 of that document), which aims to have a revised management plan based on an MSE for adoption by the Commission at the end of 2020.

In 2019, three intersessional meetings were held to progress the BFT MSE (ICCAT, 2019a, 2019b, 2019c). Extensive progress has been made on the technical aspects (agreeing a set of robust operating models) but numerous technical problems have arisen how to condition the models, selectivity assumptions for some fleets, migratory behaviour of spawners, exchange between stocks and some coding issues. As of the most recent meeting (September 2019) (ICCAT, 2019c), it remained to complete conditioning trials and robustness evaluations. For this reason, the group has pushed back the MSE workplan by a year. They have proposed that there be a bluefin stock assessment in 2020, following existing methodologies, to provide advice on TACs for 2021 (ICCAT, 2019d).

Another issue with using the MSE to apply the current management strategy is that it is technically difficult to produce an operating model which can estimate  $F_{0.1}$  – the agreed target reference point, because estimating  $F_{0.1}$  requires information on age composition as part of the model output. They predict it might be another 5 years before an operating procedure can be put in place based on  $F_{0.1}$  as a management target.

### 3.3.10 Information and monitoring

#### 3.3.10.1 Catch documentation scheme

All ICCAT contracting or cooperating parties must submit information to ICCAT on the origin of each bluefin tuna using the bluefin tuna Catch Documentation Scheme – an electronic data submission system. The requirements for the Bluefin Catch Document (eBCD) are set out in Rec. 11-20. The

document itself requires the following information to be provided, with each section individually validated by national authorities:

- Catch: Details of vessel(s): name, flag, ICCAT record number, individual quota allocation; details of catch: date, area, gear, number of fish, weight, tag numbers if any
- Trade: Product, point of departure and company details, details of buyer or destination farm with ICCAT FFB<sup>4</sup> number
- Transfer: Towing vessel with flag and ICCAT Rec. no, number and weight of dead fish during towing, number of transfer declaration form
- Transshipment: Carrier vessel details, date and position, product and quantity
- Farm: Farm details, number and weight of fish
- Farm harvesting: Date, number and weight of fish, tags, ICCAT observer details
- Trade: Product, weight, exporters, transport

Each form must be individually numbered following a schema developed by each CPC. The catch documentation system also requires that vessels (fishing, carrier), traps, farms and exporters be registered with the system. While the scheme is apparently not fool proof (see Section 3.5.6 P3 compliance), it certainly makes this fishery one of the best monitored anywhere.

### 3.3.10.2 GBYP

ICCAT started the Atlantic-Wide Research Programme for Bluefin Tuna (GBYP) in 2008, with the aim of improving the scientific advice by improving basic data on bluefin biology and ecology. The programme has benefited from various external contributions from CPCs (notably the EU) as well as private institutions and research foundations. GBYP has a coordinator and a Steering Committee, and its Annual and Steering Committee reports and budgets are publicly available<sup>5</sup>.

The stated objectives of the GBYP are as follows:

- improve basic data collection: historical data mining, size of caged fish, fishery-independent surveys and large-scale tagging;
- improve understanding of biological and ecological processes: electronic tagging, biological sampling (gonads, liver, otoliths, spines etc.), analysis of reproductive state, analysis of mixing and population structure, predator-prey relationships;
- improve stock assessment and scientific advice: modelling of biological processes (growth, stock-recruit relationship), stock assessment models including mixing, operational models for MSE.

The key activities of the GBYP have been<sup>6</sup>:

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<sup>4</sup> farming facilities authorized to operate for farming of bluefin tuna caught in the ICCAT Convention area

<sup>5</sup> See <https://www.iccat.int/GBYP/en/overview.asp> and select tab 'documents'

<sup>6</sup> See <https://www.iccat.int/GBYP/en/index.asp> and select individual tabs

- Aerials surveys, focusing on spawning areas in the Mediterranean, in late spring (spawning aggregations) and late summer-autumn (juvenile feeding aggregations) – as well as conducting surveys, development of methodology and training is also critical.
- Large-scale tagging in the initial phase of the project, moving towards electronic tagging more recently; also awareness-raising for tag recovery.
- Historical data mining: This has various elements and has contributed to developing the ‘inflated catch’ time series essential to the stock assessment (see below) as well as in generating a trap fishery catch time series which goes back to 1512 (see for example Garcia et al. (2017)).
- Biology and ecology: Genetics, otolith and spine aging and microchemistry, surveys of spawning areas.
- Modelling: The MSE process.

### 3.3.10.3 Data required for stock assessment

The data required for the stock assessments are described below:

Catch data: Catch data have in the past been problematic, because of the large quantity of undeclared catches when Illegal, Unreported and Unregulated (IUU) fishing was prevalent (1998-2007). The level of this IUU fishing has been estimated using the likely catch rates of the vessels known to have been operating, or using market data (Apostolaki et al., 2018). The resulting ‘inflated catch’ is applied to the purse seine fishery for this period as the best catch estimate; reported purse seine catches are not used. This is inevitably uncertain, and SCRS (2017) notes that attempts to retrieve historical data for this period have finished and the situation is not likely to improve. At the data preparatory workshop for the stock assessment (ICCAT, 2017e), the group revised completely the catch data with help from national scientists. Altogether ~15% of the catch records were adjusted, but these adjustments were mainly confined to better defining and completing gear-based time series and did not result in a significant change to estimates of overall catches.

Abundance indices: A series of 9 abundance indices were used in the 2017 stock assessment, including 2 trap indices, 5 catch per unit effort (CPUE) indices and two survey (fishery-independent) indices. These are:

- Combined Morocco/Spain trap index, 1981-2011
- Combined Morocco/Portugal trap index, 2012-15
- Japanese longline, eastern Atlantic and Mediterranean, 1975-2009
- Japanese longline, northeast Atlantic, 1990-2009
- Japanese longline, northeast Atlantic, 2010-15
- Spain baitboat (pole-and-line), 1952-2006
- Combined Spain and France baitboat, 2007-2014
- French aerial survey (see under GBYP above), 2000-03, 2009-12 and 2014-15
- Larval survey index, western Mediterranean, 2001-05, 2012-15

A problem with the fishery CPUE indices, as noted by SCRS (ICCAT, 2018a) is that CPUE has been significantly affected by the wide range of regulatory measures that have come in since the start of

the rebuilding plan, which has changed the fishing season, target sizes, quota availability and hence operational pattern. Despite standardisation techniques, it is difficult to separate out changes in CPUE from changes in the operation of the fishery from those due to changes in stock abundance. (This is a problem which is not specific to this fishery.)

Catch at size: The stock assessment data preparation workshop (ICCAT, 2017e) noted that revisions to various datasets have improved estimates of catch-at-size and catch-at-age matrices (for details of aging and growth curves, see below). This includes revision and improvement of existing datasets (e.g. by Japanese scientists) as well as new size data (e.g. from Algeria and Sardinia). Crucially, it is now required to record cage transfer operations using stereoscopic camera, allowing direct size measurement of fish (available since 2014). Nevertheless, size in vs size out from the farms remains a problem, because the growth rates of farmed fish has not been fully quantified, in particular when fish are retained for longer periods. An attempt to compare growth as back-calculated from harvesting data, with direct measures from stereoscopic cameras (Ortiz, 2018) was successful in some cases (i.e. the two sets of measurements matched) but not in others. Further investigation of this question is ongoing, but the analysis was not ready as an input to the 2017 stock assessment.

Age and growth: Work is ongoing in this area, and the stock assessment data preparation workshop (ICCAT, 2017e) reviewed various analyses; e.g. analysis of age and growth of young-of-the-year fish in the Mediterranean, to evaluate variation in early growth rates in time and space and how that might relate to spawning areas and timing; validation of growth curves via independent estimates of Linf and Lmax; methods to identify outliers in the size/age database; comparison of BFT-e and BFT-w growth curves; evaluation of different methods for obtaining catch-at-age estimates from size data using real and simulated data. Catch-at-size data have also been recovered from market and auction data (Di Natale et al., 2017)

Based on tagging and otolith data, the data preparation workshop (ICCAT, 2017e) reviewed the fit of two different growth curves for BFT-e, and concluded that one had a better fit for smaller fish, while one worked better for larger fish. On this basis, they recommended fitting a revised growth curve for the stock assessment, and also recommended more otolith aging of large fish.

Stock composition: Tagging, genetics and otolith microchemistry have all contributed to an analysis of stock composition and stock mixing – details are given in Section 3.3.2 above.

Natural mortality: M has been investigated extensively for bluefin (Lauretta, 2017), with various models evaluated against tagging data. There was extensive discussion at the data preparation workshop as to how M should be treated – previously a M vector from southern bluefin was used. M clearly varies by size, and may also vary over time, although the data are not sufficient to estimate a time-varying M vector.

Tagging: According to GBYP Steering Committee reports, ~60 electronic tags were deployed in 2018, and ~70 in 2017 (ICCAT, 2017f, 2018c). Prior to this there was extensive conventional tagging which has been used to evaluate growth and mortality as discussed above.

#### 3.3.10.4 Environmental cues and drivers

Work has been done on various issues relating to environmental drivers of bluefin distribution, behaviour and (critically) recruitment, including in relation to the role of climate change (Di Natale et al., 2018) and climate variability (Faillettaz et al., 2019), migratory behaviour (Carruthers et al., 2018) and habitat suitability (Druon et al., 2016).

### 3.3.11 Stock assessment

The stock assessment process at ICCAT is as follows: a data preparation workshop is convened, which reviews all available fisheries datasets, and any new information (e.g. recent relevant research, new data) and makes recommendations as to the use of different abundance indices, growth curves, natural mortality and other data inputs to the stock assessment. A stock assessment workshop is then convened, which runs and reviews the various competing models across an evolving range of settings and assumptions over the course of several days. The stock assessment group comes to a conclusion regarding which model and settings should be considered the 'reference case', although it may recommend a range (see below). The results of the stock assessment are then passed to the species group, which formulates management advice which is goes to SCRS for review and approval.

As already noted above, a range of stock assessment modelling platforms were tried during the stock assessment meeting, but ultimately only the VPA model was considered sufficiently advanced to be used to provide management advice, although the stock assessment group recommended 'considering' the other results in the advice as well. Other than the VPA, the most advanced model was the SS3 model, which is used for the assessment of BFT-w. VPA is a method for using observed fisheries mortality (catch) plus assumed or estimated natural mortality to back-calculate the size of age-cohorts over time, generally carried out using the modelling platform Extended Survivor Analysis (XSA). VPA is a widely used technique in fisheries stock assessment; e.g. it is commonly used by ICES for assessments of Northeast Atlantic stocks, although it is gradually being superseded by more sophisticated statistical models such as SS3, CASAL and MULTIFAN which are already commonly used for tropical tuna stocks.

The results of the VPA are presented in detail in Section 3.3.5 and are not repeated here. The uncertainties in the assessment have already been emphasised: the stock assessment workshop was particularly concerned about the inconsistency in recruitment shown in the retrospective analysis (see Figure 9 in Section 3.3.5). However, the VPA was subsequently amended slightly (ICCAT, 2017d), providing a new reference case model in which retrospective instability was somewhat less marked (Figure 9). A key issue with VPA is the assumption that catch-at-age is known without error; the stock assessment group considered that the poor quality of historical catch-at-size data and the problems inherent in converting size data to age data were key sources of uncertainty for the VPA. These problems are less significant for some of the other models (SS3, SCAL), but nevertheless the group concluded that the results of these models were ultimately '*not more reliable*' than those of the VPA (ICCAT, 2017b).

Fromentin et al. (2014) provide a nice summary of the range and sources of uncertainty in the BFT-e stock assessment over time; noting that in practice, the situation is not all that different from many other exploited fish stocks. It is relatively rare that a stock assessment presents and compares the results of several different modelling approaches using the same data. It is also usual that recent and future recruitment and the Stock recruitment (SR) relationship are a big source of uncertainty; most tuna stock assessments simply assume a SR relationship rather than address this specifically (but see the alternative approach of IATTC for its tropical tuna stocks – who assume no SR relationship; (IATTC, 2017). Age and growth is another significant source of uncertainty for many stock assessments, including tuna species; the recent assessment history of western Pacific bigeye is a good example (Sieben et al., 2019).

### **3.3.12 Lower Trophic Level (LTL) species**

Bluefin tuna has a trophic level of 4.5 and is not considered a low trophic level (LTL) species (Fishbase, 2019)

### 3.4 Principle Two: Ecosystem Background

#### 3.4.1 Designation of species under Principle 2

The fishery's impact of non-target species is analysed differently if the species is from a "managed" stock or not, or considered Endangered, Threatened or Protected (ETP). These are defined as follows:

**Primary** species (MSC Component 2.1):

- Species in the catch that are not covered under P1
- Species that are within scope of the MSC program, i.e. no amphibians, reptiles, birds or mammals
- Species where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit (LRP) or target reference points (TRP). Primary species can therefore also be referred to as 'managed species'.

**Secondary** species (MSC Component 2.2):

- Species in the catch that are not covered under P1
- Species that are not managed in accordance with limit or target reference points, i.e. do not meet the primary species criteria
- Species that are out of scope of the programme, but where the definition of ETP species is not applicable (see below).

**ETP** (Endangered, Threatened or Protected) species (MSC Component 2.3) are assigned as follows:

- Species that are recognised by national ETP legislation
- Species listed in binding international agreements (e.g. CITES, Convention on Migratory Species (CMS), ACAP, etc.)
- Species classified as 'out-of-scope' (amphibians, reptiles, birds and mammals) that are listed in the IUCN Redlist as vulnerable (VU), endangered (EN) or critically endangered (CE).

Both **primary** and **secondary** species are defined as 'main' if they meet the following criteria:

- The catch comprises 5 % or more by weight of the total catch of all species by the UoC;
- The species is classified as 'less resilient' and comprises 2 % or more by weight of the total catch of all species by the UoC. Less resilient is defined here as having low to medium productivity, or species for which resilience has been lowered due to anthropogenic or natural changes to its life-history;
- The species is out of scope but is not considered an ETP species (secondary species only);
- Exceptions to the rule may apply in the case of exceptionally large catches of bycatch species.



### 3.4.2 Data availability

The Principle 2 analysis is based on two key sources of information: logbook and observer programme datasets. For each UoA vessel, paper logbooks issued by the European Community (or in the case of the larger vessels, electronic logbooks) are the standard form through which data are collected. The logbooks detail estimated live weight (kg) or number of individuals of retained catch per species, as well as time and coordinates of the sets. In addition to retained catches, information on discards and interactions with Endangered, Threatened or Protected (ETP) species may also be recorded although this happens less consistently.

These logbook data are fed through to the central data management system (SIOP, *Système d'Informations pour Organisations Producteurs*) managed by the DPMA. The SIOP gathers catch, landings and sales data from logbooks, as well as the auctions (RIC, *Réseau Inter Criée*) and makes these data available to the POs including SATHOAN. For this assessment however, the SIOP data were incomplete (partly due to technical issues and partly related to a lack of capacity at FranceAgrimer). The system also relies on submission of data by the fish buyers (*mareyeurs*) which does not happen consistently. The data gaps therefore need to be filled in with logbook data. For this reason, SATHOAN also compiles its members' logbook data with the main aim of monitoring quota uptake. While data on bluefin tuna and swordfish are assumed to be complete, other retained species are only partially entered as only trips for which geolocation data are available contribute to the dataset (related to capacity issues at SATHOAN). The data extracted from the SIOP and SATHOAN databases are shown in Table 8 and Table 9 respectively. Note that the SATHOAN data do not distinguish between the fisheries that target bluefin tuna or swordfish. The swordfish catch levels shown in Table 9 are therefore likely to be an overestimate of the UoA catches.

**Table 8. Summary of SIOP data for UoA (in kilogrammes and as % of total catch). Main species are shown in red.**

Species		Designation	Kg				%			
			2014	2015	2016	2017	2014	2015	2016	2017
Bluefin	<i>Thunnus thynnus</i>	Target, P1	13,391	72,923	63,848	58,011	98.28	93.95	99.41	98.35
Swordfish	<i>Xiphias gladius</i>	Primary	235	4,053	380	973	1.72	5.22	0.59	1.65
Blue shark	<i>Prionace glauca</i>	Primary	0	644	0	0	0.00	0.83	0.00	0.00
Total			13,626	77,620	64,228	58,984	100	100	100	100

**Table 9. Summary of SATHOAN data (in kilogrammes and as % of total annual catch). Main species are shown in red. % between brackets indicate how representative the data are of the total fishery. Note: the data do not distinguish between the fisheries that target bluefin tuna or swordfish**

Species		Designation	Kg			%		
			2015 (17%)	2016 (43%)	2017 (60%)	2015	2016	2017
Bluefin	<i>Thunnus thynnus</i>	Target, P1	141,477	224,934	162,168	87.83	87.01	71.68
Swordfish	<i>Xiphias gladius</i>	Primary	17,130	31,693	59,490	10.63	12.26	26.30
Blue shark	<i>Prionace glauca</i>	Primary	1,484	597	663	0.92	0.23	0.29
Albacore	<i>T. alalunga</i>	Primary	182	96	2,715	0.11	0.04	1.20

Species		Designation	Kg			%		
			2015 (17%)	2016 (43%)	2017 (60%)	2015	2016	2017
Red seabream	<i>Pagellus bogaraveo</i>	Secondary	335	350	700	0.21	0.14	0.31
Littlehead porgy	<i>Calamus proridens</i>	Secondary			320	0.00	0.00	0.14
Opah	<i>Lampris guttatus</i>	Secondary	120		50	0.07	0.00	0.02
Rudderfish	<i>Centrolophus niger</i>	Secondary	40	608	24	0.02	0.24	0.01
Silver scabbardfish	<i>Lepidopus caudatus</i>	Secondary			10	0.00	0.00	0.00
Atlantic horse mackerel	<i>Trachurus trachurus</i>	Secondary		30	2	0.00	0.01	0.00
Greater amberjack	<i>Seriola dumerili</i>	Secondary		135	90	0.00	0.05	0.04
Striped marlin	<i>Tetrapturus audax</i>	Secondary		23		0.00	0.01	0.00
Hake	<i>Merluccius merluccius</i>	Secondary	70	40		0.04	0.02	0.00
Total			161,088	258,526	226,232	100	100	100

The main source of information on discards and interactions with ETP species is the IFREMER observer data, collected as part of the French national observer programme (Obsmer). Although the observer trips come under the remit of IFREMER, the DPMA is responsible for determining observer coverage for each fleet. For the UoA, observer coverage appears to be low, with on average 12 observed BFT trips per year between 2013 and 2017, corresponding to about 0.5% of the overall effort in terms of trips. The observer data for the UoA fleet for the period 2012 – 2015 are summarised in Table 10. Note that these data show interactions in numbers of individuals only, not weights, making meaningful quantitative analysis difficult. Nevertheless, the number of interactions with bluefin tuna, swordfish, blue shark and pelagic stingray far outnumber those of the other species. The three latter species were therefore considered as ‘main’ in the Principle 2 assessment.

Note that the client fishery also obtained Obsmer observer data for the years 2016/2017; however, these were clearly partial with only records for pelagic stingray and blue shark shown, as well as some interactions with birds. The assessment team therefore decided not to present them here; they were however considered in a qualitative capacity in the assessment.

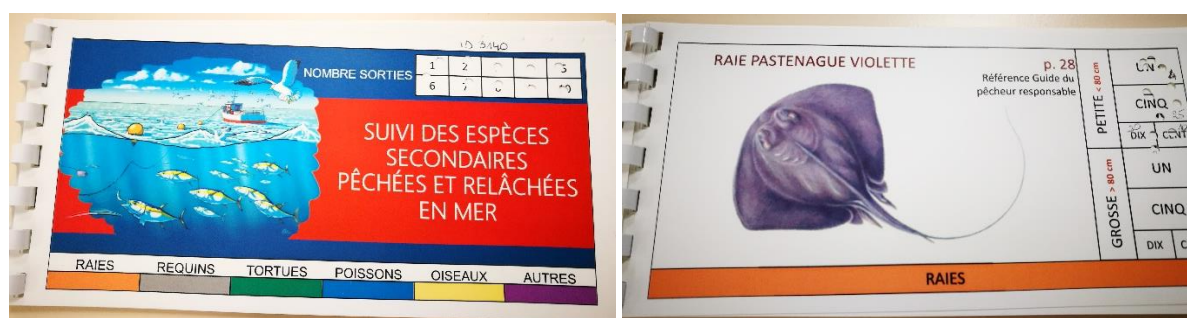
The SELPAL report (Poisson et al., 2016) revealed that in addition to blue shark, other pelagic shark species such as the common thresher (*Alopias vulpinus*) and short-fin mako (*Isurus oxyrinchus*) may also be landed by the French tuna longline fishery. Both species would be considered as secondary species. Considering neither species makes an appearance in the observer data (Table 10) any quantities landed by the fishery are probably minor. Nevertheless, the complete absence of those species in the logbook data (Table 8, Table 9) does put into the question the quality of the data received.

**Table 10. Summary of 2012 – 2015 Obsmer data showing recorded interactions with target and non-target species (in numbers). The ‘main’ species are shown in red.**

Row Labels		Designation	2012	2013	2014	2015
Bluefin tuna	<i>Thunnus thynnus</i>	Target, P1	501	237	510	240
Pelagic stingray	<i>Pteroplatytrygon violacea</i>	Secondary	455	130	595	151

Row Labels		Designation	2012	2013	2014	2015
Blue shark	<i>Prionace glauca</i>	Primary	52	23	105	57
Swordfish	<i>Xiphias gladius</i>	Primary	15	2	36	39
Mackerel	<i>Scomber scombrus</i>	Secondary	33	1		
Sunfish	<i>Mola mola</i>	Secondary			3	12
Hake	<i>Merluccius merluccius</i>	Secondary	2	1	4	2
Atlantic bonito	<i>Sarda sarda</i>	Secondary	9			
Albacore	<i>Thunnus alalunga</i>	Primary	2			1
Gilthead seabream	<i>Sparus aurata</i>	Secondary			2	
Scalloped ribbonfish	<i>Zu cristatus</i>	Secondary	2			
Blackmouth catshark	<i>Galeus melastomus</i>	Secondary			2	
Atlantic wreckfish	<i>Polyprion americanus</i>	Secondary			1	
Silver scabbardfish	<i>Lepidopus caudatus</i>	Secondary			1	
Dolphinfish	<i>Coryphaena hippurus</i>	Secondary			1	
Bullet tuna	<i>Auxis rochei rochei</i>	Secondary	1			
Total			1072	394	1261	502

Recognising the short-comings with the observer data in particular, SATHOAN are currently trialling a new system to record catches, called ECHOSEA ([http://amop-selpal.com/images/AMOP-A5\\_version-4-1.pdf](http://amop-selpal.com/images/AMOP-A5_version-4-1.pdf)). For each trip, all vessels subscribing to the TRL-PA brand are required to record all retained and discarded species, either by using the ECHOSEA app (which automatically links these data to a geolocation) or by using a paper observation log (Figure 13) which is transmitted to SATHOAN every 10 trips. The intent is that these data will be summarised each year and analysed for trends. It is understood that an intern is currently constructing a database, incorporating the information gleaned from Obsmer, SELPAL (Poisson et al., 2016) and ECHOSEA. It is important to note that the ECHOSEA data will be solely based on the self-declarations by the fishers with no third-party auditing taking place.



**Figure 13.** Paper version of the Echosea bycatch recording tool, with an example page for the pelagic stingray (*P. violacea*). Data are recorded by perforations (Images by CU Pesca)

### The project SELPAL

SELPAL (*Sélectivité de la Palangre* or Longline selectivity) was a study carried out by Poisson et al. (2016) in the period 2013 – 16, with the principal aim of quantifying the impact of the bluefin tuna longline fishery on species of particular vulnerability (*espèces sensibles*) and to test measures to increase the fishery's selectivity and reduce its impacts. The focal point of the study was the Golfe de

Lion where most of the fishery takes place. The study was commissioned by AMOP (the *Association Méditerranéenne des Organisations de Producteurs*, which SATHOAN belongs to) and was carried out in scientific partnership with IFREMER and IRD-MARBEC. The SELPAL report was made available to the assessment team and its findings were incorporated where appropriate.

### 3.4.3 Bait use

Fishers in the UoA purchase their bait directly from traders and there is currently no systematic means through which SATHOAN monitor their members' bait use. For this assessment, an analysis was commissioned by the client to determine bait volumes and source fisheries for the 2017/2018 period. Based on these data, the UoA predominantly uses sardine sourced from the Adriatic, although other Mediterranean sardine stocks as well as mackerel are also used, albeit in lesser quantities. Overall, it is estimated that 20 – 30 kg of mainly fresh bait are used per trip. The data obtained by the client were compared against logbook data scaled up to fleet level, indicating the levels of bait use shown in Table 11. Note that the percentages shown indicate contribution to total retained catch, not including discards, and are therefore a more precautionary estimate of the likely contribution of bait volume to total catch.

**Table 11. Bait use in the UoA (based on Client data). The 'main' species are shown in red.**

Source fishery	Species	Source stock	Designation	Estimated annual volume used (tonnes)	% of total landed catch 2017
Sardine (Adriatic)	<i>Sardina pilchardus</i>	GSA 17-18	Primary	16.7	4.4
Sardine (Mediterranean, Spain)	<i>Sardina pilchardus</i>	GSA 01, 06	Secondary	1.5	0.4
Sardine (Mediterranean, France)	<i>Sardina pilchardus</i>	GSA 07	Secondary	1.7	0.5
Sardine (Mediterranean, Corsica)	<i>Sardina pilchardus</i>	GSA 08	Secondary	0.2	0.05
Mackerel (Northeast Atlantic)	<i>Scomber scombrus</i>	Northeast Atlantic and adjacent waters (ICES)	Primary	3.6	0.9

Based on the table above, the team decided to retain the Adriatic sardine, sourced from the GSA 17-18 stock, as a 'main' species.

### 3.4.4 Primary and Secondary species

Primary species are those for which management tools and measures are in place, intended to achieve stock management objectives reflected in either limit or target reference points. This applies to the Mediterranean swordfish stock which is henceforth considered as Primary 'main'. As for the North Atlantic blue shark stock, there is a stock assessment and an ICCAT Recommendation for blue shark with an associated catch limit (Section 3.4.4.2). This species was therefore also considered as Primary 'main'. For the Adriatic sardine (GSA17-18), stock assessments and reference points are available and management measures are laid out in Recommendation GFCM/40/2016/3. This stock was also

considered a Primary species (Section 3.4.4.3). In the absence of any stock assessment or management for pelagic stingray, this species was considered as Secondary 'main' (Section 3.4.4.4).

Minor primary and secondary species are shown in Table 8, Table 9, Table 10 and Table 11.

#### 3.4.4.1 Mediterranean swordfish

The relevant stock for the fishery under assessment is the Mediterranean swordfish stock, for which the most recent assessment was carried out in 2016. The assessment uses an age-structured population model (XSA) and confirms that the stock is overfished and suffering overfishing and has been since the late 1980s (ICCAT, 2016a). According to the assessment, catches of immature fish remain high and the greatest mortality is suffered by fish of age 3. Recruitment has been declining for the last 15 years, and recent recruitments have been lower than the level expected to be available given recent levels of the spawning stock biomass (SSB). Nevertheless, biomass levels over the last 25 years appear to be stable at low levels, with fishing mortality levels showing a declining trend since 2010. According to ICCAT (2016a), the total landings of this stock in 2014 were 9,794 tonnes. Based on Table 9, which represents a worst-case for swordfish landings by the UoA as the data do not distinguish between BFT or SWO targeting SATHOAN vessels, 59.5t were landed in 2017 according to 60% of the logbook data. Roughly estimated, this would equate to 99.2t for the whole fishery. Even doubling this figure to account for discards leads to annual estimate of 200t swordfish, or 0.02% of the total catch in 2014.

Considering the state of the stock, a 15-year recovery plan is in place (ICCAT Rec. 16-05) starting in 2017 and continuing through to 2031, with the goal of achieving  $B_{MSY}$  with at least 60% probability. The plan *inter alia* sets out:

- A TAC of 10,500 t for 2017 which should be gradually reduced by 3% each year from 2018 to 2022. This approach shall continue to apply until a mutually agreed TAC allocation is adopted through a supplementary Recommendation;
- A capacity limitation for the duration of the recovery plan, requiring CPCs to limit the number of fishing vessels authorised to fish for Mediterranean swordfish to the average yearly number of their vessels that fished for, retained on board, transhipped, transported, or landed Mediterranean swordfish over the period 2013-2016 (with a 5% tolerance for the years 2017, 2018 and 2019 and a derogation for under 7m vessels before 15 January 2017);
- A closed season from 1 October to 30 November and during an additional period of one month between 15 February and 31 March, or alternatively, during the period from 1 January to 31 March each year. The choice of closed season appears to be left to CPCs; however, for the longline fishery, a closure applies from 1 October to 30 November each year.;
- Only entire specimens of swordfish, without removal of any external part, or gilled and gutted specimens, can be retained on board, landed, transhipped and first transported after landing;
- A minimum landing size of 100 cm LJFL or weighing less than 11,4 kg of round weight or 10,2 kg of gilled and gutted weight applies. However, vessels which have incidentally captured small fish below the minimum size may land the fish, under the condition that this incidental catch shall not exceed 5 % by weight or/and number of pieces per landing of the total swordfish catch of the said vessels.

- Restrictions on the number of hooks (max. 2,500), hook size (min. 7cm for vessels targeting swordfish) and main line maximum length of 55km for longlines.

In line with the ICCAT Recommendation, the EU TAC for Mediterranean swordfish was decreased to 10,185 t in 2018 (EU, 2018a); this quota may only be fished from 1 April 2018 to 31 December 2018 and also applies to the recreational fisheries.

The Recovery plan also sets out requirements for control measures (record of authorized vessels, bycatch, designated ports, controls of landings, recording and communication of catches, and transshipment), the ICCAT Scheme of Joint International Inspection in International Waters and the provision of Scientific information which are not detailed here.

It is important to note that the level of the stock to be rebuilt to as specified in the recovery plan is contingent on the assumption on future recruitment which is highly uncertain (ICCAT, 2016a). Furthermore, since the establishment of minimum landing sizes, the discard levels of undersized swordfish may have increased.

At UoA level, some boats have an authorisation to fish both bluefin tuna and swordfish. Those that do not are only permitted to land one swordfish per fishing day<sup>7, 8</sup> and the total amount landed is deducted from the swordfish bycatch quota. The total swordfish quota for the French Mediterranean was 123 tonnes in 2018 of which 44 tonnes were allocated to SATHOAN (*Arrêté du 13 mars 2018 établissant les modalités de répartition du quota d'espadon de Méditerranée (Xiphias gladius) accordé à la France pour la zone « Mer Méditerranée » pour l'année 2018*).

#### 3.4.4.2 North Atlantic blue shark

Although there is ongoing genetic research as to whether the Mediterranean blue shark population should be regarded as a single stock (the EU project MedBlueSGen), ICCAT currently only considers a South Atlantic and North Atlantic stock. On that basis, the fishery under assessment interacts with the latter. The most recent assessment for this stock was carried out in 2015 (ICCAT-SCRS, 2015), using both Bayesian Surplus Production Model (BSP) and Stock Synthesis (SS3) assessment methods. The data used in the assessment includes available catch, CPUE, length composition, and life history data. Scenarios with the BSP Model estimated that the stock was not overfished ( $B_{2013}/B_{MSY}=1.50$  to  $1.96$ ) and that overfishing was not occurring ( $F_{2013}/F_{MSY}=0.04$  to  $0.50$ ). Estimates obtained with SS3 varied more widely, but still predicted that the stock was not overfished ( $SSF_{2013}/SSF_{MSY}=1.35$  to  $3.45$ ) and that overfishing was not occurring ( $F_{2013}/F_{MSY}=0.15$  to  $0.75$ ). Overall, the authors of the report stressed that significant uncertainty remains, and that some important data are yet to be incorporated into the assessment (e.g. tagging data and spatial fleet structure for the North Atlantic). Because of the levels of uncertainty, no quantitative projections of future stock status have been carried out.

Catches of the North Atlantic blue shark are subject to Recommendation 16-12, which sets a catch limit corresponding to the average level observed during the period 2011-2015 (i.e. 39,102 t) and which was adopted as a TAC under EU legislation (EU, 2018a). If this limit is exceeded in any two consecutive years, ICCAT shall review the implementation and effectiveness of these measures. Based

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<sup>7</sup> Arrêté du 5 juillet 2018 portant modification de l'arrêté du 29 mars 2017 portant création d'une autorisation européenne de pêche pour la pêche professionnelle de l'espadon (*Xyphias gladius*) de la Méditerranée pour les navires de pêche professionnelle battant pavillon français ; et

<sup>8</sup> Arrêté du 29 mars 2017 portant création d'une autorisation européenne de pêche pour la pêche professionnelle de l'espadon (*Xyphias gladius*) de la Méditerranée pour les navires de pêche professionnelle battant pavillon français



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.

At UoA level, the fishery has adopted a voluntary measure to release all blue sharks that are caught (this is part of the TRL-PA code of conduct). In the SELPAL study, Poisson et al. (2016) estimated mortality rates of blue shark upon hauling at 6%. Although limited information was available on post-release mortality, it was believed that this is relatively low (below 25%), based on electronic tagging data for a sample of blue sharks released as part of the study (Poisson et al., 2016)

#### 3.4.4.3 Adriatic sardine

The GSA17 – 18 sardine stock is shared between Croatia, Italy, Slovenia, Montenegro and Albania, although Croatia and Italy take by far the majority of the catch using purse seines. Somewhat unusually, this stock is the subject of two stock assessments using two sets of reference points to provide two sets of scientific advice (GFCM and STECF). This has been summarised in Table 12 below. Ultimately both sets of assessments and advice are very similar and conclude that the stock is overfished, with overfishing occurring, and that fishing mortality should be reduced. In terms of management, Recommendation GFCM/40/2016/3 applies principally, which aims to establish further emergency measures in 2017 and 2018 for small pelagic stocks in the Adriatic Sea (GSAs 17 and 18) and to achieve MSY by 2020. The measures include provisions on catch limitations (to the 2014 level), limits on the amount of fishing days, spatio-temporal closures in view of protecting nursery and spawning areas, additional closures for vessels over 12 m length overall, limitations on the overall capacity of the fleet to the 2014 level, as well as provisions for scientific monitoring and control measures.

**Table 12. Comparison of GFCM and STECF stock assessment outcomes for the Adriatic sardine (GSA17 – 18).**

	<b>GFCM</b>	<b>STECF</b>
Latest stock assessment	State-Space Assessment Program (SAM) with data from 1975 to 2016	State-space Assessment Model (SAM) with data from 1975 to 2016 as well as with short time series from 2000 to 2016.
Most recently available catch estimate	Not given	78,355 t (2016)
Reference points	$E=F/Z=0.4$ $B_{lim} = 125,318$ t $B_{pa} = 250,636$ t $B_{current} = 161,297$ t $F_{MSY} = 0.47$ (E = 0.4 MSY proxy)	$F_{MSY} = 0.44$ (E = 0.4 MSY proxy)
Status	$F_{cur}/F_{MSY} = 2.77$ ; The stock is overexploited and in overexploitation	$F \gg F_{MSY}$ ; the stock is considered overfished
Advice	Reduce fishing mortality	STECF EWG 17-09 advises that when MSY considerations are applied fishing mortality should be reduced to no more than $F=0.44$ or a catch of 30,679 t in 2018.
References	GFCM (2017)	STECF (2017)

#### 3.4.4.4 Pelagic stingray

Apart from bluefin tuna, pelagic stingray (*P. violacea*) appears to be the dominant species in the UoA catch (Table 10), and particularly so in the summer months (Poisson et al., 2016). The species is consistently discarded; as their name suggests, stingrays have a powerful poisonous tail spine that fishers are keen to avoid – any stingray caught is therefore systematically cut off the line, as close to the hook as possible. Due to the lack of population data or stock assessments for this species in the Mediterranean, the Risk-Based Framework (RBF) was triggered in line with Table 3 of the MSC FCR v2.0 to assess this species' outcome score (PI 2.2.1). The results of the Productivity Susceptibility Analysis are given in Appendix 2.

#### 3.4.5 ETP species

The sole source of information on UoA interactions with ETP species is the Obsmer observer data (see Section 3.4.2) although the SELPAL study (Poisson et al., 2016) also gives a more qualitative indication of likely interactions. A summary of the observer data for the period 2014 – 17 is shown in Table 13. The team only decided to present records of actual interactions as there were also numerous entries where ETP species were simply sighted near the vessel. It is worth noting that the format of the data was quite difficult to interpret and does not appear to be suited to the accurate recording of ETP interactions, particularly regarding the nature of interactions, or the state and fate of each specimen. For example, for the year 2014 in Table 13 below, seabird interactions with the longline took place 17 times but it is unclear whether any of these interactions resulted in a capture or whether the birds were injured in some other way. Furthermore, with the exception of the 2017 data in which only one species was mentioned, none of the animals mentioned in the dataset, whether it is birds, sea turtles or marine mammals, appear to have been identified to species level.

According to fishers interviewed during the site visit, interactions with seabirds are relatively rare, with about 2 birds caught each year per vessel. Sea turtles are reportedly never caught and interactions with marine mammals are thought to be extremely rare. Depredation for example is also considered a rare occurrence.

**Table 13. Summary of interactions with ETP species according to Obsmer data for the UoA**

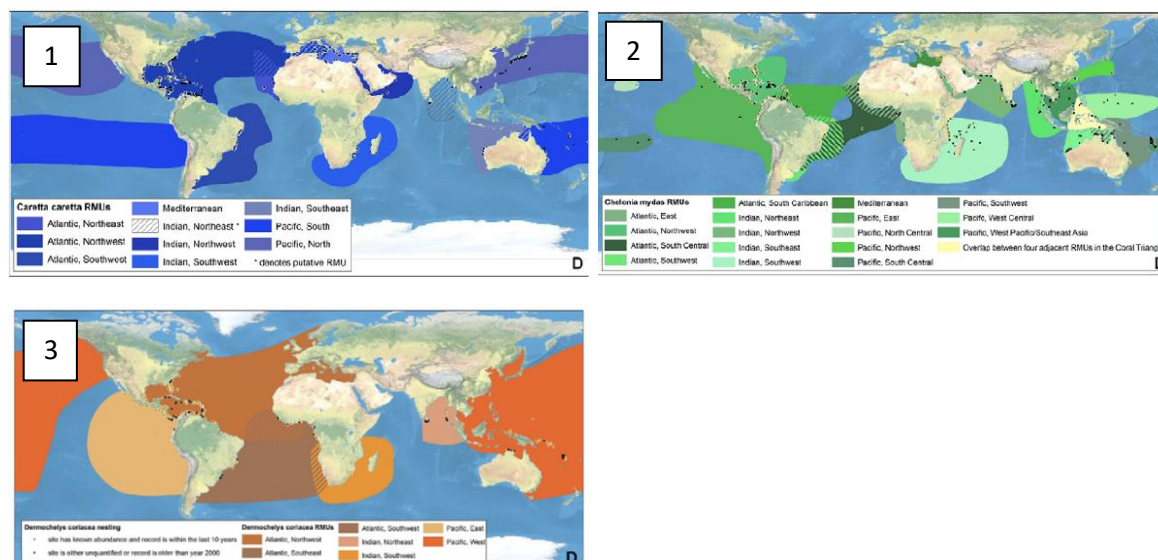
ETP species	2014	2015	2016	2017
<b>Puffin</b>	5 interactions with longline	4 birds caught on hook (2 dead, 2 alive)	-	18 captures of <i>Puffinus yelkouan</i>
<b>Tern</b>	6 interactions with longline	-	-	-
<b>Gull</b>	6 interactions with longline	2 unhooked	-	-
<b>Sea turtle</b>	-	1 found at the surface in difficulty – unclear whether linked to fishery	-	

##### 3.4.5.1 Sea turtles

Within the Mediterranean, two species of sea turtle are known to occur – these are the loggerhead (*Caretta caretta*) and green turtle (*Chelonia mydas*) which use the basin for reproduction as well as feeding. The leatherback (*Dermochelys coriacea*) is also increasingly observed. Wallace et al. (2010) defined 58 sea turtle Regional Management Units (RMUs) globally, comprising multiple nesting sites, nesting populations and breeding populations, defining core distribution areas that are considered



optimal for assessing the conservation status of marine turtles and for management applications. The fishery under assessment overlaps with the three RMUs shown in Figure 14 (note that the RMUs are continually updated as new stock information becomes available; the green turtle RMU for the Mediterranean is now larger than shown in the map below and extends to the whole of the basin - for the latest map, see this link: <http://seamap.env.duke.edu/swot>).



**Figure 14. Sea turtle Regional Management Units according to Wallace et al. (2010). The fishery under assessment overlaps with the Mediterranean RMUs of *Caretta caretta* (1), *Chelonia mydas* (2) and *Dermochelys coriacea* (3).**

All of the species concerned are listed under Appendix I of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) and Appendices I and II of the CMS (Convention on the Conservation of Migratory Species of Wild Animals, or the Bonn Convention).

An assessment of the conservation status of marine turtle RMUs by Wallace et al. (2011) evaluated the risk level of each RMU based on a range of population parameters (e.g., population size, recent and long-term population trends, rookery distribution and vulnerability, genetic diversity) and the degree of threats (e.g. bycatch, coastal development, pollution and pathogens, climate change) impacting each RMU (Wallace et al., 2011, 2013). Wallace et al. (2013) further evaluated the relative bycatch impacts across different fishing gears across sea turtle RMUs globally. The study found that longlines were most frequently found to have the highest bycatch impact scores for individual RMUs, but this result was likely due to the higher availability of longline records than for other gear types and in general, mortality rates in longlines, with the exception of bottom-set longlines, were significantly lower than mortality rates in most nets and trawls.

### 3.4.5.2 Seabirds

Unless otherwise indicated, the information in this section was taken from Garcia (2013).

The Gulf of Lions is one of the hotspots of productivity in the Mediterranean Sea, offering ideal conditions for foraging seabirds, which concentrate on it over much of the year. The presence of fishing vessels acts as a visible mark for seabird distribution, and only one of the species discussed below - the Mediterranean storm petrel - has a spatial distribution that does not overlap with the main fishing grounds.

It is important to note that one of the main characteristics of the Mediterranean marine avifauna is the high number of endemic taxa. All four Procellariiforms (petrels and shearwaters) present in the Mediterranean are endemic taxa: two at species level (*Puffinus mauretanicus* and *Puffinus yelkouan*) and two at subspecies level (*Calonectris d. diomedea* and *Hydrobates pelagicus melitensis*). Besides, one endemic cormorant (Shag *Phalacrocorax aristotelis desmarestii*), three gulls (Mediterranean *Larus melanocephalus*, Audouin's *Larus audouinii* and Yellow-legged *Larus michahellis michahellis*) and one tern (Lesser-crested *Sterna bengalensis emigrata*) also originate from the Mediterranean region.

Garcia (2013) presented an overview of seabirds occurring in the Gulf of Lions shelf and slope area and the extent to which interactions with fisheries, including pelagic longlines, may occur. Much detail has been provided in the report which has not been repeated here. Table 14 instead summarises the key points for the main species in the report, relevant to the scoring of this fishery.

**Table 14. Summary of information on presence, likelihood of interaction with pelagic longlines and protection status on the main bird species in the UoA area. Unless otherwise indicated, the information in this table is from Garcia (2013) and references cited therein.**

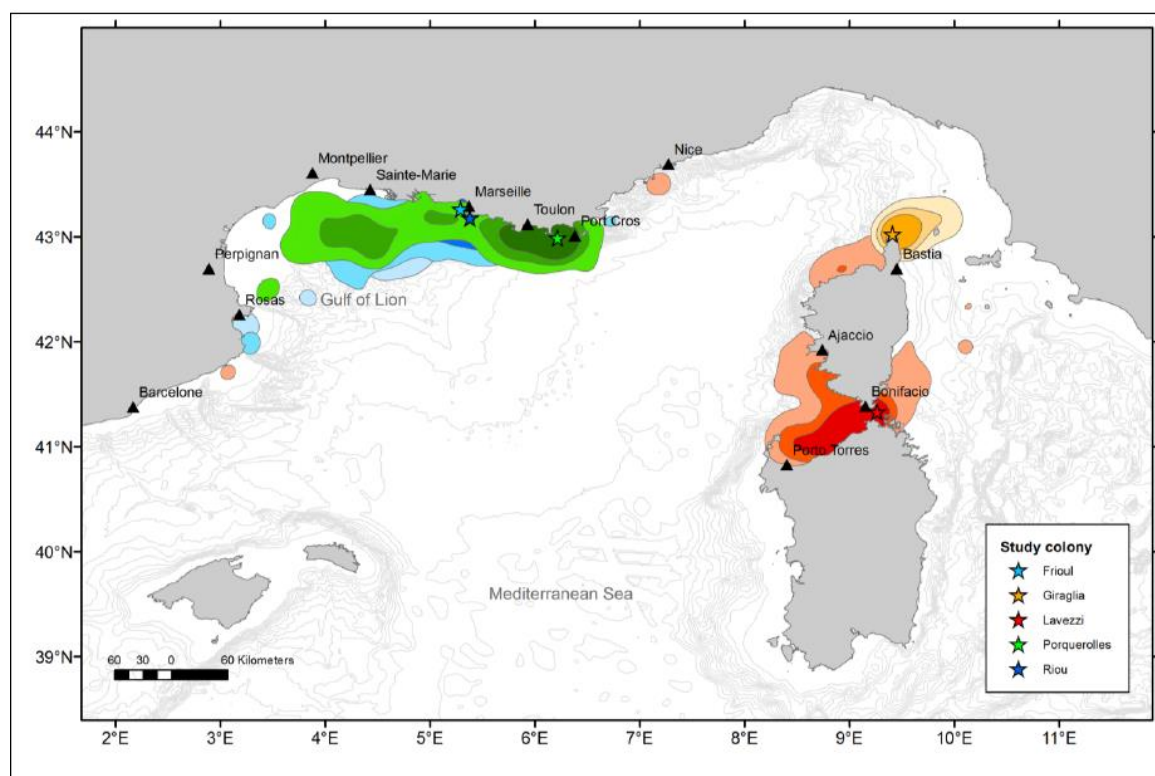
Species	Presence	Interactions with pelagic longlines	Protection
Main species (listed in Annex II of the UNEP-MAP-RAC/SPA Biodiversity Protocol and with populations that make important use of the Gulf of Lions shelf and slope area)			
Yelkouan shearwater ( <i>Puffinus yelkouan</i> )	October and July, with a peak in February-June. <i>Ca.</i> 10,000 birds use the area for feeding during the breeding season.	In the Mediterranean, bycatch is the main cause of population declines for this species (Cortés et al., 2018) and there is evidence that individuals of this species get caught in pelagic longlines (Bourgeois & Vidal 2008 – cited in Garcia (2013))	Annex I of the European Directive 2009/147/EC on the conservation of wild birds Annex II of the SPA/BD <sup>9</sup> Protocol of the Barcelona Convention and in Annex II of the Berne Convention <i>Arrêté du 29 octobre 2009 fixant la liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection (art. 3)</i> ICCAT Rec. 07-07
Balearic Shearwater ( <i>Puffinus mauretanicus</i> )	September and June; most birds leave the Mediterranean and 'summer' in the Atlantic Ocean. Breeding birds from the Balearics forage off the continental coast of Spain, regularly reaching the S waters of the Gulf of Lions. Smaller numbers venture further N to forage off the coast of Bouches du Rhône and the PACA region of France.	In the Mediterranean, bycatch is the main cause of population declines for this species (Cortés et al., 2018). Individuals might resort to feeding astern of longline vessels on the days/hours when trawlers are not so easily available (Laneri et al. 2010 – cited in Garcia (2013)). This would increase their risk of mortality, which is higher in longline fisheries. (note that the UoA sets their longlines around nightfall when most trawlers will have stopped fishing)	Annex I of the European Directive 2009/147/EC on the conservation of wild birds Annex II of the SPA/BD Protocol of the Barcelona Convention and in Annex II of the Berne Convention <i>Arrêté du 29 octobre 2009</i> CMS <sup>10</sup> Appendix I species ACAP <sup>11</sup> species

<sup>9</sup> SPA/BD: Specially Protected Areas/Biodiversity Protocol: the Mediterranean's main tool for implementing the 1992 Convention on Biological Diversity, as regards the in situ sustainable management of coastal and marine biodiversity.

<sup>10</sup> CMS: Convention on the Conservation of Migratory Species of Wild Animals

<sup>11</sup> ACAP: Agreement on the Conservation of Albatrosses and Petrels

Species	Presence	Interactions with pelagic longlines	Protection
Cory's shearwater ( <i>Calonectris diomedea</i> )	The wider Gulf of Lions offers excellent foraging conditions and attracts birds from breeding colonies in the Balearics, the PACA region of SW France, Corsica, Sardinia and possibly even beyond.	In the Mediterranean, bycatch is the main cause of population declines for this species (Cortés et al., 2018). The species regularly attends trawlers and longlining vessels, and is the species suffering the heaviest mortality toll.  Several studies indicate that this is the species suffering the heaviest mortality from bycatch in longline fisheries, both demersal and pelagic (Belda & Sánchez 2001, Cooper et al. 2003, Laneri et al. 2010, Igual et al. 2009, García-Barcelona et al. 2010 – all cited in Garcia (2013)). Annual declines of 4-6 % have been recorded putting some Mediterranean populations in serious danger of extinction (Carboneras 2004 – cited in Garcia (2013)).	Annex I of the European Directive 2009/147/EC on the conservation of wild birds  Annex II of the SPA/BD Protocol of the Barcelona Convention and in Annex II of the Berne Convention  <i>Arrêté du 29 octobre 2009</i>
Mediterranean storm petrel ( <i>Hydrobates pelagicus melitensis</i> )	Storm petrels are present in the Mediterranean in all months, although in the N Mediterranean and in the Gulf of Lions in particular, observations concentrate in spring and summer	Interactions with this species are somewhat less likely in longline fisheries as they are mainly found over the external half of the continental shelf and in the high seas, often very far from land. This minimises their probability of contact with humans and makes the species less vulnerable to interactions at sea than other Mediterranean seabirds.	Annex I of the European Directive 2009/147/EC on the conservation of wild birds  Annex II of the SPA/BD Protocol of the Barcelona Convention and in Annex II of the Berne Convention  <i>Arrêté du 29 octobre 2009</i>
Other species of interest: Mediterranean shag ( <i>Phalacrocorax aristotelis desmarestii</i> ), Northern gannet ( <i>Morus bassanus</i> ), Audouin's gull ( <i>Larus audouinii</i> ), Mediterranean gull ( <i>Larus melanocephalus</i> ), Sandwich tern ( <i>Sterna sandvicensis</i> ) – all are protected in France through the <i>Arrêté du 29 octobre 2009</i>			



**Figure 15. Summer distribution of 120 Scopoli's Shearwaters based on fixed kernel density analysis: 90, 70 and 50% kernel contours are displayed for each colony. Shearwaters were fitted with GPS on 5 different nesting sites (stars) during the chick-rearing period (mid-July to mid-Sep 2011). From Péron et al. (2012).**

### 3.4.5.3 Marine mammals

Relative to other fishing gear such as gillnets, longline fishing generally does not pose as much of a threat to marine mammals, although many individuals suffer mortality and serious injury as a result of the interactions (Gilman et al., 2006; Garrison, 2007 cited in Werner et al. (2015)).

According to anecdotal evidence and the Obsmer observer data, interactions between the UoA and marine mammals never or at the very least rarely take place. In the Spanish tuna longline fishery, an onboard observer programme was implemented by the Spanish Oceanographic Institute (IEO, *Instituto Español de Oceanografía*) with the aim to report data on marine mammal bycatch in the western Mediterranean. Data on marine mammal bycatch were collected during the period 2000-2009, revealing that Risso's dolphin (*Grampus griseus*) is the species most affected by the Spanish longline fishery in the western Mediterranean. Overall however, the bycatch per unit effort (0.011 marine mammals/1000 hooks; for *G. griseus* this was 0.007 dolphins/1000 hooks) was low compared to other bycatch species, such as sharks, seabirds and sea turtles, and the number of incidental marine mammals per set caught by Spanish drifting longline fisheries in the western Mediterranean remains less than that in other fisheries, such as purse seine and trawl (López et al., 2012).

### 3.4.6 Habitats

This fishery is strictly a pelagic fishery and does not interact with benthic habitats. Although the pelagic realm constitutes a 'habitat' this is dealt with under ecosystems below.

Another issue which needs to be considered is the issue of unobserved mortality due to ghost fishing by discarded or lost fishing gear which may consist of monofilament and/or hooks. Currently,

information on the proportion of hooks that are lost at sea (via bite-offs of terminal tackle or loss of complete branch lines) is not routinely collected on logbook or observer forms. However, gear loss is reportedly minimal and vessels deploy the longline gear with radio beacons placed at varying intervals along the mainline. These radio beacons enable the captain of the vessel to not only locate the drifting longline but also if the mainline breaks anywhere when hauling or otherwise, the captain is able to locate the separated section with the radio beacons that are placed along this section. Also, longline sets are marked and recorded on GPS so if for some reason the radio beacons are not functioning, the captain can return to the coordinates marked on the GPS, estimate the direction and speed of the current and search for the longline, probably with a 90% or more recovery rate. Therefore, the incidence of gear loss is very rare. In any case, lost pelagic longline or handline gear is only likely to continue to fish as long as bait remains on the hooks. Bait tends to be stripped relatively quickly off the hooks and as such, the ghost fishing mortality rate associated to lost longlines is usually low (Macfadyen et al., 2009).

### **3.4.7 Ecosystem**

Mediterranean waters are characterised by predominantly low productivity although the Gulf of Lions is considered to be a highly productive system due to riverine inputs from the Rhone, coastal upwelling, bottom morphology and water circulation stemming from its proximity to the straits of Gibraltar (Estrada, 1996; Petrenko et al., 2005). As a result, the area is an important feeding area for fish, birds and mammals, for both resident and migratory species (Bănarú et al., 2013). The north-western Mediterranean coastlines (that include the Gulf of Lions) have been inhabited for millennia, and as a result the body of water is considered to be highly altered by anthropogenic activity. This is emphasised by a much lower starting value of the mean trophic level of the catch in the past 50-year historical series for the Mediterranean Sea when compared to oceanic areas of the world (Pauly et al., 1998a in Coll et al. (2006)).

Coll et al. (2006) applied ecological modelling using Ecopath with Ecosim (EwE) software to the exploited continental shelf and upper slope ecosystem of the South Catalan Sea associated with the Ebro River Delta. The model enabled the description of the structure and functioning of this ecosystem with the analysis of a broad number of ecological indicators related with trophic flow description and thermodynamic concepts and considered fishing activities within the ecosystem context to assess the ecosystem effects of fishing. The study highlighted a susceptibility of the ecosystem to synergistic effects of fishing with environmental forcing. The ecosystem itself, however, was dominated by the pelagic domain (particularly small pelagic species such as sardine and anchovy, although hake and horse mackerel also played an important role), which accounted for the main biomass and catches and where flows mainly occurred, and a marginal top-down control of forage fish by predator populations (e.g. dolphins and adult hake). The latter is in agreement with the long history of fishing activity in the region that would have strongly reduced the biomass of top predators to low levels, resulting in the fishing fleets acting as top predators in the ecosystem (Coll et al., 2006). These findings suggest the presence of a wasp-waisted ecosystem structure that are typical for upwelling ecosystems (Jarre-Teichman, 1998; Cury et al., 2000; Shannon et al., 2003; Heymans et al., 2004; Moloney et al., 2005 – all cited in Coll et al. (2006)) and which could be regarded as representative of other shelf and upper slope regions of the western Mediterranean.

A similar study was carried out by Bănarú et al. (2013) who applied the EwE software to the entire Gulf of Lions ecosystem, taking into account the entire food web from primary producers to top predators, and covering a large area from the coast up to 2500 m. Here also, the highest predation flows were found at the lower trophic levels (TL 1, 2 and 3), suggesting good coupling between zooplanktivores and detritivores and their predators, while flows in the upper TLs (anglerfish,

European conger, juvenile Atlantic bluefin tuna and European hake) were almost insignificant. Bănaru et al. (2013) highlighted the importance of small pelagic fish species, particularly sardine and anchovy, representing key link groups in term of consumption and flows between pelagic primary producers and consumers from both the pelagic and the demersal compartments and highlighting possible wasp-waist predator–prey interactions. Fishing was considered an important pressure component in the Gulf of Lions food-web as it is responsible for a high rate of “consumption” of the fish compartment.

According to Coll et al. (2006), neither the consumption of fished production nor the mixed trophic impact analysis suggested significant competition between vulnerable species (cetaceans, seabirds and turtles) and fishing activity. Therefore, as discussed in previous sections, the main ecosystem impact of the UoA is likely the removal of large predators such as bluefin tuna, pelagic stingray, swordfish and blue shark which make up the vast majority of the catch. Considering the dominant role of small pelagic species in the northwest Mediterranean (Coll et al., 2006; Bănaru et al., 2013), the team considered that the scale of the UoA (limited number of vessels, small quota allocations for bluefin tuna and swordfish), together with the implementation of the TRL-PA Code of Conduct (non-retention of sharks, best handling and release for ETP species) makes it highly unlikely that the fishery under assessment would lead to irreversible ecosystem impacts. On this basis, it is considered highly unlikely that the UoA fishery will disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.



### 3.5 Principle Three: Management System Background

#### 3.5.1 Jurisdictions and legal framework

The fishery targets the eastern Atlantic bluefin tuna stock (BFT-e) in the north-western Mediterranean Sea in the Gulf du Lion along the coast and around mostly the northern part of Corsica (Figure 5 and Figure 6). The BFT-e is a highly migratory species (HMS) of temperate tuna from the North Atlantic and Mediterranean; its main spawning ground is in the Mediterranean, and the fishery targets relatively young fish that come close to the coast in pursuit of small pelagic fish.

##### 3.5.1.1 Jurisdictions

There are several key jurisdictions of relevance, listed in Table 15. ICCAT is the regional tuna fisheries management organisation (RFMO) which provides the management framework, translated into European legislation as part of the Common Fisheries Policy (CFP) and which has direct effect in all EU member States. France is the UoA vessels' country of registration (Flag State) and the Port State. Some fish may be landed in ICCAT BFT-registered ports in Spain, which carry the same landing protocol as if landing in France (also see Section 5 Traceability).

**Table 15. Jurisdictions involved in the fishery's management system.**

Jurisdiction	Key instruments
Tuna RFMO	ICCAT for the protection of tuna, tuna-like and associated species: BFT-e Recovery Plan (until 2018) followed by multi-annual Management Plan (from 2019), conservation and management measures (CMM); Vessel registers (fishing and carriers); VMS; eBCD; inspections.
European Union	European Union: translation of ICCAT Recommendations into the CFP, which has direct effect in the French legal system; BFT recovery and multi-annual management plans, Habitat and Biodiversity protection (Marine Framework Strategy Directive - Western Mediterranean region, marine spatial planning); Research programmes; fisheries monitoring control and surveillance (MCS) through the European Fisheries Control Agency (EFCA).  Mediterranean Advisory Council (MEDAC) Working Group 2: Large Pelagic Fishes (BFT-e - SWO-MED and other species managed by ICCAT)
Flag State: France	<i>Code Rural et de la Pêche Maritime</i> ; <i>Code de l'Environnement</i> ; BFT-e specific provisions (MCS, quota allocation, information), IUU-specific and other Flag State Measures (FSM), limited entry vessel licensing and vessel quota systems, individual fish tail tags for BFT and SWO; limited fishing season and area; <i>Petite pêche</i> (small-scale fishery, vessels LOA < 18m) trips less than 24 hours, specific reporting obligations, including landing of catch at specific times, derogation and special provisions for undersize fish, no discards; Coverage; International Conventions and IPOAs.
Port States	France and Spain: ICCAT- EU registered ports + EU-IUU Port State Measures (PSM)

##### 3.5.1.2 ICCAT

ICCAT, the International Commission for the Conservation of Atlantic Tunas, is the Regional Fisheries Management Organisation (RFMO) in charge of tuna, tuna-like and associated species targeted by the fishery. The International Convention for the Conservation of Atlantic Tunas is the formal document that establishes the international legal and administrative structure for the management of tuna and

tuna-like stocks (ICCAT, 2007<sup>12</sup>). Under the Convention, the Contracting Parties and Cooperating non-Contracting Parties, Entities, and Fishing Entities (CPCs) undertake to collaborate and carry out studies on target fish stock biology, abundance and data collection and analyses on current conditions and trends of target fish stocks and other fish species caught incidentally, such as sharks.

In addition to its Secretariat, which performs multiple administration and coordination functions for the Commission and the Standing Committee on Finance and Administration (STACFAD), the Commission organises its fisheries management work through a number of Committees, Panels and Working Groups (WG, Table 16 and ICCAT 2006-2016 Chap. 1). The Standing Committee on Research and Statistics (SCRS) is tasked to ensure that the Commission has available at all times the most complete and current statistics concerning fishing activities in the Convention area as well as biological information on the stocks that are fished. It also coordinates various national research activities, develops plans for special international cooperative research programmes, carries out stock assessments, and advises the Commission on the need for specific conservation and management measures. There are four species-focused Panels; Panel 2 is the one relevant to this fishery's target species.

A number of *ad hoc* groups may also be convened, in support of the Commission as a whole (COM) such as the Technical and Legal Editing Group of Contracting Parties, the Integrated Monitoring Measures WG (IMM) or the Port Inspection Expert group for Capacity and Assistance and the Compliance Committee (COC). The Commission has also set up a number of data collection and research programmes funded by the Commission as part of the regular budget, and in some cases funded by contributions from individual Contracting Parties and other agencies. They include the Atlantic-Wide Research Programme for Bluefin Tuna (GBYP) and the Shark Research and Data Collection Program (SRDCP)<sup>13</sup>.

Ahead of meetings, the Commission may take the initiative or act on the proposal of an appropriate Panel and, "on the basis of scientific evidence, make recommendations designed to maintain the populations of tuna and tuna-like fishes that may be taken in the Convention area at levels which will permit the maximum sustainable catch" (art. VIII).

Recommendations become effective for all Contracting Parties (CPs) six months after its notification from the Commission, unless a majority of CPs raise an objection, and only for CPs that have not raised an objection if at least one fourth of the CPs have objected (within a set period of 60 days+). Recommendations may include set expiry dates. Recommendations concern management measures of the target species, eastern stock of the Atlantic and Mediterranean bluefin tuna (BFT-e, Principle 1), of associated species (Principle 2) as well as data collection, research and compliance (Principle 3).

**Table 16. ICCAT subsidiary bodies, Panels and BFT Research programme**

Acronyms	Names
STACFAD	Standing Committee on Finance and Administration
SCRS	Standing Committee on Research and Statistics Bluefin Species Group Working Group on Stock Assessment Methods Data preparatory Meetings Species Stock Assessment Meetings

<sup>12</sup> ICCAT, 2007. The International Convention for the Conservation of Atlantic Tunas (as amended) <http://www.iccat.int/Documents/Commission/BasicTexts.pdf>

<sup>13</sup> See list: <https://www.iccat.int/en/ResProgs.html>

Acronyms	Names
	Bluefin MSE Technical Group Species Group Meetings Shortfin Mako Stock Assessment Update Meeting Sub-Committee on Ecosystems (ECO)
COC	Conservation & Management Measures Compliance Committee
PWG	Permanent Working Group for the Improvement of ICCAT Statistics and Conservation Measures
SWGSM	Standing Working Group on Dialogue between Fisheries Scientists and Managers
Panels	Panel 1: Tropical tunas (yellowfin, bigeye and skipjack) Panel 2: Northern temperate tunas (albacore and Atlantic bluefin) Panel 3: Southern temperate tunas (albacore and southern bluefin) Panel 4: Other species (swordfish, billfishes, small tunas)
GBYP	Atlantic-Wide Research Programme for Bluefin Tuna

The Commission holds a regular meeting every two years and special meetings as needed. The last (25<sup>th</sup>) Regular Meeting of the Commission was held in Marrakesh, Morocco, 14-21 November 2017). Following its regular meetings, ICCAT issues a Biennial Report, which contains the Report of the Regular Meeting and the reports of meetings of the Panels, Standing Committees and Sub-Committees, as well as some of the Working Groups. It also includes a summary of the activities of the Secretariat and the Annual Reports of the Contracting Parties of the Commission and Observers, relative to their activities in tuna and tuna-like fisheries in the Convention area. All reports are available from the ICCAT website<sup>14</sup>. The last Special Meeting of the Commission, its 21<sup>st</sup>, was held in Dubrovnik (Croatia) 18-25 November 2018.

The BFT-e stock has been managed by ICCAT through a 15-year Recovery Plan for bluefin tuna in the eastern Atlantic and Mediterranean initiated in 2007 and updated several times since. The plan fixes annual total allowable catches (TACs), which are then distributed on the basis of established national shares. For the years 2018-2020 TACs were set at: 28,200 t for 2018; 32,240 t for 2019; and 36,000 t for 2020, with a possibility of annual TACs reviews by the Commission, based on the advice of the SCRS. For Europe, the corresponding quota allocations were 15,850 t in 2018; 17,536 t in 2019; and 19,360 t for 2020 (Rec. 17-07) (ICCAT, 2018b).

**Table 17. Active ICCAT Resolutions, Recommendations and other Decisions for BFT-e as of December 2018<sup>15</sup>.**

Year	Reference Key	Management and other measures
<b>Bluefin tuna (Principle 1)</b>		
2006	[06-07]	Recommendation by ICCAT on Bluefin Tuna Farming
2006	[06-08]	Resolution by ICCAT on Fishing Bluefin Tuna in the Atlantic Ocean
2008	[08-06]	Resolution by ICCAT Concerning Atlantic Bluefin Tuna Scientific Research on Stock Origin and Mixing
2011	[11-06]	Recommendation by ICCAT Concerning the Atlantic-Wide Research Programme for Bluefin Tuna (GBYP)
2015	[15-07]	Recommendation by ICCAT on the Development of Harvest Control Rules and of Management Strategy Evaluation (all ICCAT species stocks)

<sup>14</sup> [https://www.iccat.int/en/pubs\\_biennial.html](https://www.iccat.int/en/pubs_biennial.html)

<sup>15</sup> [https://iccat.int/com2018/ENG/PLE\\_102\\_ENG.pdf](https://iccat.int/com2018/ENG/PLE_102_ENG.pdf)

Year	Reference Key	Management and other measures
2016	[16-09]	Recommendation by ICCAT to Supplement Recommendation 14-04 by ICCAT Amending the Recommendation 13-07 by ICCAT to Establish a Multi-Annual Recovery Plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean
2017	[17-07]	Recommendation by ICCAT amending the recommendation 14-04 by ICCAT to establish a multi-annual recovery plan for Bluefin Tuna in the eastern Atlantic and Mediterranean
<b>By-catch species, habitats and ecosystems – Principle 2</b>		
2005	[05-08]	Resolution by ICCAT on circle hooks
2006	[16-05]	Recommendation by ICCAT replacing recommendation 13-04 and establishing a multi-annual recovery plan for Mediterranean swordfish
2016	[16-12]	Recommendation by ICCAT on Management Measures for the Conservation of Atlantic Blue Shark Caught in Association with ICCAT Fisheries
2016	[16-13]	Recommendation by ICCAT on Improvement of Compliance Review of Conservation and Management Measures regarding Sharks Caught in Association with ICCAT Fisheries
<b>Monitoring, Compliance, Management planning – Principle 3</b>		
2008	[08-09]	Recommendation by ICCAT to Establish a Process for the Review and reporting of Compliance Information
2012	[11-13]	Recommendation by ICCAT on the Principles of decision-making for ICCAT Conservation and Management measures
2011	[11-17]	Resolution by ICCAT on Best Available Science
2010 and 2017	[10-11] [17-09]	Recommendation by ICCAT on an electronic Bluefin tuna catch documentation programme (eBCD) Recommendation by ICCAT amending Recommendation [15-10] on the application of the eBCD programme
2015	[15-11]	Resolution by ICCAT Concerning the Application of an Ecosystem Approach to Fisheries Management
2015	[15-12]	Resolution by ICCAT Concerning the Use of a Precautionary Approach in Implementing ICCAT Conservation and Management Measures
2015	[15-13]	Resolution by ICCAT on Criteria for the Allocation of Fishing Possibilities
2016	[16-15]	Recommendation by ICCAT on Transshipment
2016	[16-24]	Guidelines for preparing the Eastern Atlantic and Mediterranean Bluefin tuna fishing, inspection and capacity management plan

ICCAT decisions become active 6 months after being accepted. It is therefore relevant to also consider three forthcoming recommendations, which will apply to the 2019 fishing season (Table 18).

**Table 18. Forthcoming (not yet active) ICCAT Resolutions, Recommendations and other Decisions for BFT-e as of December 2018.**

Reference Key	Title
[18-02]	Recommendation by ICCAT establishing a multi-annual management plan for bluefin tuna in the Eastern Atlantic and Mediterranean Sea

[18-03]	Resolution by ICCAT on development of initial management objectives for eastern and western bluefin tuna
[18-10]	Recommendation by ICCAT concerning minimum standards for VMS in the ICCAT Convention area (VMS for vessels >15mLOA no later than 1 January 2020)

The same TACs for BFT-e are kept in the forthcoming multi-annual Management Plan (Rec. 18-02) as in the Recovery Plan, with slightly increased quotas for all (European Union: 17, 623 t in 2019; and 19,460 t for 2020) resulting from the redistribution of part of the Unallocated Reserves, noting that the Commission stresses that this “shall not be interpreted to have changed the allocation keys” (see section 3.5.2).

The ICCAT BFT-e recovery and management plans include specific provisions for artisanal fleet as follows:

- CPCs shall limit the maximum number of its artisanal fleet authorized to fish actively bluefin tuna in the Mediterranean to the number of the vessel participating in the fishery for bluefin tuna in 2008 (Rec. 17-07 and 18-02);
- Each CPC may allocate no more than 2% of its quota for bluefin tuna among its coastal artisanal fishery for fresh fish in the Mediterranean (Rec. 17-07 and 18-02);
- Each CPC shall ensure coverage by observers, issued with an official identification document, on vessels active in the bluefin tuna fishery on at least 20% of its active longline vessels (over 15 m) (Rec. 17-07 and 18-02);
- CPCs shall take the necessary measures to prohibit catching, retaining on board, transshipping, transferring, landing, transporting, storing, selling, displaying or offering for sale bluefin tuna weighing less than 30 kg or with fork length less than 115 cm (Rec. 17-07 and 18-02); although,
- By derogation, a minimum size for bluefin tuna of 8 kg or 75 cm fork length shall apply to Bluefin tuna caught in the Mediterranean Sea by the coastal artisanal fishery for fresh fish by baitboats, longliners and handliners (Rec. 17-07 and 18-02);
- CPCs should also encourage research and trials on the use of circle hooks in recreational and artisanal fisheries (Rec 05-08). Finally,
- The interests of artisanal, subsistence and small-scale coastal fishers are taken into account as one of the BFT-e quota Allocation criteria (Res. 13-14).

### 3.5.1.3 GFCM

The General Fisheries Commission for the Mediterranean (GFCM) is the competent RFMO for the Western Mediterranean area where the fishery is taking place, for the management of species stocks other than those covered by ICCAT. The GFCM has a strong focus on small-scale fisheries (SSF) of which this fishery is an example. The EU and France are both contracting parties. The GFCM has adopted binding recommendations regarding the conservation of sharks and rays and emergency measures for small pelagic stocks in the Adriatic Sea (bait species stock) as well as access to information and data related to monitoring, control and surveillance and regional marking of fishing gear<sup>16</sup>, which are relevant for Principle 2 and Principle 3 indicators.

<sup>16</sup> <http://www.fao.org/gfcm/en/>

In December 2018, the GFCM organised Fish Forum 2018, which aimed to bring together the « wider community of scientists and experts working on fisheries and the marine environment in the Mediterranean and Black Sea, in order to build a lasting network, discuss advancements in research, integrate scientific knowledge in support of decision-making and identify research priorities for the coming decade<sup>17</sup>». The PO presented some of its research collaboration with IFREMER developed for this fishery (Wendling et al., 2018).

#### 3.5.1.4 European Union

The European CFP (EU, 2013a) limits the EU fishing capacity (vessel numbers) and production-catching quotas for BFT as part of its international obligations to ICCAT (EU, 2015). To take part in the French BFT fishery, a European fishing authorisation (*autorisation européenne de pêche* - AEP) is required and frames the current limited entry system for all EU member states.

**Table 19. EU institutions involved in the SATHOAN BFT-e artisanal line fishery management system**

European level	
European Union	EU Commission DG MARE: negotiates and legislates the basis of the EU Common Fisheries Policy, which applies to all EU member States. STECF: The Scientific, Technical and Economic Committee for Fisheries provides scientific advice to the EU Commission.
EU Council of Ministers	Fisheries Ministers or Secretary of States from all EU member states
EU Parliament (EUP)	Elected members from all EU member states and EUP Fisheries Committee
MEDAC WG2	The three French CRPMEs (OCCITANIE, PACA and Corse) involved in the fishery are members of MEDAC WG2, which brings together managers, scientists, professional and recreational/sportive fishermen representatives from all EU Member States with interest in the BFT (and swordfish) fishery.
EU Agencies	EFCA - European Fisheries Control Agency: has a specific BFT Joint deployment plan (JDP) to coordinate operation between EU member states EFSA - European Food Safety Agency. Its thorough food safety MCS system for seafood products works alongside the EU Fisheries MCS system.

Every year, the European Union presents its fishing plan for the coming season at the ICCAT Panel 2 meeting. For 2018, the EU representative noted that the comments received on its 2017 plan had been taken into account in the drafting of the 2018 plan and noted a need to clarify any obligation to report discards of fish below minimum size under the new management plan (ICCAT, 2018d). He also noted that all ICCAT Recommendations had been transposed into European law (see EU (2016) or Rec. 17.07), and that the transposition of the adopted Multi-Annual management Plan Recommendation 18-02 will soon follow. Within this multi-annual framework, member states' shares of the EU TAC share are defined annually for the « Atlantic Ocean, east of 45° W, and Mediterranean (BFT/AE45WM), together with additional EU-specific technical measures and provisions.

Therefore, although the EU could take over a year in transposing the recovery/management plan, the EU adopts annually a Regulation fixing fishing possibilities (TACs) and other provisions (including those

<sup>17</sup> See <http://www.fao.org/gfcm/fishforum2018/en/>



from ICCAT) for the following fishing season (see as examples ANNEX ID of COUNCIL REGULATION (EU) 2018/120 (EU, (2018a)).

For 2018, provisions for BFT in the ICCAT area were set out in Council Regulation (EU) 2018/120 of 23 January 2018 fixing for 2018 the fishing opportunities for certain fish stocks and groups of fish stocks (Section 1 art. 17 - EU (2018a)). In the context of this fishery in particular, measures limit the following:

- The number of Union coastal artisanal fishing vessels authorised to fish actively for bluefin tuna between 8 kg/75 cm and 30 kg/115 cm in the Mediterranean – 98,68 t by 118 vessels for 2018 (point 2 Annex IV);
- The number and total capacity in gross tonnage (GT) of fishing vessels authorised to fish for, retain on board, tranship, transport, or land bluefin tuna in the eastern Atlantic and Mediterranean, which includes 118 Polyvalent vessels, using multi-gear equipment (longline, handline, trolling line) (as “Other artisanal vessels” - point 4 Annex IV);

Where appropriate, Member States shall allocate a specific share for recreational fisheries from their allocated quotas. The French share of the TAC, in the Atlantic and the Mediterranean, for all fleet types including catches transferred to farms was 4,933.97 t in for 2018, most of it allocated to the Mediterranean (see Table 1).

Two other important pieces of EU legislation concern Producer Organisations or POs such as SATHOAN (EU, 2013b) and the EU specific control and inspection programme for certain fisheries (EC, 2018), which include bluefin tuna. Regarding controls and inspections, a new Commission Implementing Decision (2018/1986) came into force on 1<sup>st</sup> January 2019 (EU, 2018b), which aims to further strengthen existing MCS measures (Implementing Decision 2014/156 - EU (2014) (see section 3.5.6).

Details of the legal texts mentioned in this section are given in Table 20.

**Table 20. European legislation important for the fishery (from <http://eur-lex.europa.eu>)**

Type	Ref. n°	Title
CFP Regulation (EU)	No 1380/2013 of the European Parliament and of the Council of 11 December 2013	On the <u>Common Fisheries Policy</u> , amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC
CMO Regulation (EU)	No 1379/2013 of the European Parliament and of the Council of 11 December 2013	On the <u>common organisation of the markets</u> in fishery and aquaculture products, amending Council Regulations (EC) No 1184/2006 and (EC) No 1224/2009 and repealing Council Regulation (EC) No 104/2000
Commission Delegated Regulation (EU)	2015/98 of 18 November 2014	On the implementation of the Union's <u>international obligations</u> , as referred to in Article 15(2) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council, under the International Convention for the Conservation of Atlantic Tunas and the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries
Regulation (EU)	No 2016/1627 of the European Parliament and of the Council of 14 September 2016	On a <u>multiannual recovery plan for bluefin tuna</u> in the eastern Atlantic and the Mediterranean, and repealing Council Regulation (EC) No 302/2009
Regulation (EU)	No 2017/2017 of the European Parliament and of the Council of 15 November 2017	Laying down management, conservation and control measures applicable in the Convention area of the International Commission for the Conservation of Atlantic



Type	Ref. n°	Title
		Tunas (ICCAT), and amending Council Regulations (EC) No 1936/2001, (EC) No 1984/2003 and (EC) No 520/2007
Council Regulation (EU)	No 2018/120 of 23 January 2018	Fixing for 2018 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters
Commission Implementing Decision (EU)	No 2018/1986 of 13 December 2018	Establishing specific <u>control and inspection programmes</u> for certain fisheries and repealing Implementing Decisions 2012/807/EU, 2013/328/EU, 2013/305/EU and 2014/156/EU

As part of the EU CFP-specific institutions (Table 19), the Mediterranean Advisory Council (MEDAC) provides a fisheries and aquaculture specific forum for stakeholders, professionals, scientists, environmental NGOs, to prepare “opinions on fisheries management and socio-economic aspects in support of the fisheries sector in the Mediterranean, to be submitted to the Member States and the European institutions in order to facilitate the achievement of the objectives of the CFP. MEDAC also proposes technical solutions and suggestions, such as joint recommendations (ex. Art. 18 Reg. 1380/2013) at the request of the Member States.” Of relevance to this fishery, for example, the MEDAC submitted a contribution to the Regional Plan of Action on small-scale fisheries (SSF), related to management measures, data, and scientific research in March 2019. The MEDAC has also been represented at the FAO Fish Forum 2018 and the GFCM 42th Commission meeting and at the EFCA Advisory board and consultation meeting on the EU Control System.

Finally, through its CFP prerogatives, the European Commission relies on the contribution of scientists from member states active in the BFT fisheries and in the Mediterranean generally. For this fishery, this may be facilitated through the EU support to scientist members of RFMO working groups, through ICCAT and GFCM. It may also happen through the participation of scientists to the Advisory Council (MEDAC) working groups. Finally, the European Commission may also formally request specific stock assessment modelling from the STECF. It did so for the BFT-e stock in 2017, asking STECF to provide “input to the ICCAT stock assessment process taking place in late July 2017, and in particular that it can offer an alternative to the use of VPA and its associated limitations” (STECF, 2017).

### 3.5.1.5 France

The French fisheries management arrangements are nested within the ICCAT and EU CFP systems. Several levels of administrative services and professional organisations are involved, with a degree of co-management typical of the French – especially small-scale - fisheries.

The national - central administration for fisheries in France presently sits with the Ministry of Agriculture and Food, Marine Fisheries and Aquaculture Directorate (*Direction des pêches maritimes et de l'aquaculture*, the DPMA). Other Ministries are also involved more or less directly, such as the Ministry for research and Ministry for Ecological and Solidarity Transition, for the fisheries research institute, IFREMER; and the Ministry for Ecological and Solidarity Transition also for the national Fisheries MCS competent authority, the French *Centre National de Surveillance des Pêches* (CNSP), hosted by the Surveillance/ Sea Search and Rescue Centre in Brittany, the CROSS Etel. The DPMA coordinates the French submission to ICCAT through the EU Commission and legislates in application of the national Fisheries Policy set out in the primary legislation of the *Code Rural*.

At national level, professional organisations are represented through the CNPMM, and the Producer Organisation through its national Federation. At regional and local levels, the DIRM *Méditerranée* (DIRM-MED) coordinates the government services across the DDTM (counties or *départements*) and

administrative regions concerned by the fishery (Occitanie, PACA and Corsica). Fishermen are represented by one of three regional committees (CRPMEM), depending on the vessel port of registration, and also through the SATHOAN Producer Organisation (PO), which is key in the implementation of the EU CFP and CMO Regulations (see above). The main institutions involved are listed in Table 21.

**Table 21. French institutions involved in the SATHOAN BFT-e artisanal line fishery management system**

National level	
<i>Ministère de l'Agriculture et de l'Alimentation</i>	<i>Direction des pêches maritimes et de l'aquaculture – DPMA</i> Central government legislative level, negotiates and legislates the basis of the EU Common Fisheries Policy in France.
<i>Centre National de Surveillance des Pêches (CNSP)</i>	French national Fisheries MCS competent authority, located with CROSS Etel, in Brittany. Process VMS data, eBCD, notice of arrival in port (including for small ports in Spain) prior to BFT landings etc.
IFREMER	Scientific research and stock assessment – a national organisation with headquarters in Brest (Brittany) but with various regional offices dealing with local issues, including one in Port-en-Bessin, Basse-Normandie. The IFREMER institute based in Sète, together with other research institutions, is a recognised centre of excellence for tuna research.
<i>Comité National des Pêches maritimes et des élevages marins (CNPMEM)</i>	Policy and regulatory recommendations at national level; licensing and other bylaws; Represents the fishing industry at national level; brings together BFT fishery stakeholders; obtains and provides expert advice from/to the 12 regional committees (CRPMEM). Three regional Committees are involved in the fishery. The Bluefin tuna and swordfish national working group meets up regularly with the Ministry (DPMA) to discuss the fishing season, forthcoming regulations and also ahead of ICCAT Commission meetings.
Sub-national 'région' and local levels	
<i>Direction inter-régionale de la mer Méditerranée (DIRM MED), based in Marseilles</i>	The DIRM-MED is in charge of the government's policies for marine sustainable development, resource exploitation and maritime activities. It reports Ministry for Ecological and Solidarity Transition and represents the wider regional coastal jurisdiction, in charge of facilitating implementation of the national integrated maritime policy, strengthening safety at sea and marine environment protection, and developing training and employment of seafarers. It executes ministerial instructions (from DPMA) and CFP measures, publishes bylaws ( <i>arrêtés</i> ) from CRPMEM proposals ( <i>délibérations</i> ) and coordinates fisheries MCS on land and at sea. The DIRM (or local offices) delivers annual fishing permits (AEP), and follows up on any administrative and penal sanctions reported by enforcement agencies.
DDTM	Local (county or <i>département</i> ) government office, in charge of fishing vessels registration. Request for BFT-specific permits have to be submitted to their <i>Direction de la Mer et du Littoral</i> (DML).
<i>Comité Régional des Pêches Maritimes et des élevages marins (CRPMEM)</i>	For bluefin tuna, co-management measures are discussed at national level (CNPMEM) and also in the three Regional Committees (Occitanie, Provence-Alpe-Côte d'Azur (PACA) and Corsica). The CRPMEM representatives sit on the MEDAC. CRPMEMs are mostly involved in the fishery's interaction with the ecosystem (protected area, interactions with birds, sharks and rays,

	turtles), they make management recommendations, initiate data collection and collaborative research projects.
SATHOAN	Producer Organisation (PO), with members along the coasts of the French Mediterranean and Corsica. Has specific quota management powers and reporting obligations set out by the EU Market Regulation the Sits on the MEDAC and work with the CRPMEMs.

On the basis of the TAC share of the EU and the French share, a ministerial decree (*arrêté*) is issued at the beginning of the year, to allocate the national BFT quota between vessels operating off the Atlantic (East of 45°W) and Mediterranean coasts, setting aside a share for recreational catches at national level. The legal basis for this are i) the ICCAT recommendation – e.g. Rec. 18-02 for 2019 (ICCAT, 2018d), ii) the CFP (Reg. n° 1380/2013), and annually following ICCAT's recommendation (EU, 2013a), and iii) the EU regulation (n° 2019/124) (EU, 2019), which sets out the shares between member states (see sections above).

For the French legal basis, primary and derived legislation governing fishing activities, administrative procedures for the UoA vessels to operate in the BFT-e fishery in the Mediterranean, and the decree setting out the quota allocation between POs, fleet segments and gear types for 2019, are listed in Table 22.

It is important to note that consultation is organised at all levels of the French fisheries management system, whether vessels are PO members (this fishery) or not. From the bottom up, small-scale fishermen are required to be members of the local professional association CRPMEM, which are represented through the CNPMEM in the discussion at national levels with the DPMA. Details of prior deliberations are given in the preamble of each decree/ bylaw.

Specifically, for vessels registered in Mediterranean ports, the BFT-e quota are allocated to each PO or group of POs, groups of vessels, and vessels that are not PO members (as a group), according to article R. 921-4 of the *Code Rural et de la Pêche Maritime*. Allocations to vessels ≥24m are nominative. Quotas are allocated annually, on 1<sup>st</sup> November 2018 for 2019.

The UoA regroups vessels that under 12 m LOA, classified as “*petits métiers*”, and a few vessels between 12-18m (*artisanal*), called “*palangriers hauturiers*” because they fish further offshore and have bunks for the crew to rest while steaming. There is a specific provision for the track record of LL *petits métiers* (rod and line, handline and longline), which have historically operated mixed gear in mixed fisheries, based on their catch history between 1<sup>st</sup> January 2009 – 31<sup>st</sup> August 2010.

**Table 22. French legislation pertinent to the SATHOAN BFT-e artisanal line fishery management system**

Type	Ref. n°	Title
<b>General</b>		
<i>Code</i>		<i>Code Rural et de la Pêche Maritime, esp. livre IX : Pêche maritime et aquaculture marine</i> / Fisheries Act (online consolidated version)
<i>Décret</i>	2010-130	<i>Relatif à l'organisation et aux missions des directions interrégionales de la mer</i> / Defines the DIRM organisation and missions
<b>Specific to BFT in the Mediterranean</b>		
<i>Arrêté ministériel</i>	22 mars 2013	<i>Portant création d'une autorisation européenne de pêche pour la pêche professionnelle du thon rouge (Thunnus thynnus) dans l'océan Atlantique à l'est de la longitude 45° Ouest et en mer Méditerranée</i> / Creates BFT AEP = BFT EU fishing permit

Type	Ref. n°	Title
Arrêté	11 avril 2014	Précisant les conditions de débarquement et de transbordement du thon rouge ( <i>Thunnus thynnus</i> ) etc. / BFT-e landing procedures
Arrêté	26 avril 2017 11 mai 2017	Définissant les mesures de contrôle de la pêche de thon rouge ( <i>Thunnus thynnus</i> ) dans le cadre du plan pluriannuel de reconstitution des stocks de thon rouge dans l'Atlantique Est et la Méditerranée / BFT-e fisheries control provisions
Arrêté	8 février 2018	Etablissant les modalités de répartition du quota de thon rouge ( <i>Thunnus thynnus</i> ) accordé à la France pour la zone "Océan Atlantique à l'est de la longitude 45° Ouest et Méditerranée" pour l'année 2018 / BFT-e quota allocation for 2018 (consolidated version, usually two updates)
Arrêté	7 février 2019	BFT-e French quota allocation for 2019
Arrêté	Project – Public consultation 1-21 March 2019	Précisant les conditions d'exercice de la pêche de loisir réalisant des captures de thon rouge ( <i>Thunnus thynnus</i> ) dans le cadre du plan pluriannuel de reconstitution des stocks de thon rouge dans l'Atlantique Est et la Méditerranée pour l'année 2019 / conditions for recreational and sport fishing for BFT-e in the Mediterranean

There is an ICCAT tolerance for fish smaller than 30kg (or 115cm) to make up to 5% of the TAC share. The tolerance for coastal artisanal fishing vessels authorised to fish actively for bluefin tuna between 8 kg/75 cm and 30 kg/115 cm in the Mediterranean is limited is also limited in the EU legislation (point 2 of Annex IV), and in turn by French legislation with a specific sub-quota to POs, which is then managed by the PO between its fleet segments.

The SATHOAN PO quota allocation by category other than seiners is given in Table 23 (from Arrêté 7<sup>th</sup> February 2019).

**Table 23. 2019 SATHOAN BFT-e quota allocation (t) for liners in the Mediterranean**

2019 SATHOAN quota allocation for liners	Tonnes	Incl. 8-30kg (t)
Palangriers hauturiers titulaires d'une AEP "thon rouge"	18.7	4.2
Palangriers "petits métiers" titulaires d'une AEP "thon rouge"	304.0	68.7
Canneurs, ligneurs "petits métiers" titulaires d'une AEP "thon rouge"	7.3	1.7

### 3.5.1.6 Port states

The EU jurisdiction is relevant for monitoring, control and surveillance (MCS) purposes (section 3.5.6) because, in addition to the vessels being registered and based at French ports, they land at French, and for the larger vessels sometimes at Spanish, ports. The EU has transposed all ICCAT active Recommendations (ICCAT, 2018d) into law, and has a specific control and inspection programme targeting fisheries exploiting the BFT-e stock in the Eastern Atlantic and Mediterranean Sea (including recreational and conducted by EU vessels/ fish farmers / operators / citizens<sup>18</sup>. In addition, the [EU Regulation to prevent, deter and eliminate illegal, unreported and unregulated fishing](#) (Council

<sup>18</sup> Commission implementing Decision (EU) 2018/1986 of 13 December 2018, establishing specific control and inspections programmes for certain fisheries

Regulation (EC) No.1005/2008 - IUU Regulation<sup>19</sup>), which entered into force on 1 January 2010, applies to all landings and transshipments of EU fishing vessels in European ports (see section 3.5.6).

France and Spain communicate a list of their designated ports to the EU Commission / ICCAT Secretariat by 1 March each year. For a port to be determined as designated port, the Port state shall specify permitted transshipping times and places or/and permitted landing times and places. An up-to-date list of designated ports for BFT-e is kept on the ICCAT website<sup>20</sup> and is also given in Appendix 10 of this report for traceability purposes.

#### 3.5.1.7 Market state

All fish are sold fresh to traders (*mareyeurs*) who usually provide bait to the vessels. Traders then sell the fish fresh to wholesalers on to supermarket and restaurant buyers or retailers. Details of the first buyer has to be entered in the eBCD system by the seller, with details of all tail tag numbers affixed when the fish are individually weighed as they are landed.

The same system applies for fish landed in Spain. Ports have to be ICCAT-registered for BFT-e. The French MCS competent authority (CROSS-Etel) is notified ahead of landing as for a French port, and in turns notifies the its Spanish colleagues, as part of the EU BFT MCS Joint Deployment Plan (JDP) arrangements. In turn, the Spanish authorities would notify the French authorities back of any inspection and inspection results. Ultimately, details of landings and MCS checks would be available to the DIRM-MED for all vessels in the fishery.

### 3.5.2 **Consultation, Roles and Responsibilities, Dispute resolution, Respects for rights**

#### 3.5.2.1 ICCAT

The ICCAT Convention and basic texts (ICCAT, 2007) define the roles and responsibilities of the Commission and its subsidiary bodies, of the Secretariat and the Contracting Parties (CPCs). The ICCAT Convention (Article XI) states that the Commission may invite any appropriate international organization and any non-member Government that is a member of the UN or of any Specialized Agency to send observers to meetings of the Commission and its subsidiary bodies. ICCAT Commission meetings provide the consultative mechanism for the currently 52 CPCs to agree management measures and share information through annual national reports. Annual reports include feedback on technical measures, local knowledge and other matters pertinent to management to be reviewed in Commission meetings and included in its reports. The ICCAT Manual (ICCAT, n.d.) provides an organisational chart and explicitly describes the functions, roles and responsibilities of the various ICCAT subsidiary bodies.

ICCAT meetings are advertised and provide opportunities for all interested and affected parties to be involved, including in the Scientific process. Each year, scientists from the CPCs are invited to present their results to the relevant ICCAT Panels and Species Groups and to the SCRS. Up-to-date information and analyses contributed by groups and individual experts become part of the knowledge base used in stock assessments. This scientific process is demonstrably consultative and the SCRS provides a forum that reports on how the information obtained is used or not, which is demonstrated in its reports.

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<sup>19</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02008R1005-20110309&from=EN>

<sup>20</sup> <https://www.iccat.int/en/Ports.asp>

The participation of NGOs (environmental, industry representatives or other) in ICCAT meetings is explicitly mentioned in the “Guidelines and Criteria for Granting Observer Status at ICCAT Meetings” (ICCAT, 2005). All NGOs which support the objectives of ICCAT and with a demonstrated interest in the species under the purview of ICCAT are eligible to participate as an observer in all, but extraordinary meetings held in executive sessions or meetings of Heads of Delegations. Observers may be required to pay a fee to contribute to additional expenses generated by their participation. Applications have to be made through the Secretariat at least 50 days in advance of the meeting. CPCs are notified and given opportunity to object, although applications are accepted unless one-third of the CPCs object. Observers are not allowed to vote, but they can, upon invitation by the chair, make an oral statement during the meeting and distribute documents at meetings through the Secretariat. Evidence of their contribution are available in each meeting report, from the list of participants and written contributions are included in full.

ICCAT has a tradition of making decisions by consensus and resolving disputes informally. This is evident in ICCAT species Panel 2, for example, where issues and concerns raised by individual CPCs and the Commission are aired in an effort to avoid disputes. In cases where disputes cannot be avoided, the ICCAT Convention provides a process of objection allowing individual Contracting Parties to withdraw from endorsing and implementing an ICCAT recommendation (ICCAT Convention Article VIII). This procedure has been used infrequently in the course of ICCAT’s history; 12 times since 1969, with 7 of these being objections raised by two member states with respect to their bluefin tuna allocation (Spencer et al., 2016). Nevertheless, ICCAT has recognised the need for a more formal dispute settlement procedure and a Working Group on Convention Amendment (WGCA) was tasked with looking at this issue in 2012 (one of the priority matters listed in the Annex 1 of ICCAT Recommendation 12-10). The latest WGCA meeting in 2018 noted some progress on the issue although, not yet some points of disagreement remain, such as whether dispute settlement procedures would be compulsory or not and whether procedures could only be instituted jointly by all parties to a dispute or, instead, by a single or number of Contracting Parties. At this stage, after incorporating all agreed revisions, the WGCA Chair noted that there was agreement in principle on the text of Article VIII bis and to retain Annex 1. These proposals are finalised would need to be officially incorporated into the ICCAT’s Convention to be final (ICCAT, 2018c). The new provisions will then need to be tested and proven effective as the need arises.

Regarding fishing rights, ICCAT includes a specific Recommendation on “Criteria for the Allocation of Fishing Possibilities” or national (CPCs) quota allocations (ICCAT, 2015a). Among these criteria, the interests of artisanal, subsistence, small-scale coastal fishers, coastal fishing communities, coastal states and regions dependent on fishing, as well as the right to fish on the high seas are recognised. For BFT-e, the same formal commitment to established rights holds. For example, several CPCs expressed concerns (based on 2005 quotas / catch levels) that certain specific needs had not been met and dissatisfaction with their quota for 2018. These were considered by Panel 2, to allow adjustments to the 2019 and 2020 quotas for those CPCs, using some of the reserved quotas, with an agreement that the allocation keys would be re-considered in 2020 (ICCAT, 2017g).

### 3.5.2.2 European Union

The roles and responsibilities are well known with the EU-CFP system for BFT. Institutions have been working together across member states and EU, for all quota-managed shared fisheries, and closely with ICCAT since the Recovery Plan. For this fishery, stakeholders are represented through the French system of “*Comité des Pêches*” and PO at all relevant working groups and meetings of the Advisory Council MEDAC, and on ICCAT and GFCM EU-delegations.

In accordance with Article 17 of Regulation (EU) No 1380/2013, when allocating the fishing opportunities for bluefin tuna and swordfish stocks available to them, Member States shall use



transparent and objective criteria, including those of an environmental, social and economic nature, and shall also endeavour to distribute national quotas fairly among the various fleet segments giving special consideration to traditional and artisanal fishing, and to provide incentives to Union fishing vessels deploying selective fishing gear or using fishing techniques with reduced environmental impact (EU Reg 2017-2017 Art 43). Several cases regarding BFT fisheries in the Mediterranean have been brought to the ECJ by various parties some years ago. The process takes time, but it is transparent and considered to be effective.

### 3.5.2.3 France

The co-management arrangements of French small-scale operators (SSF) through the *Comités des Pêches régionaux* (CRPMEM), and Mediterranean SSF fisheries in particular, are built on local arrangements (the *Prud'homies*) inside territorial waters (12nm), which endure to this date. French authorities have local offices, the DDTM, which relay information and queries to and from the DIRM. Scientists from IFREMER and from the marine protected areas (MPAs) present their research, with UoA vessels also actively participating in research projects (e.g. Selpal - Poisson et al. (2016)). Local arrangements are repeated for each region, Occitanie, PACA and Corsica from East to West, and the DIRM-MED is common and known to all.

As mentioned previously, the French management system for small-scale fisheries relies on bottom-up consultations through mandatory membership of the local professional organisation (*Comité des Pêches*). For the UoA vessels, which are all members, SATHOAN provides an additional level of discussion, mediation, advocacy and internal mitigation. As a matter of course, regulations are submitted to a period of public consultation, following which the proposed administrative decision may be revised.

Once published, the bylaw may be appealed in the administrative courts. This has happened recently, as the French ICCAT TAC /EU /French share has increased annually with the Recovery Plan, some SSF from the Golfe du Lion who are outside Producer Organisations and wished to obtain some or more BFT quota, challenged the French Ministry decisions over their AEP and non-PO quota allocation decisions in the Administrative Court in 2017 (SPLMR, 2017) at the same time as making representations through other avenues. Existing representations and dispute mechanisms can be considered appropriate and effective, because BFT opportunities (AEPs and quotas) for SSF have already been increased for 2019, even though the court case has not yet been settled.

## 3.5.3 Long-term objectives

### 3.5.3.1 ICCAT

The long-term objective set out in Article VIII of the ICCAT Convention is to “maintain the populations of tuna and tuna-like fishes that may be taken in the Convention area at levels which will permit the maximum sustainable catch”. There is no mention of the precautionary approach in the Convention text as it stands but it is explicitly mentioned since the ICCAT’s 2015 adoption of two resolutions consistent with the UN Fish Stock Agreement and the FAO Code of Conduct for Responsible Fisheries, that when making recommendations pursuant to Article VIII of the Convention, the Commission should:

- Apply an ecosystem-based approach to fisheries management (Resolution 15-11) (ICCAT, 2015b), and
- Use a precautionary approach in implementing ICCAT conservation and management measures (Resolution 15-12) (ICCAT, 2015c), in accordance with relevant international standards.



Clear long-term objectives to guide management consistent with MSC Principles and Criteria and the precautionary approach, are explicit within ICCAT's management policy.

For Principle 1, the objective of ICCAT's Multi-Annual Recovery Plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean (Rec.16-09) since 2014 has been to recover by 2022 and maintain the Spawning Stock Biomass (SSB) over or at a level corresponding to  $SSB_{MSY}$  and to manage fishing activities by maintaining catches at or below the most precautionary MSY estimate of the SCRS (Rec 17-07). The overarching objective of ICCAT is to maintain catches at maximum sustainable levels (ICCAT, 2007). For the short-term and specifically for BFT-e, this was translated - with CPCs' commitment - into drastic reductions in fishing mortality in support of the Recovery Plan [see Rec. 17-07]. The Recovery Plan has been effective enough in meeting its objectives to justify a transition to a multi-annual management Plan (Rec.18-02). The agreement on a reduced TAC, reducing fishing capacity and fishing plans, together with country-specific quota allocations resulted in a recovery of the stock ahead of schedule, showing that the objectives were both well-defined and measurable.

Regarding Principle 2, ICCAT's Standing Committee on Research and Statistics (SCRS) has a Sub-Committee on Ecosystems, which according to its Terms of Reference, aims to serve as the scientific cornerstone in support of an Ecosystem Approach to Fisheries (EAF) in ICCAT. It also has several species groups, including a Sharks Group that meets intersessionally and carries out stock assessments and ecological risk assessments (ERAs).

The use of a precautionary approach in implementing ICCAT CMM as set out in Resolution (Res.15-12) (ICCAT, 2015a) is not required by ICCAT because resolutions are non-binding under the current terms of Article VIII. However, for BFT-e specifically, the use of a precautionary approach is explicitly referred to in all management measures through recommendations, which are binding on ICCAT CPCs, including the MSY estimate of the SCRS (see ICCAT Recommendation 17-07) and for Principle 2 species (see Rec. 16-13). Therefore, although long-term objectives make explicit reference to the ecosystem and the precautionary approaches for the BFT-e stock management and this fishery, these are not required by ICCAT's management policy.

#### 3.5.3.2 GFCM

The General Fisheries Commission for the Mediterranean (GFCM) is the regional fisheries management organization (RFMO) that aims to ensure the long-term sustainability of fisheries (except those under ICCAT's purview), aquaculture and their ecosystems in the Mediterranean and the Black Sea. Its main objective is to ensure the conservation and the sustainable use, at the biological, social, economic and environmental level, of living marine resources as well as the sustainable development of aquaculture. The importance of a precautionary approach and an ecosystem approach is made clear in the GFCM Agreement Preamble, article 5 (General principles) and article 8 (Functions of the Commission) of the GFCM Agreement (FAO, 2016).

#### 3.5.3.3 European Union and France

French legislation defers to the EU Common Fisheries Policy (CFP) and its clearly stated objectives (CFP Regulation 1380/2013 Article 2):

1. The CFP shall ensure that fishing and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and contributing to the availability of food supplies.
2. The CFP shall apply the precautionary approach to fisheries management and shall aim to ensure that exploitation of living marine biological resources restores and maintains populations of harvested species above levels, which can produce the maximum sustainable yield. In order to reach the

objective of progressively restoring and maintaining populations of fish stocks above biomass levels capable of producing maximum sustainable yield, the maximum sustainable yield exploitation rate shall be achieved by 2015 where possible and, on a progressive, incremental basis at the latest by 2020 for all stocks.

3. The CFP shall implement the ecosystem-based approach to fisheries management so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimised and shall endeavour to ensure that aquaculture and fisheries activities avoid the degradation of the marine environment.

4. The CFP shall contribute to the collection of scientific data. 5. The CFP shall, in particular:

- gradually eliminate discards, on a case-by-case basis, taking into account the best available scientific advice, by avoiding and reducing, as far as possible, unwanted catches, and by gradually ensuring that catches are landed;
- where necessary, make the best use of unwanted catches, without creating a market for such of those catches that are below the minimum conservation reference size;
- provide conditions for economically viable and competitive fishing capture and processing industry and land-based fishing related activity;
- provide for measures to adjust the fishing capacity of the fleets to levels of fishing opportunities consistent with paragraph 2, with a view to having economically viable fleets without overexploiting marine biological resources;
- promote the development of sustainable Union aquaculture activities to contribute to food supplies and security and employment;
- contribute to a fair standard of living for those who depend on fishing activities, bearing in mind coastal fisheries and socio-economic aspects;
- contribute to an efficient and transparent internal market for fisheries and aquaculture products and contribute to ensuring a level-playing field for fisheries and aquaculture products marketed in the Union;
- take into account the interests of both consumers and producers;
- promote coastal fishing activities, taking into account socio-economic aspects;
- be coherent with the Union environmental legislation, in particular with the objective of achieving a good environmental status by 2020 as set out in Article 1(1) of Directive 2008/56/EC, as well as with other Union policies.

Regarding Principle 2, the EU Birds and Habitats Directives provisions have been transposed in the French *Code de l'Environnement*, and so have the long-term objectives of the EU's Marine Strategy Framework Directive (MSFD), to develop a regional seas approach (the Mediterranean Sea applies here) to managing the marine environment. The overall marine good environmental status (GES) for Descriptor 3 is that "Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock." The types of measures proposed to achieve GES from fisheries impacts include input controls, output controls and spatial and temporal restrictions on economic activities. The Criteria and methodological standards for Descriptor 3 of the MSFD are laid down in the Annex of Commission Decision (EU) 2017/848 (including fishing mortality, spawning stock biomass, age and size distribution). The Action Plan is being finalised for the Mediterranean sub-region with the adoption of a programme of measures and is expected to be finalised in 2019.

French legislation incorporates the EU Fisheries and Environment policies overarching objectives. For Principle 1, the long-term objective is the sustainable management of fisheries resources (*Code Rural et de la Pêche Maritime* art.L2) to be at MSY (art. D922-1).

For Principle 2, the *Code de l'Environnement* (in conformity with the CFP and EU marine environment protection directives, and with international obligations), the objective is to exploit fisheries sustainably (art. L219-1). In addition, France has transposed the requirements of the EU Marine Strategy Framework Directive (MSFD 2008/56/CE, 17 June 2008) that aims to reach or maintain good ecological status for marine waterbodies by 2020, and the EU Marine Spatial Planning Directive (MSP 2014/89/UE, 23 July 2014), which provides a framework to coordinate development activities at sea.

The precautionary principle is enshrined in French law since the *Loi Barnier* (2 Feb. 1995) on improved environmental protection. It was integrated in the Constitution in 2005 and through the *Charte de l'Environnement* became a legal obligation for all government services in 2008.

France published its National Marine and Coastal Strategy (*stratégie nationale pour la mer et le littoral* - SNML) in February 2017 with four long-term objectives: i) to facilitate the necessary ecological transition (away from fossil fuel), ii) to develop a sustainable 'blue economy', iii) to reach Good Ecological Status (GES), and iv) to further France's influence as a maritime nation. There is a specific strategic document for the French Mediterranean, which sets out national objectives with respect to the region's specific economic, social and ecological challenges.

#### **3.5.4 Fishery-specific objectives**

For the fishery specifically, all ICCAT recommendations apply in the European legislation, which had the same objectives as ICCAT in its Recovery Plan, and now in the Multi-Annual Management Plan.

The French legislative system is based on the same BFT-e specific management Plan, by direct effect or through additional provisions, with additional provisions such as to support social benefits from small-scale fisheries (SSF) and for the protection and sustainable management of marine biodiversity through national parks and reserves. The objective set out in the *Code Rural et de la Pêche Maritime*, is as follows: in agreement with the principles and rules of the European Common Fisheries Policy, its first objective is (own translation): to allow a sustainable exploitation and value addition to the collective patrimony that are fisheries resources available to France (...) in respect of international agreements or on the High Seas, framed by an ecosystem approach to keep to a minimum any negative impacts on the environment.

The local fisheries management objectives are, for the Producer Organisation and stakeholder institutions involved in the fishery's management at local level, to abide by the recovery/ management plans as translated into French legislation for Mediterranean waters. In addition, the UoA vessels subscribe to the voluntary TRL-PA Code of Conduct (see Table 3), which aims to promote a "socially responsible and biologically sustainable approach".

#### **3.5.5 Fishery-specific decision-making processes**

The fishery consists of French-registered artisanal (LOA<18m) longline/ rod and line vessels. The French decision-making processes are nested under those of the EU-CFP, themselves subject to the agreed results of ICCAT's deliberations. The French system has several layers from national, to regional (Mediterranean with the DIRM-MED and PO, to local). These are described in sections 3.5.1 to 3.5.3.

### 3.5.5.1 ICCAT

Decisions regarding the BFT-e stock management taken by the Commission are based on scientific advice provided by the Standing Committee on Research and Statistics (SCRS) and its working groups (see Table 16) to evaluate fishing mortality and resulting BFT-e stock status. The SCRS proposed a Total Allowable Catch (TAC) set at 36,000 t to be reached in 2020 in a gradual stepwise way without undermining the success of the recovery plan (Rec. 17-07 amending Rec. 14-04). It is also SCRS who advised, as foreseen in paragraph 4 of Rec. 17-07, that the Commission could “consider moving from the recovery plan to a management plan and that the current status of the stock no longer appears to require the emergency measures introduced under the Recovery plan”. Accordingly, a multi-annual management plan for Bluefin tuna in the Eastern Atlantic and the Mediterranean developed by SCRS was formalised by the Commission as Rec. 18-02, which will come into force on 21 June 2019<sup>21</sup>.

The ICCAT website provides a comprehensive and easy access to ICCAT’s documents and reports. Minutes of meetings and the preamble to ICCAT’s Recommendations refer to the fishery-specific objective and the precautionary approach.

The ICCAT fishery managers for BFT-e meet annually in Panel 2 (Northern temperate tunas) to examine annual national fishing, inspection and capacity management plans presented by CPCs with BFT-e quota. Plans may be endorsed, or actions (clarification within set time) may be required to be communicated to the Chair by correspondence before the next Commission meeting. The Commission meets to approve the recommendations of the SCRS, Panels and other subsidiary bodies, providing another opportunity for discussion and decision-making in response to serious issues.

The second Independent Performance Review of ICCAT (Spencer et al., 2016) found the consensus decision-making process adopted within ICCAT had not always been able to ensure the adoption of conservation and management measures “in a timely manner”, especially as the number of CPCs (currently 52) increased over time. At the time, this concern related notably to the highly depleted BFT-e stock. As detailed in this report’s previous sections, additional conservation and management measures have been adopted in a much more timely and effective manner since, resulting in stock recovery ahead of what was originally expected.

ICCAT adopted its 2015-2020 Science Strategic Plan (SSP) for the functioning and orientation of the SCRS in 2014. The plan sets out a Mission, a Vision, Goals, Objectives and Strategies to achieve each goal as well as measurable targets. Before its adoption, it was presented to the First Meeting of the Standing Working Group to Enhance Dialogue between Fisheries Scientists and Managers (SWGSM) in 2014 (ICCAT, 2018e). The SSP aims to improve data collection and analyses relating to Principle 1 (stock assessment, uncertainties and management advice for BFT-e) and Principle 2 (bycatch species, habitats, ecosystems) and encourages an open dialogue between the SCRS and Working Groups, the Commission and stakeholders (through the Standing Working Group to Enhance Dialogue between Fisheries Scientists and Managers (SWGSM) including the wider scientific community.

Another issue of relevance is a lack of transparency in decision-making relating to the allocation of fishing opportunities noted by some CPCs. This matter has been noted by the Ad Hoc Working Group on the follow up of the 2<sup>nd</sup> ICCAT Performance Review (ICCAT, 2017h) and Panel 2, and is scheduled to be thoroughly analysed by 2020 when allocations keys will be re-examined (ICCAT, 2017g).

The ICCAT Secretariat is accessible to stakeholders and supports direct enquiries through its website and to locate relevant ICCAT documents.

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<sup>21</sup> See [https://www.iccat.int/Documents/newsletter/NEWSLETTER\\_ENG\\_29.pdf](https://www.iccat.int/Documents/newsletter/NEWSLETTER_ENG_29.pdf)

### 3.5.5.2 Europe and France

Once the ICCAT Recommendation stipulating the EU share of the TAC is accepted, the EU publishes its allocation between member states and gear. The French government department (DPMA), in concertation with the DIRM, POs and CNPMEM, publishes detailed allocations and fishing plans. The legislation, institutions and stakeholder consultations involved are detailed above (sections 3.5.1 and 3.5.2). The details are given in the French sections of the EU Fishing Plan for the larger vessels and the fleet segment for the smaller vessels (“artisanal” <18m) including this fishery. The Fishing Plans are established using a precautionary approach and best available information. Annually, the DIRM publishes a list of the vessels that have – and those that have applied and have not – obtained a BFT fishing permit (AEP). Interested parties may obtain comprehensive information on the wider small-scale French liners fishery’s performance and management actions in the Mediterranean, through the CRPMEMs, the CNPMEM and the EU Fishery Council MEDAC, which describes how the management system responded to findings and recommendations emerging from research, monitoring, evaluation and review activity. Formal reporting specifically for the UoA vessels performance may only be available on request, because of the small number of vessels.

### 3.5.6 **Fishery-specific compliance and enforcement**

There are four levels to the fishery’s compliance system that correspond to each jurisdictional level (Table 15):

- The ICCAT – Tuna RFMO Joint Scheme of International inspections (Annex 7 of Rec. 14-04) and annual Compliance Committee (COC) reporting obligation; complemented by the BFT-specific at least daily reporting through the eBCD catch documentation system;
- The limited entry system of European fishing permits (AEP) for the BFT fishery, fixed vessel quota allocations and the European CFP Monitoring, Control and Surveillance (MCS) arrangements and coordination of all member states through the European Fisheries Control Agency (EFCA) and its BFT Joint Deployment Plan (JDP) in the Mediterranean (and the Atlantic);
- The French flag state arrangements, which include quota allocation conditional on the owner/operator+vessel application having the necessary permit (AEP), the annual permit itself being contingent on compliant vessel\*gear characteristics and on the vessel owner and crew being up to date with the professional organisation and social security payments. Locally, members of a Producer Organisation (PO) - the SATHOAN for all vessels in the UoA - also have to comply with PO rules and quota management decisions, which provide another layer of compliance checking;
- The French and sometimes Spanish Port State compliance check as the vessels have to report prior to landing at ICCAT BFT-registered ports where the logbooks, eBCD catch and sales documentation must carry the numbers of each individual BFT tail tags used together with the actual weight of each fish.

In addition, for trade-related matters, the INTERPOL<sup>22</sup> Global Fisheries Enforcement team may be involved to “ensure the traceability and legality of fish along all points of the supply chain”. The Agency also has a Fisheries Crime Working Group that engages with fisheries and tax authorities, customs, police, navies and coastguards. Its “cross-sector approach is strengthened by collaboration with intergovernmental organizations, NGOs, academia and the public and private sectors, who are

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<sup>22</sup> <https://www.interpol.int/Crimes/Environmental-crime/Fisheries-crime>

encouraged to enter into dialogue with national enforcement authorities and combine their efforts to tackle transnational fisheries crime.” For BFT-e stock, its European counterpart, EUROPOL is currently leading an investigation that concern an alleged 2 500 t tonnes annually of undeclared farmed BFT involving Spanish, French and Italian Mediterranean Ports and tuna farms in Malta (‘Operation Tarantelo’<sup>23</sup>). The matter is very serious because of the very large quantities of IUU fish that are estimated to have entered the market unnoticed, which represent more than half of the current French share of the TAC in the Mediterranean.

Another cause for concern is the growing risk of IUU fishing that accompanies the widening spatial distribution range and abundance of BFT-e in the Mediterranean and the Atlantic. As the stock is recovering, it is resulting in an increasing risk of IUU fishing activities from recreational fishers and from unlicensed fishing operators (EFCA, 2017). For the Mediterranean alone, a compilation of IUU BFT-e catches seized by surveillance authorities in Italy, Spain and Tunisia and Algeria in 2017 and 2018 by WWF-Mediterranean shows that present surveillance and control programs (at sea, in port, transport, supply chain, restaurants), and the high levels of sanctions applied (fines, destruction, licence revocation) do not appear to enough of a deterrent (WWF Mediterranean team, pers. com.).

### 3.5.6.1 ICCAT

As with other RFMOs, ICCAT relies on its Contracting Parties to implement management measures, through their annual fishing plans and other control measures, which are set out and monitored annually through Panel 2. The ICCAT Convention does not explicitly provide ICCAT with competence related to monitoring, control and surveillance (MCS), but there is a large number of reporting and inspections obligations, which are monitored by the Conservation and Management Measures Compliance Committee (COC). CPCs’ annual reports to the COC have five sections:

- Annual fisheries information;
- Research and statistics;
- Compliance with reporting requirements under ICCAT conservation and management measures;
- Implementation of other ICCAT Conservation and Management Measures; and
- Difficulties encountered in implementation of and compliance with ICCAT conservation and management measures.

Annual COC reports are publicly available on ICCAT’s website, associated with the reporting for each Commission meeting (ICCAT, 2018f).

ICCAT’s MCS system has been greatly strengthened over recent years, with coordinated inspection and data entry and validation systems that allow near real-time and at least daily updates at all levels (ICCAT, 2016b). Catch certification or catch document schemes encouraged in the FAO’s International Plan of Action on IUU Fishing have been fully implemented for this fishery through ICCAT’s Bluefin Tuna Statistical Document Programme (e-BCD) and BFT Catch Documentation Scheme (Rec. 07-10), which is to be further strengthened in 2018. ICCAT has also integrated all key Port State Measures (PSM) requirements in its recommendations established or interventions undertaken by port states which a foreign fishing vessel must comply with or is subjected to as a condition for use of ports within the port state. National PSM would typically include requirements related to prior notification of port

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<sup>23</sup> <https://www.europol.europa.eu/newsroom/news/how-illegal-bluefin-tuna-market-made-over-eur-12-million-year-selling-fish-in-spain>



entry, use of designated ports, restrictions on port entry and landing/transshipment of fish, restrictions on supplies and services, documentation requirements and port inspections, as well as related measures, such as IUU vessel listing, trade-related measures and sanctions. Many of these measures have in recent years seen their inclusion and development in international instruments, including as part of the EU-CFP.

The 2<sup>nd</sup> Performance Review (Spencer et al., 2016) found that “with the exception of eastern bluefin tuna, ICCAT does not possess sufficient mechanisms for effective at-sea monitoring of fishing operations for most stocks” (ICCAT, 2018f), and generally, a stronger compliance assessment process is also needed (Pew, 2018; WWF, 2018). Therefore, although the BFT-e fishery is probably one of the most documented fisheries in the world and there are no instances of systematic non-compliance for UoA vessels, it appears that the scope for non-compliance is generally on the increase, with previously well-known risks (esp. IUU trade of farmed fish) increasing again, together with new risks of IUU fishing from recreational and small-scale operators coming across increasing quantities of fish without permits to catch and retain them.

### 3.5.6.2 Europe

The EU jurisdiction prevails through the European CFP reporting and compliance obligations to ICCAT, to which EU member States are held through their national administrations. The EU signed the UN Agreement on Port State measures (PSM) to prevent and deter IUU fishing at its onset in 2009 and published its IUU Regulation (Regulation (EC) No.1005/2008 mandatory catch documentation on 1 January 2010. The PSM Agreement entered into force on 5<sup>th</sup> June 2016, therefore IUU-control procedures adopted by ICCAT CPCs for bluefin tuna are integrated; this includes inspections in port and at sea, including the High Seas, under the European Fisheries Control Agency (EFCA, 2017) Eastern Atlantic/Mediterranean Bluefin Tuna Joint Deployment Plan (JDP).

The new EU specific control and inspection programme (EU, 2018b) which came into force on 1<sup>st</sup> January 2019, aims to strengthen existing provisions in all member states (EU, 2014). Notably, it introduces target inspection benchmarks, to conduct on a yearly basis, 60% of total inspections at sea (excluding aerial surveillance) and 60% of total inspections at landing (inspections in ports and before first sale) shall be conducted on “fishing vessels belonging to the (BFT) fleet segments in the two highest risk level categories, ensuring that both these fleet segments are adequately and proportionally covered”. The French risk assessment for its BFT fisheries fleet segments is not publicly available yet. This will change following the new EU requirements; Member States will have to report on yearly evaluations of their control and inspection programmes in to assess and possibly adapt the benchmark targets.

### 3.5.6.3 France

French-registered fishing vessels and crew are regularly controlled by the French authorities for their compliance with administrative obligations, in particular regarding maritime safety, and any risks to the marine environment.

In France, the DIRM-MED coordinates the government’s command of fisheries surveillance operations for the central (DPMA) administration, while the CROSS-Etel (*Centre national de surveillance des pêches*, CNSP) coordinates operations. A Fisheries patrol vessel based in Marseilles is in charge of offshore fisheries surveillance, and local units (the *unités littorales des affaires maritimes* - ULAM) under the county (*département*)-level (DDTM/DML) are in charge of surveillance in coastal waters and on land. Each ULAM has about 6-7 agents equipped with small fast surveillance vessels and vehicles. In addition to fisheries surveillance and control, their role is also to inform the public as well as control

vessel safety provisions, seafarers working conditions, environmental protection measures as well as seafood trading establishments.

Several other services also contribute to fisheries surveillance, such as the Navy, Gendarmerie nationale, national Police and Customs / Coast guards that all bring specific means and expertise<sup>24</sup>. Of note, the county-level *Direction Départementale de la Cohésion Sociale et de la Protection des Populations* (DDCSPP) is in charge of consumer protection and food safety inspections, including for seafood products and may operate together with the DDTM/DML as necessary.

### **3.5.7 Fishery-specific monitoring and management performance evaluation**

There are internal and external reviews and evaluations of the fishery's management system and components at all key levels as follows.

The performance of ICCAT is now independently evaluated every five years. The second Performance Review (ICCAT, 2016a) issued recommendations that are examined by all components of the ICCAT structure, and progress reported is monitored and summarised annually by an ad hoc Working Group (ICCAT, 2017h).

ICCAT's results in terms of stock health for BFT are closely monitored, and analyses are discussed in WG, SCRS and Commission meetings, and also scrutinised and commented upon throughout the year by environmental NGOs with ICCAT Observer status and published in peer-reviewed scientific papers. ICCAT is developing a Management Strategy Evaluation (MSE) for bluefin tuna, which aims to check the adequacy of various management measures, and their robustness to key sources of uncertainty, in the models and in the data used to provide scientific management advice. One of the main goals of the SCRS current Science Strategic Plan (2015-2020) is to evaluate precautionary management reference points and robust harvest control rules (HCRs) through management strategy evaluations (MSE). These are presently developed and discussed annually between ICCAT scientists for the BFT-e specifically (Carruthers and Kell, 2017).

ICCAT's BFT research programme (GBYP) is also externally evaluated. It was reviewed by ICES in 2001, by an independent panel at mid-term in 2013 (Fonteneau et al., 2014) and again in 2016 (MRAG, 2016).

#### **3.5.7.1 European Union and France**

As a CPC, the EU reports to ICCAT annually on its implementation of active recommendations, on the basis of its member states' reports. EU institutions representatives and scientists contribute to all relevant ICCAT bodies and meetings, as evidenced by the report contents and participants lists.

The European Common Fisheries Policy (CFP) itself is evaluated and revised every 10 years. In the interim, its performance in terms of stock sustainability is regularly monitored. Article 50 of the Common Fisheries Policy (CFP; Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013) stipulates: "The Commission shall report annually to the European Parliament and to the Council on the progress on achieving maximum sustainable yield and on the situation of fish stocks, as early as possible following the adoption of the yearly Council Regulation

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<sup>24</sup> See [http://www.dirm.mediterranee.developpement-durable.gouv.fr/IMG/pdf/fascicule\\_operationnel\\_cmf.pdf](http://www.dirm.mediterranee.developpement-durable.gouv.fr/IMG/pdf/fascicule_operationnel_cmf.pdf)

fixing the fishing opportunities available in Union waters and, in certain non-Union waters, to Union vessels.”

Key CFP institutions and components such as the EFCA (Blomeyer and Sanz, 2017), the Fisheries Control Regulation<sup>25</sup>, or the European Maritime and Fisheries Fund are evaluated separately, including public consultations.

The French government’s performance in terms of compliance with ICCAT’s recommendation and reporting obligation is published every year, as part of the EU CPC reporting obligations, to ICCAT’s Compliance Committee (COC) and Panel 2. There is also an annual assessment of the PO’s compliance with its’ EU quota management and reporting obligations by the DPMA through a detailed scrutiny of SATHOAN annual Production and Marketing Plan report.

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<sup>25</sup> See [https://ec.europa.eu/info/consultations/evaluation-fisheries-control-regulation\\_en#references](https://ec.europa.eu/info/consultations/evaluation-fisheries-control-regulation_en#references) and [https://ec.europa.eu/fisheries/cfp/control\\_en](https://ec.europa.eu/fisheries/cfp/control_en)

## 4 Evaluation Procedure

### 4.1 Harmonised Fishery Assessment

This fishery overlaps with one other bluefin tuna fishery: the Usufuku Honten Northeast Atlantic longline bluefin tuna fishery. Both fishery assessments are managed by CU Pesca and the assessment of Principle 1 is carried out by the same expert, Dr. Jo Gascoigne. As both assessments took place quasi simultaneously, harmonization was a continuous process. The Principle 1 outcomes are therefore the same; note, however that the Usufuku Honten fishery has IPI catches (with the western Atlantic bluefin tuna stock) which is not the case for this fishery. There are no other Mediterranean tuna fisheries in the MSC programme requiring further harmonization.

### 4.2 Previous assessments

This is an initial full assessment, there are no previous assessments.

### 4.3 Assessment Methodologies

This assessment was conducted in accordance with the MSC Fisheries Standard v2.0 and MSC Full Assessment Reporting Template version 2.0.

The default assessment tree was used without adjustments. The Risk-Based Framework was applied to Performance Indicator 2.2.1 (Secondary Species Outcome). This is further discussed in Section 4.4.2.

### 4.4 Evaluation Processes and Techniques

#### 4.4.1 Site Visits and consultations

The site visit was held in Sète, France from the 29<sup>th</sup> to the 31<sup>st</sup> October 2018. The individuals met during the site visit and their roles in the fishery are listed in Table 24.

**Table 24. List of stakeholders consulted with during the assessment**

Name	Position	Type of consultation
Bertrand WENDLING	Directeur Général, SATHOAN	Provision of information during site visit and throughout assessment, participation in RBF
Pierre D'ACUNTO	Président, SATHOAN	Provision of information during site visit, participation in RBF
Benjamine VANDEPUTTE	Experte en Indications géographiques et Labels de qualité et d'origine SATHOAN / VALPEM	Provision of information during site visit and throughout assessment, participation in RBF
Morgane MARCHAND	Chargée d'études, SATHOAN	Provision of information during site visit, participation in RBF
Caroline MANGALO	Chargée de mission, Comité National des Pêches maritimes et des élevages marins (CNPMM)	Provision of information during site visit (remote call)
Sebastien FORTASSIER	Vessel owner, <i>Andréa</i>	Provision of information during site visit
Jordan VALENTIN	Vessel owner, <i>Deux Frères IV</i>	Provision of information during site visit, participation in RBF

Name	Position	Type of consultation
Tristan ROUYER	Chercheur IFREMER / MARBEC	Provision of information during site visit (Principle 1)
François POISSON	Chercheur IFREMER / MARBEC	Provision of information during remote call, participation in RBF
Renaud HERDE	Unité littorale des affaires maritimes (ULAM)	Provision of information during site visit, participation in RBF
Dominique GIMONNEAU	Unité littorale des affaires maritimes (ULAM)	Provision of information during site visit, participation in RBF
Shana Miller	Program Manager, Global Tuna Conservation at The Ocean Foundation	Remote consultation after site visit – see Appendix 5 for details.
Grantly Galland	Senior Associate, Global Tuna Conservation at The Pew Charitable Trusts	Remote consultation after site visit – see Appendix 5 for details.
Thea JACOB	Chargée de programme Cétacés et Pêche Durable, WWF France (bureau Marseille)	Remote consultation after site visit – see Appendix 5 for details.
Thierry MICOL	Chef du Service Etudes, Développement durable, International et outre-mer, LPO (Ligue pour la Protection des Oiseaux)	Provision of general information after site visit (Remote call)
Jo GASCOIGNE	Principle 1 assessor CU Pesca	Assessor
Sophie DES CLERS	Principle 3 assessor CU Pesca	Assessor
Chrissie SIEBEN	Team Leader, Principle 2 assessor CU Pesca	Assessor

The site visit included a visit to the Port du Grau d’Agde where the team visited the vessel *Andrea*. The vessel owner, M. Fortassier, was interviewed and the fishing gear was inspected.

The information obtained during the site visit has been incorporated throughout the main report; however key points are summarised below:

- CNPMEM/ CRPMEM: local and national concertation, BFT quota allocation between gear types, biodiversity protection inside and around marine parks;
- DG MARE and DPMA: European and French management structures and responsibilities, management plans, regulations, consultation mechanisms;
- DIRM and DDTMs: Information about the functioning and management of the fishery (operations, data collection, validation and reporting, enforcement);
- MARBEC / IFREMER: Information about bluefin tuna regional management, harvest strategy and management objectives, bluefin tuna stock assessment, UoA observer coverage, SELPAL, fishery catch profile, ETP interactions.
- SATHOAN: Information about traceability from capture to 1<sup>st</sup> point of sale, details on fishing operations, gear use, bait use, bycatch avoidance tactics, ETP interactions, TRL-PA code of conduct, gear loss, trends in bycatch.

- PEW / Ocean Foundation: comments on bluefin tuna stock assessment models and associated uncertainty; ICCAT management decision-making; IUU fishing in the Mediterranean
- WWF: comments on ICCAT management decision-making and uncertainty in stock assessment models; ongoing survey of enforcement reports and IUU fishing in the Mediterranean especially recreational fishery; insufficient controls on longline vessels; UoA bycatch and ETP interactions.

#### 4.4.2 Evaluation Techniques

**a) Media announcements:** CU Pesca selected the MSC as media outlet. The MSC press release targeted a wide range of stakeholders within the sustainable seafood industry, ensuring that key stakeholders were notified of this fishery's announcement.

**b) Methodology for information gathering:** Review of data and documentation, interview of stakeholders.

**c) Scoring process:** Scoring was agreed by the team via email correspondence. Consensus was reached for all scores.

The scores were decided as follows:

How many scoring issues met?	SG60	SG80	SG100
All	60	80	100
Half	FAIL	70	90
Less than half	FAIL	65	85
More than half	FAIL	75	95

Note that where there is only one scoring issue in the SG, the issue can be partially scored – in this case the team used their judgement to determine what proportion of it was met, e.g. at the 100 level, a small part met = 85, about half met = 90, nearly all met = 95.

**d) Decision rule for reaching the final recommendation:** The decision rule for MSC certification is as follows:

- No PIs scores below 60;
- The aggregate score for each Principle, rounded to the nearest whole number, is 80 or above.

The aggregate score for each Principle is the sum of the weighted score of each Performance Indicator within that Principle.

**e) Scoring elements:** The set of scoring elements considered in the assessment is listed in Table 25.

**Table 25. Scoring elements**

Component	Scoring elements	Main/Not main	Data-deficient or not
Target species – Bluefin tuna	N/a	No	No



Primary species	Mediterranean swordfish, North Atlantic blue shark, Adriatic sardine	main	No
	Mediterranean albacore, Northeast Atlantic mackerel	minor	No
Secondary species	Pelagic stingray	main	Yes
	See Table 8, Table 9, Table 10 and Table 11	minor	No
ETP species	Sea turtles, seabirds, marine mammals	N/a	no
Habitats	None	N/a	N/a

#### f) Use of the RBF

The risk-based framework (RBF) is an alternative evaluation system for some Performance Indicators (PI), based on an acknowledgement by the MSC that in some cases quantitative data and formal stock assessments with reference points may not be available. In this case, the use of the default assessment tree becomes difficult and the RBF is triggered.

The RBF can be used for outcome PIs only. These PIs are:

- 1.1.1 (Target species outcome)
- 2.1.1 (Primary species outcome)
- 2.2.1 (Secondary species outcome)
- 2.3.1 (Endangered, threatened and protected (ETP) species outcome)
- 2.4.1 (Habitats outcome)
- 2.5.1 (Ecosystem outcome)

The RBF trigger criteria for each PI are shown in Table 3 of the MSC Fisheries Certification Requirements v2.0. For this assessment, the RBF was triggered for 2.2.1 because of the presence of pelagic stingray (*Pteroplatytrygon violacea*), for which no stock assessments or reference points exist.

The application of the RBF is laid out in Annex PF of the MSC FCRv2.0. For PI 2.2.1, the RBF requires a Productivity-Susceptibility Analysis (PSA) to be carried out. For the Productivity component, a risk score is calculated based on the species' life history characteristics which can be obtained from peer-reviewed and grey literature. The Susceptibility component on the other hand examines the species' susceptibility to interact with the fishery (and other MSC fisheries where applicable) and requires stakeholder input. Prior to the assessment site visit, stakeholders were provided with a preparatory document, detailing the information available on management arrangements, monitoring strategies, gear characteristics, fishing footprint, as well as pelagic stingray spatial and temporal distribution. Much of this information was extracted from the SELPAL report (Poisson et al., 2016). This information, combined with anecdotal information gained during the site visit, enabled a Susceptibility risk score to be calculated (see Appendix 2). The stakeholders that participated in the RBF are shown in Table 24; some were present during the site visit while others were contacted remotely. They represent a wide range of backgrounds including scientists, fishers, local residents, managers and NGOs.

The outputs of the RBF consultations are shown in Appendix 2. In summary, interviews with stakeholders present during the site visit (see Table 24) led to lower susceptibility risk scores than those arrived at during subsequent consultations. The difference in perception appears to be mainly

related to the species' seasonal distribution patterns which can significantly increase catchability over the summer months, the importance of which was likely underestimated during the initial interviews. The input of scientific expertise was invaluable in this regard. Overall however, there is a consensus that the pelagic stingray is a relatively robust species, and while it has been shown to dominate catches in this fishery, the UoA footprint is sufficiently low so that an MSC equivalent outcome score of at least 80 was achieved. Note that the RBF was not applied to any of the minor secondary species in the dataset. The 2.2.1 PI score was therefore capped at 80.

## 5 Traceability

### 5.1 Eligibility Date

The Eligibility Date has been set as the date of certification, **pending the successful outcome of this evaluation**. Eastern Atlantic and Mediterranean bluefin tuna caught by the vessels in the UoA (Table 2) after the date of certification will be eligible to enter further chains of custody.

### 5.2 Traceability within the Fishery

All vessels in the UoA require an '*Autorisation européenne de pêche*' (AEP) to target bluefin tuna. Fishing takes place mainly in French waters (the UoA area) although some vessels may also operate outside territorial waters, in shared European Community waters. In all cases, fishing takes place within the UoA area as defined by GSA 7 and GSA 8.

Aboard all vessels, the EC logbook is completed in terms of estimated volume (tonnes) and number of individuals of retained catch per species, as well as time and coordinates of the set. The retained bluefin tuna (BFT) is processed on board with the Ikejime method which involves the insertion of a spike quickly and directly into the fish' brain before being stored in iced seawater. The fish therefore remains easily identifiable as a BFT even after processing. Each individual BFT is then issued with a unique eBCD (electronic bluefin tuna catch document) number which is an ICCAT requirement (see ICCAT Rec. 10-11, 11-20, 13-16, 17-09), printed on plastic barcoded tag which is attached to the caudal fin of the fish (see Figure 16 and Figure 17). All tags are issued by the French government (DIRM) and are distributed through SATHOAN. The tags are tamperproof (they have to be cut in order to be removed) and the caudal fin must be retained by the vendor until the entire fish has been sold/consumed. A copy of the eBCD document must furthermore stay with the fish at all times and must be validated by a 'validating authority' (i.e. an authorized government official) before the eBCD can pass onto the next actor in the supply chain<sup>26</sup>. The information contained in the eBCD *inter alia* includes the following (see Appendix 9 for an example of the eBCD form):

- Name of the Catching Vessel or Trap name
- Name of the Other Vessels (in case of JFO)
- Flag
- ICCAT Record No.
- Individual Quota
- Quota used for this BCD
- Date, area of catch and gear used
- Number of fish, total weight, and average weight
- ICCAT Record number of Joint Fishing Operation (if applicable)
- Tag No. (if applicable)
- Government validation: Name of authority and signatory, title, signature, seal and date

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<sup>26</sup> This was seen in practice by the assessment team over lunch at a restaurant serving bluefin tuna (selected at random). The chef was able to show the BCD document and the caudal fin of the fish that it belonged to – in fact, the caudal fin must be retained until the entire fish has been consumed.

Furthermore, as all vessels in the UoA subscribe to the “Thon Rouge de ligne Pêche Artisanale” (TRL-PA) brand, the TRL-PA online database enables consumers to trace any fish stemming from the UoA back to the date of capture and the catching vessel, together with the relevant logbook number (‘livre de bord’) and the eBCD number: <http://www.thonrougedeligne.com/mon-poisson-a-la-trace/> (556465 can be used as an example label number).



**Figure 16. Example of eBCD tags issued by the French administration to the UoA.**



**Figure 17. Image of eBCD tag attached to BFT caudal fin. The label ensures traceability is maintained as the fish moves through the supply chain.**

The BFT are landed at designated ports in France or Spain: Rec. 17-07 requires that each ICCAT CPC designates ports in which landing of eastern Atlantic and Mediterranean bluefin tuna is authorised.

The list of ports is shown in Appendix 10. All vessels are required to notify the port authorities 4 hours ahead of arrival into port.

After landing, the BFT are either sold directly or via auction. In both situations, the eBCD document and tag must always accompany the fish. While it is true that the eBCD document is just that and is therefore not physically attached to the fish, the tag is placed around the caudal fin and cannot be removed without tampering (Figure 17). As each tag is linked to a unique eBCD number, traceability is maintained as the fish moves through the supply chain. The eBCD number must furthermore be mentioned on all documentation that accompany transactions (such as invoices).

There is no transshipment in this fishery.

**Table 26. Traceability Factors within the Fishery:**

Traceability Factor	Description of risk factor if present. Where applicable, a description of relevant mitigation measures or traceability systems (this can include the role of existing regulatory or fishery management controls)
Potential for non-certified gear/s to be used within the fishery	No gears outside the UoA are used by the vessels; this risk is minimal.
Potential for vessels from the UoC to fish outside the UoC or in different geographical areas (on the same trips or different trips)	The vessels do not fish outside the UoA area (GSA 7 and GSA 8). The odds of vessels fishing outside the UoA area unnoticed by either SATHOAN or the authorities are limited; vessels over 12 meters in length are required to be equipped with an electronic logbook and to regularly transmit catch and positional data. Although vessels between 12 and 15m may be exempt, they would still be required to carry VMS and would be limited to < 24h trips.
Potential for vessels outside of the UoC or client group fishing the same stock	Vessels from outside the UoC are likely to fish for the same stock but will not be covered by this assessment. To avoid the risk of vessels landing BFT from outside the UoC as MSC (i.e. vessels not associated with this assessment) an up to date list of vessels will be published with the certificate (pending the successful outcome of this evaluation). This list can then be used by companies with MSC CoC to ensure product is originating from a vessel covered by this assessment. Also note that bluefin tuna harvested in sport and recreational fisheries for which sale is prohibited is not subject to the terms of Recommendation 11-20 and need not be recorded in the eBCD system. These fish will therefore not have the BCD number.
Risks of mixing between certified and non-certified catch during storage, transport, or handling activities (including transport at sea and on land, points of landing, and sales at auction)	On board the vessels, processing is minimal (as per the Ikejime discussed previously). The risk of mixing MSC and non-MSC BFT during a trip is minimal. Prior to landing, all UoA-caught BFT are linked to a eBCD number and a TRL-PA barcoded label is attached to the caudal fin. This label stays with the fish from the point of landing through the supply chain and has to be physically cut from the fish (and is therefore tamperproof). The risk of mixing during storage, transport, or handling activities is therefore minimal.
Risks of mixing between certified and non-certified catch during processing activities (at-sea and/or before subsequent Chain of Custody)	As above, the TRL-PA label combined with the eBCD minimises the risk of mixing MSC with non-MSC product.

Traceability Factor	Description of risk factor if present. Where applicable, a description of relevant mitigation measures or traceability systems (this can include the role of existing regulatory or fishery management controls)
Risks of mixing between certified and non-certified catch during transshipment	There is no transshipment in this fishery.
Any other risks of substitution between fish from the UoC (certified catch) and fish from outside this unit (non-certified catch) before subsequent Chain of Custody is required	None were identified.

### 5.3 Eligibility to Enter Further Chains of Custody

Bluefin tuna caught by the vessels listed in Table 2, meeting the UoA description as given below and after the date of certification (**pending the successful outcome of this evaluation**) will be eligible to enter further chains of custody.

<b>Species</b>	Bluefin tuna ( <i>Thunnus thynnus</i> )
<b>Stock</b>	Eastern Atlantic and Mediterranean bluefin tuna
<b>Geographical range of the fishery</b>	French and EU shared Western Mediterranean waters
<b>Method of capture</b>	Pelagic longline (LLD) and handline and pole-line (LHP, LHM)
<b>Client group</b>	Member vessels of SATHOAN PO targeting bluefin tuna in the Mediterranean using pelagic longline, handline and pole-line that have signed up to the label “Thon rouge de ligne – pêche artisanale”
<b>Other eligible fishers</b>	None

Separate chain of custody (CoC) certification will be required after the first point of sale. In the case where the product is sold through auction, no separate CoC is required for the auctions concerned. The relevant auctions are listed below:

- Criée de Port la Nouvelle
- Criée de Agde
- Criée de Sète
- Coopérative SOCOMAP au Grau du Roi
- Coopérative la Graulenne au Grau du Roi

All bluefin tuna must be landed at designated authorised ports in France or Spain as per ICCAT requirements. The list of ports is shown in Appendix 10.

### 5.4 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to Enter Further Chains of Custody

There are no IPI catches in this fishery.



## 6 Evaluation Results

### 6.1 Principle Level Scores

The final principal scores are provided in Table 27.

**Table 27. Final Principle Scores**

Principle	Score
Principle 1 – Target Species	83.3
Principle 2 – Ecosystem	80.7
Principle 3 – Management System	87.3

### 6.2 Summary of PI Level Scores

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
One	Outcome	0.33	1.1.1	Stock status	0.5	90
			1.1.2	Stock rebuilding	0.5	N/a
	Management	0.67	1.2.1	Harvest strategy	0.25	95
			1.2.2	Harvest control rules & tools	0.25	65
			1.2.3	Information & monitoring	0.25	75
			1.2.4	Assessment of stock status	0.25	85
Two	Primary species	0.2	2.1.1	Outcome	0.33	85
			2.1.2	Management strategy	0.33	85
			2.1.3	Information/Monitoring	0.33	60
	Secondary species	0.2	2.2.1	Outcome	0.33	80
			2.2.2	Management strategy	0.33	75
			2.2.3	Information/Monitoring	0.33	75
	ETP species	0.2	2.3.1	Outcome	0.33	75
			2.3.2	Management strategy	0.33	65
			2.3.3	Information strategy	0.33	60
	Habitats	0.2	2.4.1	Outcome	0.33	100
			2.4.2	Management strategy	0.33	95
			2.4.3	Information	0.33	85
	Ecosystem	0.2	2.5.1	Outcome	0.33	100
			2.5.2	Management	0.33	85
			2.5.3	Information	0.33	85
Three	Governance and policy	0.5	3.1.1	Legal &/or customary framework	0.33	80
			3.1.2	Consultation, roles & responsibilities	0.33	100
			3.1.3	Long term objectives	0.33	100

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
	Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.25	80
			3.2.2	Decision making processes	0.25	80
			3.2.3	Compliance & enforcement	0.25	85
			3.2.4	Monitoring & management performance evaluation	0.25	80

### 6.3 Summary of Conditions

A summary of conditions is provided in the following table. For more detail on the conditions and the corresponding Client Action Plan, see Appendix 3.

**Table 28. Summary of conditions**

Number	Condition	Performance Indicator
1	By Year 4 the client should be able to show that the HCR is able to ensure that the exploitation rate is reduced as the PRI is approached and is likely to be robust to the main uncertainties.	1.2.2
2	By Year 4 the client should be able to show evidence that there is good information on all other fishery removals from the stock.	1.2.3
3	By Year 4, some quantitative information should be available and adequate to assess the impact of the UoA on the main primary species with respect to status. The information collected should be adequate to support a partial strategy to manage these species.	2.1.3
4	By Year 4, there should be an objective basis for confidence that the partial strategy in place for pelagic stingrays will work, based on some information directly about the UoA and/or this species, including seasonal and spatial catch patterns.	2.2.2
5	By Year 4, the information available on interactions with pelagic stingray should be adequate to manage the UoA's impact on this species, taking into account seasonal and spatial catch patterns.	2.2.3
6	By Year 4, direct effects of the UoA should be highly likely to not hinder recovery of sea turtles and ETP seabirds.	2.3.1
7	By Year 3, there should be a strategy in place for managing the UoA's impact on ETP species, designed to be highly likely to achieve national and international requirements for the protection of ETP species. There should be an objective basis for confidence that the strategy will work and evidence that it is being implemented successfully.	2.3.2
8	By Year 4, some quantitative information should be available and adequate to assess the impact of the UoA on ETP species. The information collected should be adequate to measure trends and to support a strategy to manage these species.	2.3.3

## 6.4 Recommendations

Following peer review, two recommendations were made by the team, as follows:

### Recommendation 1 (bait):

Fishers in the UoA purchase their bait directly from traders and there is currently no systematic means through which SATHOAN monitor their members' bait use. It is recommended that a more formal bait sourcing strategy is adopted that ensures that bait is sourced from sustainable fisheries, while endeavouring that bait use is optimized as much as possible (e.g. by exploring ways to minimize bait use per hook).

### Recommendation 2 (swordfish):

One of the measures included in the Mediterranean swordfish rebuilding plan (ICCAT Rec. 17-03) is a minimum size: In order to protect small swordfish, CPCs shall take the necessary measures to prohibit catching, retaining on board, landing, transporting, storing, selling, displaying or offering for sale Mediterranean swordfish measuring less than 100 cm LJFL or, in alternative, weighing less than 11,4 kg of round weight or 10,2 kg of gilled and gutted weight (ICCAT Rec. 16-05). A recent peer-reviewed paper presented at ICCAT SCRS 2019 on reproductive biology of swordfish in the Strait of Gibraltar found that female swordfish attained larger sizes than males and mature at a larger size, at 170 cm, as opposed to 95 cm LJFL for males (noting that the reproductive characteristics of swordfish caught in the Strait of Gibraltar are similar to those of the Mediterranean) (see ICCAT-SCRS (2019) and Abid et al. (2019)). With a minimum landing size at 100 cm LJFL, there is therefore a real risk that immature individuals are being caught by the UoA. Although the team concluded that at the scale of the UoA, this will not have any effect on the recoverability of the stock, it is recommended that options are explored (e.g. changes in gear design, fishing practices or application of a voluntary minimum size) so that the UoA catch of juvenile swordfish is minimised.

## 6.5 Determination, Formal Conclusion and Agreement

### (REQUIRED FOR FR AND PCR)

1. The report shall include a formal statement as to the certification determination recommendation reached by the Assessment Team about whether or not the fishery should be certified.

(Reference: FCR 7.16)

### (REQUIRED FOR PCR)

2. The report shall include a formal statement as to the certification action taken by the CAB's official decision-makers in response to the Determination recommendation.

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## Appendices

## Appendix 1 Scoring and Rationales

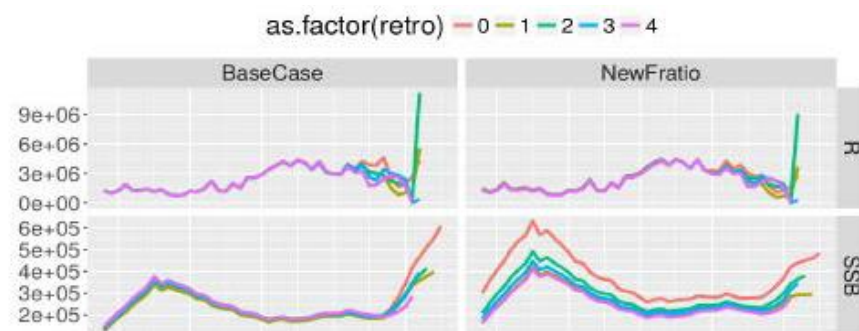
### Appendix 1.1 Principle 1

Evaluation Table for PI 1.1.1 – Stock status

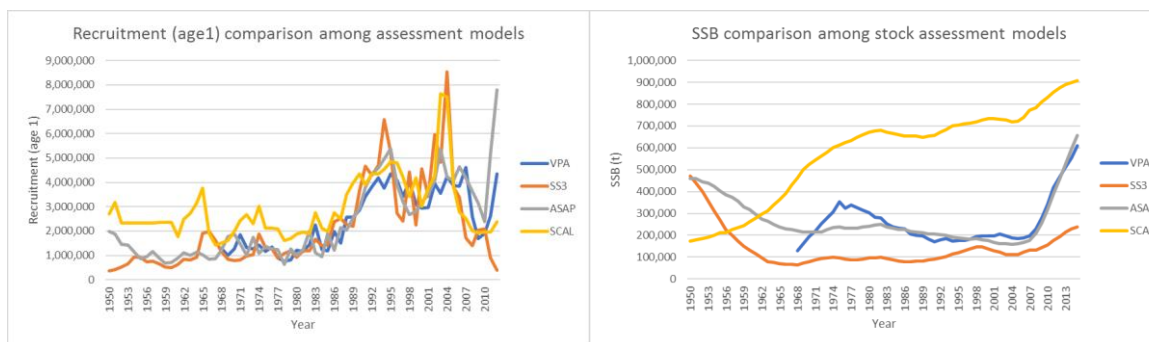
PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guided post	It is <b>likely</b> that the stock is above the point where recruitment would be impaired (PRI).	It is <b>highly likely</b> that the stock is above the PRI.	There is a <b>high degree of certainty</b> that the stock is above the PRI.
	Met?	Y	Y	Y
	Justification	<p>Definitions:</p> <p>MSC defines a default level for the PRI at <math>0.5B_{MSY}</math> or <math>20\%B_0</math> (GSA 2.2.3.1).</p> <p>SA2.2.1: Likely means greater than or equal to the 70<sup>th</sup> percentile; Highly likely 80<sup>th</sup> percentile, High degree of certainty 95<sup>th</sup> percentile.</p> <p><u>Scoring stock status against the different models used in the stock assessment:</u></p> <p>The stock assessment workshop used a range of different models to tackle the stock assessment of BFT-e, as described in the P1 background section. They took one model (VPA) forward as the basis for management advice but noted that the results of a second model (SS3) should be ‘taken into account’. Since the results of these two models are qualitatively different, this presents a difficulty for the assessment team in terms of how much weight should be placed on each. The assessment team noted the following points:</p> <ul style="list-style-type: none"> <li>• The stock assessment workshop selected the VPA model, noting that the SS3 was ‘not more reliable’ than the VPA ((ICCAT, 2017b), p.17);</li> <li>• The SS3 model was not completed at the end of the workshop (T. Rouyer, pers. comm.); the report notes that only the VPA was sufficiently advanced to provide the primary basis for management advice (ref; p. 15), although in the same paragraph the group also expresses its concern over the validity of some of the assumptions in the VPA;</li> <li>• Because the VPA was taken as the basis for management advice, more information is available on this model from the stock assessment report, plus amendment, the species group report and the SCRS report, compared to the others.</li> <li>• The key uncertainty in terms of estimating biomass and MSY reference points (see Section 3.3.3) – i.e. recruitment and the SR relationship – does not disappear with the other models, although it is mainly discussed in the context of the VPA (because more information is provided about this model). Although the SS3 model attempts to estimate <math>B/B_{MSY}</math>, and provides forward projections based on a SR relationship</li> </ul>		



		<p>estimated within the model, inspection of the various time series of biomass vs recruitment will immediately show that this must be highly uncertain.</p> <ul style="list-style-type: none"> <li>• Management is based on the assumption that <math>F_{0.1}</math> is a suitable proxy for <math>F_{MSY}</math>, which is a valid assumption in the VPA model (Rademeyer and Butterworth, 2018) but not in the SS3 model (see Section 3.3.11 and note also the group's reluctance to estimate MSY reference points).</li> </ul> <p>For these reasons, the assessment team (after discussion and agreement) decided that the scoring approach should be based primarily on the VPA model, but that the results of the other models (mainly the SS3 model) should be considered as part of the team's evaluation of uncertainties in the VPA conclusions.</p> <p><u>Analysis:</u></p> <p>For this stock, <math>F_{0.1}</math> is used as a proxy for <math>F_{MSY}</math> and has been tested and shown to be appropriate (Rademeyer and Butterworth, 2018). Hence logically <math>B_{0.1}</math> is a proxy for <math>B_{MSY}</math>. <math>B_{0.1}</math> is not estimated, but ICCAT scientists point out that fishing at or around <math>F_{0.1}</math> over the long term will result in the stock stabilizing at around <math>B_{0.1}</math> – even if a value cannot be assigned. Stock assessment projections from the base-case VPA model estimate that for low (recent) and medium (time-series average) recruitment scenarios, fishing at <math>F_{0.1}</math> results in a decline in biomass; i.e. that SB is currently above <math>B_{0.1}</math>. Under the high recruitment scenario, this is not the case (but under that scenario, recruitment is not impaired by definition). (Note that in the stock assessment report, the retrospective analysis shows much of the recent increase in biomass driven by the final year of data, but this is much improved in the amended version where the final year of data shifts the whole biomass time series upwards but does not change relative trends; unfortunately a revised jack-knife analysis is not provided.)</p> <p>Under GSA 2.2.3 MSC require that when there is explicit use of only a target reference point (<math>F_{0.1}</math>) there should be some implicit consideration of a limit reference point (LRP). For the VPA model this is considered from Figure 1 below. Empirically, the base-case VPA results show a peak in recruitment ~1990-2010, corresponding to the low in the SB time series with an increase in SB since (see Figure 18 below; it is not very clear but is the only figure showing recruitment estimates for the amended base-case model used by SCRS (ICCAT, 2017d).</p> <p>Taking into consideration the other stock assessment models, which were not used for providing advice, the SS3 and ACAP models show the same qualitative pattern; i.e. a recruitment maximum corresponding with a SB minimum and an increase in SB since (Figure 19). (The SCAL model shows a completely different biomass trend and estimates biomass to be higher than the other models but also increasing.) Taking this biomass low point as an implicit LRP, it is clear from the associated estimated trends in recruitment that it is above the PRI. Only the SS3 model was used to estimate stock status directly in relation to biomass reference points; projections for 2018 estimated SB at 85 % of <math>SB_{MSY}</math> (see Table 5); i.e. significantly above the MSC default PRI of 50%<math>SB_{MSY}</math>, although probability estimates are not provided.</p>
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**Figure 18. Trends in R (top) and SSB (bottom) for the original (left) and amended (right) base case VPA model. From (ICCAT, 2017d)**



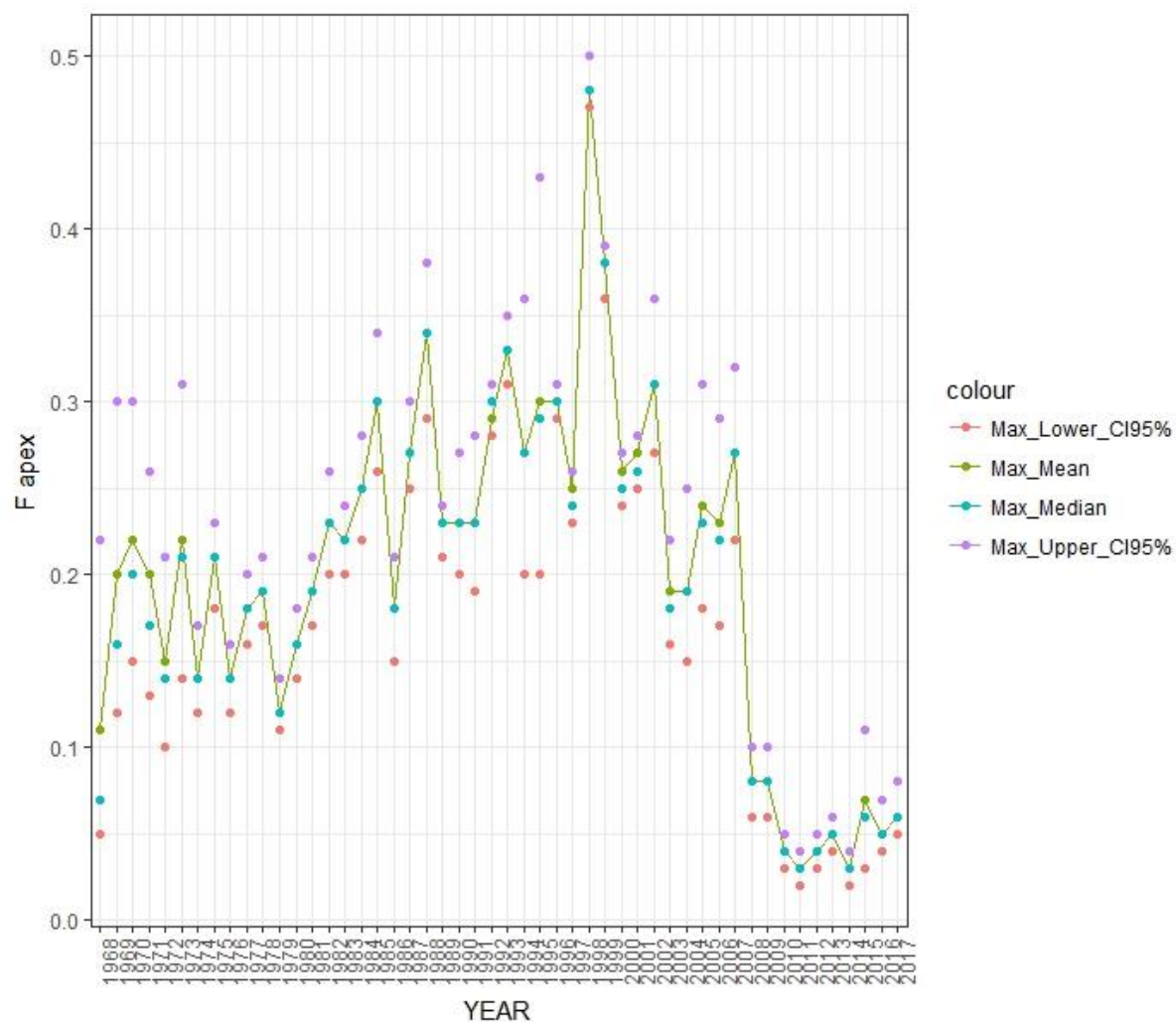
**Figure 19. Recruitment (left) and SB (right) as estimated by the four different assessment models. From (ICCAT, 2017b)**

#### Scoring:

There is no clear quantitative analysis which allows us to use the probabilistic definitions of likely, highly like etc. provided by MSC. Scoring therefore needs to be based on qualitative perceptions of probability and risk. In summary: For the base-case VPA model with recent or average recruitment, biomass is estimated to be already above  $B_{0.1}$  (i.e. fishing at  $F_{0.1}$  results in a decline in biomass); only a high recruitment scenario estimates that biomass is below  $B_{0.1}$  (because in this case,  $B_{0.1}$  is higher). In other words, according to the VPA either the biomass is already above the  $B_{MSY}$  target level (proxy) or recruitment is high. The SS3 model estimates biomass at ~85 % of  $SB_{MSY}$ , which is above the MSC default PRI. However, both models are uncertain: the VPA assumption that catch-at-age is known is breached, while estimating MSY reference points based on a SR-relationship is very problematic. Qualitatively, both models, plus the ASAP model show a peak in recruitment corresponding to a low in biomass (which is required to drive the observed

		rapid recovery of biomass), suggesting that recruitment cannot be driven by SB down to the minimum observed biomass level (LRP implicit proxy). Scientists working in the Mediterranean on BFT-e spawning also noted that ‘there are small fish everywhere’ (T. Rouyer, pers. comm.).  The team concluded on this basis, that it is at least ‘highly likely’ that the stock is above the PRI and recruitment is not impaired; SG60 and SG80 are met. In relation to SG100 (high degree of certainty, 95% probability), the team decided to turn the question around, and evaluate if there could be considered to be a 5 % probability that the stock is below the PRI / recruitment is impaired. The team noted that the VPA estimates that recruitment is not impaired (SB at target level or recruitment high), the SS3 model says that recruitment is not impaired (SB at 85 % of SB <sub>MSY</sub> ), all the models show maximum recruitment at biomass levels lower than the current levels and the perception of stakeholders is that recruitment is currently high. On this basis, the team concluded that it is not possible to argue for any significant possibility of recruitment impairment. SG100 is therefore met.	
b	Stock status in relation to achievement of MSY		
	Guidepost	The stock is at or fluctuating around a level consistent with MSY.	There is a <b>high degree of certainty</b> that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?	Y	N
	Justification	Neither the stock assessment group nor the SCRS considered that biomass reference points were reliable indicators of stock status, so this Scoring Issue is evaluated in relation to F <sub>0.1</sub> (the agreed proxy for F <sub>MSY</sub> for the VPA model), although it is impossible to avoid drawing inferences about biomass. MSC FCR2.0 GSA 2.2.4 is used as a reference here.  The stock assessment (VPA base-case model, assuming that recent (low) recruitment patterns continue) estimated that F <sub>current</sub> /F <sub>0.1</sub> = 0.34 (0.25-0.44 ~10 % and 90 % CIs). Biomass projections for the base-case model suggest that fishing at F <sub>0.1</sub> would imply a TAC of ~40,000 t and would result in a decline in biomass, suggesting that biomass is at or above B <sub>0.1</sub> (although this value remains unmeasured). Although under the VPA high recruitment scenario, B is estimated to be still below B <sub>0.1</sub> , TACs in the range set in recent years all result in F<F <sub>0.1</sub> with high probability by 2018 (see Section 3.3.6; Table 6).  Under GSA 2.2.4 when using F as a proxy for scoring stock status the MSC state that:  <i>‘At least an 80 score is justified (B highly likely above the PRI and at or fluctuating around B<sub>MSY</sub>) if F is likely to have been at or below F<sub>MSY</sub> for at least two generation times (or for at least four years, if greater) ... while most species require about 2 generation times to recover from the PRI to B<sub>MSY</sub> when fishing is at F<sub>MSY</sub>, when F is reduced to 80 % F<sub>MSY</sub> or 60 % F<sub>MSY</sub>, the time for recovery may be halved.’</i>  Generation time for BFT-e, calculated using MSC’s default method (Box GSA4) is 11 years, based on the age-at-maturity estimate published by Corriero et al. (2005) (5 years) and the age-specific rates of natural mortality used in the last stock assessments of BFT-e published by (Lauretta, 2017), extrapolating the plus 10 age group to 20 years. This would give a default recovery time of ~22 years. However, this assumed recovery time can be halved when F is 60-80 % of F <sub>MSY</sub> .  The stock assessment report provides values and trends in F for two sets of age classes: F2.5 (ages 2-5 – younger fish) and Fplus (fish aged 10+). Both these F values have been low since ~2007-8 (Figure 9). It is, however, not clear how these values of F relate to the overall F which is used to calculate	

		<p>F<sub>0.1</sub>. To clarify this, the assessment team sought additional information from the ICCAT stock assessment group. BFT-e reference points are calculated using Pro2Box which calculates the reference points using an apical F, i.e. the F of the age where selectivity at age is maximum (i.e. the age-class most subject to fishing mortality). So the age at which F is calculated varies depending on the overall selectivity of each year class. Recruiting year classes considered to be uncertain can be removed from the projections and reference point calculations and replaced with a recent average (L. Kell pers. comm.).</p> <p>The assessment team evaluated output data files from the VPA model scenario runs. In each of the VPA scenario runs values for apical F were available in forms 'median F', 'mean F', and '95 % CI for F'. The assessment team took the highest scenario output for each value (median, mean etc.) as the most precautionary and plotted it by year (<b>Error! Reference source not found.</b>). This gives an estimate of F<sub>current</sub> of 0.06 (taking the most precautionary estimate of the mean/median). (Note this is a more precautionary estimate of F<sub>current</sub> than that used to estimate F/F<sub>0.1</sub>, hence why the ratio of F/F<sub>0.1</sub> from these estimates do not align with the values given at the bottom of this table.)</p> <p>Taking the estimate of F<sub>0.1</sub> provided in the 2017 SCRS report (0.107), Figure 20 suggests on that basis that apical F has been below F<sub>0.1</sub> since 2007 (and actually since F fell dramatically in 2007 from &gt;0.2 to &lt;0.1, this would be true for a wide range of absolute values of F<sub>0.1</sub>). For this time period since 2007, the estimates of F<sub>current</sub> have been below 80%F<sub>0.1</sub> (0.086), as has the upper CI from 2009, except for 2014. The median estimates has been fluctuating around ~50%F<sub>0.1</sub> (0.054) since 2009.</p> <p>This analysis suggests that the timeframe requirements for halving the default recovery time from two to one generation time is met; i.e. sufficient time has passed since 2007 for the stock to be at or fluctuating around a biomass level consistent with MSY.</p> <p>In addition to this consideration, projections based on the VPA with three recruitment scenarios suggest that based on the recent and average recruitment scenarios, SB is already above B<sub>0.1</sub> (even if the latter is not quantified). On the other side of the argument, the VPA projection with high recruitment suggests that SB has not yet reached B<sub>0.1</sub>. In addition, the SS3 model estimates SB<sub>2018</sub> at ~85 % of SB<sub>MSY</sub>, although as noted above (1.1.1a), there are concerns about the validity of this estimate.</p> <p>Overall, the team concluded (consistent with MSC guidance) that the stock is likely to be at or arriving at a level consistent with MSY; SG80 is met. SG100 is clearly not met, for two reasons: i) the stock has recovered from below the current level in the relatively recent past; and ii) the stock status cannot be determined with a high degree of certainty, with conclusions changed to a significant extent by the choice of model and recruitment scenario, and uncertainties in all the models.</p>
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**Figure 20. Mean (95 % Confidence Intervals) and median apical F calculated from the maximum value of each from 26 VPA scenario runs between 1968-2017.**

#### References

(Corriero et al., 2005; ICCAT, 2017b, 2017c, 2017d, 2018a; Lauretta, 2017)

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)	Empirical patterns in recruitment and biomass	n/a	n/a
Reference point used in scoring stock relative to MSY (SIb)	$F_{0.1}$ , $B_{0.1}$	$F_{0.1} = 0.107$ (0.103-0.120) (median and ~10 % and 90 % CIs, based on base case VPA with recent recruitment); $B_{0.1}$ is not directly estimated	$F/F_{0.1} = 0.34$ (0.25-0.44)
OVERALL PERFORMANCE INDICATOR SCORE:			90
CONDITION NUMBER (if relevant):			N/a

**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						
	Guidepost	A rebuilding timeframe is specified for the stock that is <b>the shorter of 20 years or 2 times its generation time</b> . 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 <b>one generation time</b> for the stock.	
	Met?						
	Justification	Not applicable					
b	Rebuilding evaluation						
	Guidepost	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, <b>or it is likely</b> based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.		There is <b>strong</b> evidence that the rebuilding strategies are rebuilding stocks, <b>or it is highly likely</b> based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.	
	Met?						
	Justification	Not applicable					
References							
OVERALL PERFORMANCE INDICATOR SCORE:						N/a	
CONDITION NUMBER (if relevant):						N/a	



**Evaluation Table for PI 1.2.1 – Harvest strategy**

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	Harvest strategy design			
	<b>Guided ost</b>	The harvest strategy is <b>expected</b> to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy <b>work together</b> towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is <b>designed</b> to achieve stock management objectives reflected in PI 1.1.1 SG80.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	<p>MSC defines a harvest strategy as ‘the combination of monitoring, stock assessment, harvest control rules and management actions, which may include an MP or an MP (implicit) and be tested by MSE’ (MSC – MSCI Vocabulary v1.1).</p> <p>ICCAT have recently moved from a rebuilding plan to a multi-annual management plan, which came into force in 2019 (Rec. 2018-02). The stated goal of Rec. 2018-02 is to maintain the biomass around <math>B_{0.1}</math>, to be achieved by fishing at <math>F_{0.1}</math> (since <math>B_{0.1}</math> cannot be measured directly). <math>B_{0.1}</math> is considered to be a reasonable proxy for <math>B_{MSY}</math>.</p> <p>The plan is complex, with a wide range of elements (summarised in Section 3.3.8). The main measure is the TAC, which has been increased step-wise to 36,000 t, which will be reached in 2020. This TAC is still somewhat below the TAC implied by <math>F_{0.1}</math> under the base-case stock assessment model (see Table 6), reflecting the goal of the rebuilding plan (Rec. 17-07 and previous iterations) which was to achieve <math>B_{MSY}</math> (<math>B_{0.1}</math>) with at least 60% probability (implying a median estimate of <math>B</math> somewhat above <math>B_{0.1}</math>). The plan also contains a series of technical measures; notably minimum size provisions and a series of seasons by gear, as well as a large quantity of provisions for reporting and inspection which are intended to ensure that the TACs and other management measures are respected (see discussion in Section 3.3.8 and PI 3.2.3).</p> <p>Unlike the previous rebuilding plan, the management plan does not include a specific provision allowing ICCAT to suspend the fishery from one year to the next. It does, however, include various provisions for modification of the plan based on new information: e.g. paragraph 1 allows for the plan to be modified based on the outcome of the MSE (currently underway; see Section 3.3.10), while paragraph 114 (Safeguards) allows SCRS to propose adjustments to the TAC if stock assessment suggests that the plan is not achieving its objective and paragraphs 115-116 (Review clause) allow for i) annual review by Panel 2 and ii) review of the plan in 2020. The intent was that by 2020 the MSE process would be finalised, but it seems that this is not likely (see Section 3.3.9; ICCAT-SCRS, 2019, (ICCAT, 2019d), the bluefin MSE group have proposed that Panel 2 instead prepare a bluefin stock assessment in 2020 following the current methodology.</p> <p>On this basis, the harvest strategy can be said to be responsive to the state of the stock. The plan has been designed as a whole rather than put in place piecemeal and is the results of lessons learned over several years of rebuilding plans (since Rec. 2013-07). It includes the full range of elements in the MSC definition of a harvest strategy (i.e. monitoring, stock assessment, a harvest control rule and management actions), as well as implementation and enforcement provisions; but not yet an MSE, which is still in development. On this basis, SG80 and SG100 are met.</p>		

b	Harvest strategy evaluation			
	Guided post	The harvest strategy is <b>likely</b> to work based on prior experience or plausible argument.	The harvest strategy may not have been fully <b>tested</b> but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been <b>fully evaluated</b> and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	Y	Y	N
	Justification	The stock assessment base case model, with stock projections under different scenarios (see Sections 3.3.6 and 3.3.7) provide evidence that the strategy is achieving its objectives, with F likely to be $<F_{0.1}$ and SB likely to be above $B_{0.1}$ under most scenarios. In addition, under the harvest strategy since the recovery plan, the estimated stock size has increased year on year (Figure 9, Figure 12); this is not an exact reflection of the current harvest strategy (Rec. 2018-02) because it is based on a range of fixed TACs rather than a TAC which changes each year, but it is similar and the evidence indicates objective F $<F_{0.1}$ is being met. There is ‘testing’ of the range of harvest strategy elements, including monitoring (e.g. via ongoing research under the GBYP on historic catch data, also via the data preparation workshop for the stock assessment) and stock assessment (e.g. comparison of the output of several different models). SG60 and SG80 are met.  In relation to SG100, the uncertainties in the stock assessment (which notably do not allow a robust estimate of $B_{0.1}$ or $B/B_{0.1}$ ) do not provide evidence that the plan is ‘clearly’ (i.e. with high certainty) able to maintain the stock at target levels; for example, the SS3 model suggested that TACs should be lower. The harvest strategy has not been fully evaluated, although an MSE process is currently underway. SG100 is not met.		
c	Harvest strategy monitoring			
	Guided post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Y		
	Justification	Monitoring and data collection (in general and of the UoA) is described in Section 3.3.10. This includes the CPC Bluefin Catch Document (BCD) scheme (the UoA uses the electronic version) and the GBYP programme for improving biology information. The stock assessment is compiled from information from the following sources: <ul style="list-style-type: none"><li>• Catch data</li><li>• Abundance indices</li><li>• Catch at size information</li><li>• Age and growth data</li><li>• Stock composition data</li><li>• Natural mortality information</li></ul>		

		<ul style="list-style-type: none"><li>• Tagging studies</li></ul> <p>This comprehensive list indicates that the monitor is in place to determine if the HS is working. SG60 met</p>		
d	Harvest strategy review			
	Guided post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Y
	Justification	<p>The harvest strategy (rebuilding plan / management plan) has been reviewed extensively, e.g. in 2013 (Res. 13-07); 2014 (14-04; 2017 (17-07) and 2018 (18-02). The management plan (18-02) is due to be reviewed again in 2020. ICCAT has a commitment to developing formal HCRs via an MSE process for all its stocks, under Rec. 15-07.</p> <p>Whether it has been improved is perhaps another question; the target biomass was reduced slightly from 17-07 to 18-02, and practical changes from 17-07→18-02 were mainly about reducing some of the practical requirements (seasons a bit longer, more derogations, some of the reserve quota distributed) rather than making substantive improvements. Nevertheless, an MSE process is underway, and the management plan is due for a full review in 2020, when the MSE is due to be completed. More generally, ICCAT’s approach could be summarised as subjecting the stock to incremental increases in fishing pressure with monitoring to evaluate the outcome. Given the uncertainty in the stock assessment, this seems like a reasonable empirical approach. Met.</p>		
e	Shark finning			
	Guided post	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.	There is a <b>high degree of certainty</b> that shark finning is not taking place.
	Met?	N/a	N/a	N/a
	Justification	The target species is not a shark – this scoring issue is not relevant.		
f	Review of alternative measures			
	Guided post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a <b>biannual</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.

	<b>Met?</b>	n/a	n/a	n/a
	<b>Justification</b>	<p>In Pls 2.1.2 and 2.2.2, the term ‘unwanted catch’ shall be interpreted by the team as the part of the catch that a fisher did not intend to catch but could not avoid and did not want or chose not to use.</p> <p>For this fishery, approximately 20% of the quota is taken as fish in the size range 8-30 kg; i.e. below the minimum size of 30 kg / 115 cm FL. In 2018, this came to 63 t out of a total quota of 300 t for artisanal métiers. The fishery has a derogation for this under Para. 27 of Rec. 14-04 and its successors, as given below (this fishery is included in category c):</p> <p>27. By derogation of paragraph 26, a minimum size for bluefin tuna of 8 kg or 75 cm fork length shall apply to the following situations in accordance with the procedures set out in Annex 1.</p> <p>a) Bluefin tuna caught by baitboats and trolling boats in the eastern Atlantic.</p> <p>b) Bluefin tuna caught in the Adriatic Sea for farming purposes.</p> <p>c) Bluefin tuna caught in the Mediterranean Sea by the coastal artisanal fishery for fresh fish by baitboats, longliners and handliners</p> <p>Annex 1 of 14-04 sets a series of conditions to be met for this derogation, i.e. that capacity should be limited, a specific authorisation system put in place, total catch should be not more than 100 t, tail tagging etc.</p> <p>On this basis, these fish are legally caught, and are landed. No fish are discarded or unused. This means that there is no ‘unwanted catch’ – not applicable.</p>		
	<b>References</b>	<p>Rec 18-02, 17-07, 14-04, 13-07</p> <p>(ICCAT, 2017b, 2017c, 2017d, 2018a, 2018b)</p>		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>95</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>N/a</b>

**Evaluation Table for PI 1.2.2 – Harvest control rules and tools**

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	HCRs design and application			
	<b>Guided ost</b>	<b>Generally understood</b> HCRs are in place <b>or available</b> that are <b>expected</b> to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	<b>Well defined</b> HCRs are <b>in place</b> that <b>ensure</b> that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock <b>fluctuating around</b> a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock <b>fluctuating at or above</b> a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, <b>most</b> of the time.
	<b>Met?</b>	Y	N	N
	<b>Justification</b>	<p>The HCR is based on the management objectives of Rec. 2018-02 with TACs set such that <math>F=F_{0.1}</math>. The HCR exists in a written form: Rec. 18-02 the bluefin multi-annual management plan. There is a clear management objective (<math>B_{0.1}</math>), to be achieved following the HCR (fishing at or less than <math>F_{0.1}</math>). All this is clearly set out in para. 1 of 18-02. The objective and the HCR is therefore explicitly defined and agreed.</p> <p>In practice, however, the TACs set out in 2018-02 are most likely somewhat below this level and are therefore more conservative (see Table 6). As noted above, this is because they are the same as those already agreed under the rebuilding plan (Rec. 17-07) where the objective was more conservative (<math>B</math> above <math>B_{0.1}</math> with 60 % probability). In addition, it was proposed by the SCRS and agreed by the Commission that TACs should be increased step-wise rather than in large jumps. Thus, the TACs set out in 2018-02 do not in practice conform to the HCR (they are more conservative). Nevertheless, given the history of this stock, it is hard to criticize ICCAT for being cautious (in fact, criticism generally says the opposite). The HCR target reference point (<math>F_{0.1}</math>) is clearly defined and should ensure that exploitation rate is maintained around <math>B_{0.1}</math> (by way of adjusting exploitation rate to maintain <math>F</math> at <math>F_{0.1}</math>, depending, for example, on future levels of recruitment). <math>B_{0.1}</math> is considered by the SCRS to be a suitable proxy for <math>B_{MSY}</math>.</p> <p>MSC critical guidance on generally understood vs. well-defined HCRs is as follows (GSA2.5):  <i>HCRs should be regarded as 'well-defined' in the sense required to achieve an 80 score when they exist in some written form that has been agreed by the management agency, ideally with stakeholders, and clearly state what actions will be taken at what specific trigger reference point levels.</i>  <i>HCRs should be regarded as only 'generally understood' as required to achieve a 60 score in cases where they can be shown to have been applied in some way in the past, but have not been explicitly defined or agreed.</i></p> <p>The requirements for a generally-understood HCR at SG60 are clearly met: TACs and other management measures are agreed and applied consistent with the management objective; this has also been done in the past (see Table 6 and Table 7). There is monitoring in place (periodic stock assessments) which allows technical measures to be adjusted based on stock status in relation to objectives, following MSC's guidance GSA 2.5. The first component</p>		

		<p>of the requirements for a well-defined HCR at SG80 is clearly met: it exists in a written form (2018-02) agreed by ICCAT. In relation to the second part, a large range of actions are stipulated which are consistent with management reference points; however 2018-02 is not specific on future scenarios – i.e. how should these actions be changed in the event that <math>F &gt; F_{0.1}</math> and needs to be reduced? On that basis, it is arguable that the full requirements for a well-defined HCR are not met.</p> <p>There is also an issue with how the HCR operates should the PRI be approached. The HCR stipulates exploitation at <math>F_{0.1}</math>. This should operate such that the stock is maintained at equilibrium biomass <math>B_{0.1}</math> as explained above. This occurs because if biomass falls below <math>B_{0.1}</math>, fishing effort would have to be reduced to avoid <math>F</math> exceeding <math>F_{0.1}</math> (and vice versa if biomass is above <math>B_{0.1}</math>, as appears to be the case currently). However, this is not the same as arguing that the exploitation rate is reduced – in fact, fishing effort is reduced to keep the exploitation rate at the same level.</p> <p>As is clear from the recent history of the stock (see rationale for 1.1.1a) it is highly likely that this HCR will maintain the stock far away from the PRI unless there is a catastrophic and long-lasting failure of recruitment for environmental reasons (and this argument applies to any managed fish stock). There are also elements of the harvest strategy that in practice will act to reduce the exploitation rate as biomass declines; such as the MLS (the proportion of the stock above a given size declining as stock biomass declines). There is also a clear process of review and revision of the harvest strategy and the TACs as explained above, with the MSE process also underway (if behind schedule). For these reasons, the HCR can be ‘expected to reduce the exploitation rate as the PRI is approached’ – SG60 is met. It cannot be argued, however, that the HCR ‘ensures’ that the exploitation rate is reduced as the PRI is approached. SG80 is not fully met.</p>	
b	HCRs robustness to uncertainty		
	Guided post	The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a <b>wide</b> range of uncertainties including the ecological role of the stock, and there is <b>evidence</b> that the HCRs are robust to the main uncertainties.
	Met?	N	N
	Justification	As noted above, some of the main uncertainties have been incorporated into the HCR (i.e. via applying it to $F$ rather than $B$ ) but some have not (e.g. choice of stock assessment model, future recruitment). SCRS have so far proposed (and ICCAT have agreed) to apply the HCR with circumspection; i.e. maintaining in 2018-02 the agreed TACs from 2017-07 rather than setting TACs based on $F_{0.1}$ as implied by the HCR. This suggests that they are not confident that the HCR is robust to the main uncertainties. Indeed, if at the next stock assessment, the Stock Synthesis model can be developed to a point where it is equally as suitable as the VPA for providing management advice (as is the case for the western stock), conclusions as to $F$ and TACs may be somewhat different. On this basis, it is hard to argue that the HCR is robust to the main uncertainties; in our view, ICCAT are wise to use it with caution. SG80 is not met.	
c	HCRs evaluation		

	<b>Guided post</b>	There is <b>some evidence</b> that tools used <b>or available</b> to implement HCRs are appropriate and effective in controlling exploitation.	<b>Available evidence indicates</b> that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	<b>Evidence clearly shows</b> that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>The main tool to implement the HCR is TACs, which as noted above are currently at a lower level than implied by the HCR, on the basis that increases should be incremental. The stock assessment assumes that there are no unreported catches which may not in fact be the case (see 3.2.3), but overall monitoring, reporting and enforcement measures are strict relative to most tuna fisheries. Nevertheless, there are concerns about catches outside the TAC, notably IUU, following a recent scandal in EU fisheries. So far, the available information suggests that this was not at a level to significantly compromise the TAC (best estimates ~18% of the EU quota per year; Hosch (2019)), although it of course needs to be stopped. It is considered further in P1 under 1.2.3 below.</p> <p>A range of other tools are also in use; i.e. MLS, seasons and requirements on CPCs to manage capacity. The MLS provisions appear to have been successful in reducing F on juveniles enormously (an order of magnitude; see Figure 11). Fishing capacity has also clearly declined since 2008 but may now be increasing faster than estimated by SCRS (Rouyer and Miller, 2018); changes to fishing capacity must be presented in a capacity management plan to be approved by ICCAT Panel 2.</p> <p>Despite uncertainties in the stock assessment, the SCRS appear confident that F is likely to be below <math>F_{0.1}</math>, has been since 2010 (VPA model, Figure 9) and will likely continue to be based on the current TAC regime for the next few years. Biomass can be seen to be recovering in all the stock assessment models (Figure 12). SG80 is met.</p> <p>SG100 requires that the evidence 'clearly shows' that tools are effectively achieving <math>F_{0.1}</math> or below. While this is likely, the judgement of the team is that the stock assessment remains too uncertain to make this statement definitively. Furthermore, while catches should be restrained by the TAC, clearly a faster underlying increase in capacity risks increasing political pressure for increases in the TAC above a precautionary level. SG100 is not met.</p>		
<b>References</b>		<p>(Fromentin and Kell, 2008)</p> <p>Res 17-07 and 18-02</p> <p>(ICCAT, 2017b, 2017c, 2017d, 2018a)</p> <p>(Rouyer and Miller, 2018)</p> <p>(Hosch, 2019)</p>		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>65</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>1</b>



**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
<b>a</b>	Range of information			
	<b>Guidepost</b>	<b>Some</b> relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	<b>Sufficient</b> relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.	A <b>comprehensive range</b> 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.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	<p>There has been significant effort to improve information and monitoring for eastern Atlantic bluefin over the last decade; both in terms of monitoring the fishery (the electronic catch documentation scheme) and in terms of understanding the biology, ecology and dynamics of the stock (GBYP). The requirements of the eBCD and the objectives and activities of the GBYP are described in Section 3.3.10. In relation to the types of information listed in the SGs:</p> <p><u>Stock structure</u>: Otolith microchemistry, genetics and tagging have been used to evaluate stock structure and specifically mixing between eastern and western Atlantic stocks, although in terms of stock assessment, this is more of an issue for the western Atlantic stock which is much smaller. The stock assessment has been run based on fish origin as well as fish capture location. Details are given in Section 3.3.2.</p> <p><u>Stock productivity</u>: Age and growth has been extensively studied; some information about recent work is given in Section 3.3.10. It remains a source of uncertainty in the assessment, as it does for most tuna stock assessments (see for example recent assessments of western Pacific bigeye and yellowfin), but particularly in this case because of the assumptions underlying a VPA, and because age cohorts are hard to distinguish above a certain size. Size composition in cages is monitored directly via stereoscopic cameras during cage transfer operations. Various options for estimating and modelling natural mortality were considered by the stock assessment during the data preparation phase.</p> <p><u>Fleet composition</u>: Fleet composition is known; all vessels targeting bluefin must be registered with ICCAT upon submission by the EU, which delivers the AEP (European Fisheries Authorisation) provided the vessel is registered in France, has applied annually to the DIRM and is a member of a PO that vouches for its quota allocation (see section 3.5).</p> <p><u>Stock abundance</u>: Various indices are used as proxies for stock abundance, including passive fishery indices (trap indices), fishing CPUE indices and fishery-independent indices (larval and aerial surveys); see Section 3.3.10 for a list.</p> <p><u>Removals</u>: Catches were severely under-reported from the mid-1990s and early 2000s and have been reconstructed as described in Section 3.3.10. The eBCD system now aims to track all removals with high confidence and accuracy. Growth of farmed fish (weight in vs weight out) remains</p>		

		<p>problematic, although stereoscopic cameras are now used for monitoring of all transfers. As noted below, it is not fool-proof (see 3.2.3) but is better than exists in most tuna fisheries.</p> <p><u>Biology</u>: As well as age/growth, natural mortality and genetics, other aspects of bluefin basic biology have been studied under the GBYP programme; e.g. using conventional and electronic tags to evaluate migratory routes, seasonal movements, dive behaviour and the location of feeding and spawning areas.</p> <p><u>Environmental information</u>: Seasonal movements, spawning and (crucially) recruitment are thought to be linked to environmental cues and drivers; there has been research in this area although as for most species of fish, it is not well understood.</p> <p><u>Other</u>: A remarkable result of the GBYP, and is extremely rare for an exploited fish species, is the study of the history of exploitation of eastern bluefin, and the development of extremely long historical time series of catches – back as far as the early 16<sup>th</sup> century. This has allowed exploration of multi-decadal trends and cycles and their possible connection with large-scale oceanographic processes such as the NAO (Faillettaz et al., 2019).</p> <p>On this basis, we conclude that there is a comprehensive range of information available, sufficient for the harvest strategy and including some not directly related to the harvest strategy (although nevertheless of great interest). SG100 is met.</p>		
b	Monitoring			
	Guided post	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 <b>regularly monitored at a level of accuracy and coverage consistent with the harvest control rule</b> , and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	<b>All information</b> 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 <b>uncertainties</b> in the information data] and the robustness of assessment and management to this uncertainty.
	Met?	Y	Y	N
	Justification	Stock abundance and removals (total and UoA) are monitored as described in SIa above; as specified in the provisions of Rec. 18-02. Because of the eBCD system, coverage and accuracy are thought to be high, although estimates of some removals such as recreational catch may be less accurate, SG60 is met. Indicators are reviewed annually by SCRS, and there are periodic stock assessments (2014, 2017, recommended for 2020). SG80 is met. Although uncertainties for the HCR relate more to structural factors in the stock assessment (e.g. choice of assessment model), some information which would be extremely useful in applying (or choosing) the HCR is not easily available, notably recruitment. Although recruitment is monitored to some extent (e.g. via aerial surveys of spawning aggregations and larval surveys in the western Mediterranean, and from fisheries which take relatively small individuals), factors which might predict the level of recruitment (be that spawner biomass or environmental factors) are not well understood, and this is a significant source of uncertainty in the stock assessment and hence the application of the HCR. It is also not possible to estimate biomass-based reference points, requiring the HCR to be expressed in terms of F. There are also concerns about how fishing capacity is estimated and monitored; a potential future risk. SG100 is not met.		
c	Comprehensiveness of information			

	<b>Guided post</b>		There is good information on all other fishery removals from the stock.	
	<b>Met?</b>		N	
	<b>Justification</b>	<p>MSC guidance GSA2.6.1: <i>The reference to ‘other’ fishery removals in scoring issue (c) relates to vessels outside or not covered by the unit of assessment. These require good information but not necessarily to the same level of accuracy or coverage as that covered by the second scoring issue.</i></p> <p>The ICCAT requirements for recording catch information (catch documentation scheme) are summarised in Section 2.3.9.1. These apply to all fisheries targeting bluefin tuna or which have bluefin quota. There is therefore good information on these removals. There are two areas of potential concern: IUU removals and the recreational fishery.</p> <p>WWF-Mediterranean have been compiling information on seizures of illegal bluefin tuna in the Mediterranean (which has been the key area for IUU on BFT-e for several decades) since 2015. They record IUU landings over the last 4 years (2015-2018) ranging from 35-117 tonnes per year, from four countries – Spain, Italy, Tunisia and Algeria. 117 t of bluefin represents 0.4% of the TAC for 2018.</p> <p>It is likely that the real quantity of IUU landings is much higher than the quantity seized. If we assume that 10% of IUU landings are seized and recorded by WWF, this means that Mediterranean IUU would account for ~4% of the TAC. (This is, however, just an order of magnitude estimate.) The team were given an overall estimate of 2500 t IUU, but neither the source nor the time period over which this occurred is clear, however, if over one year this would represent 9% of the (2018) TAC.</p> <p>The recreational fishery is likewise mainly from the Mediterranean, and mainly from EU countries. The stock assessment data preparation workshop (ICCAT 2017j) indicates that recreational catches are quantified in the catch data, at least in the more recent parts of the time series (since 1990), although they may not be that accurate. It is reported in France that recreational catches are estimated to be minor (~1% of the quota) but this may not be the case throughout the Mediterranean.</p> <p>Overall, there is not clear evidence that unquantified removals are a major concern for the stock assessment; they are one of a range of uncertainties, and most likely not the most serious. However, it is not possible to say at this point that there is ‘good’ information on all removals from the stock – SG80 not met.</p>		
<b>References</b>		<p>(ICCAT, 2017b, 2017c, 2017d, 2018a, 2018b)</p> <p>(Block et al., 2001; Aranda et al., 2013; Rooker et al., 2014; Richardson et al., 2016; Druon et al., 2016; Porch and Hanke, 2017; Lauretta, 2017; Morse et al., 2017; Apostolaki et al., 2018; Rouyer and Miller, 2018; Carruthers et al., 2018; Natale et al., 2018; Ortiz, 2018; Faillettaz et al., 2019); Di Natale et al. (2017, 2018)</p>		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>75</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>2</b>

**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	N
	Justification	The stock assessment uses a wide range of data, as described in Section 3.3. A range of models were tried, and hence the outcome makes the best use of the available data. It provides the required information (F/F <sub>0.1</sub> ) for the HCR, giving a range of results for different scenarios. SG80 is met. The assessment incorporates elements of the biology of the species (e.g. age/growth, M, size/age at maturity etc.). However, VPA is an unsophisticated stock assessment approach compared to that used for most tuna assessments (including for wBFT) and cannot take account of elements such as population spatial structure (although this is not guaranteed to improve the output; Carruthers and Kell, 2016). There remain issues in the biology of the species which cause considerable problems for the VPA assessment; notably the requirement for accurate catch-at-age data, as well as drivers of recruitment. SG100 is not met.		
b	Assessment approach			
	Guidepost	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	Y	Y	
	Justification	Reference points F <sub>0.1</sub> (and implicitly B <sub>0.1</sub> ) are considered more appropriate for the stock than MSY reference points, because it is not possible to make a robust estimate of a SR relationship. F <sub>0.1</sub> can be estimated and hence forms the basis of the HCR – fishing at F <sub>0.1</sub> will result in biomass B <sub>0.1</sub> in the long term even if this is unknown and variable (due to changes in recruitment). Given the uncertainties, this seems to be the best approach. SG80 is met.		
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	N
	Justification	The uncertainties in the assessment are highlighted by stock assessment group as well as SCRS; a Kobe plot is not provided because estimates of biomass reference points are not considered robust. Projections under the VPA are given under three different recruitment scenarios, and the scientists do not try to predict which is the ‘reference case’ from these three. The results of alternative models and model settings were extensively considered and discussed during the stock assessment workshop. SG80 is met.  Approximate CIs are provided for some parameter estimates (e.g. F/F <sub>0.1</sub> ) from the VPA reference case model, but of course this is not a true reflection of the actual level of uncertainty (i.e. considering other possible VPA settings, other models). SG100 is not met.		
d	Evaluation of assessment			
	Guided post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			N
	Justification	The assessment is not very robust, for reasons already outline above and in PI 1.1.1. Testing with simulated data shows the potential for bias in outputs. Alternative approaches have been extensively tried but so far have not proved robust either. Not met.		
e	Peer review of assessment			
	Guided post		The assessment of stock status is subject to peer review.	The assessment has been <b>internally and externally</b> peer reviewed.
	Met?		Y	Y
	Justification	It is the intent of ICCAT to provide external review as part of their initiative to provide best available science (see Resolution 2011/017). The assessments are conducted by a group of 30-40 scientists of many different nationalities and representing many different countries as well as formal observers (fisherman groups, NGOs). Qualified scientists representing different interest groups are often included within a member state's scientific delegation, as are scientists hired as external reviewers by the member state. Additionally, the ICCAT-SCRS has a system of bringing on external reviewers for key issues on the SCRS agenda including BFT. Also, BFT-e status has been reviewed through CITES criteria with FAO expert working groups. Finally, BFT assessments have had a history of journal-peer review articles addressing aspects of the assessment. The degree of "peer" review of Atlantic BFT surpasses most assessments. SG80 and SG100 are met.		
References		(ICCAT, 2017b, 2017c, 2017d, 2018a) (Fromentin et al., 2014; Carruthers and Kell, 2016; Kell et al., 2016; Collette, 2018)		

<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>	<b>85</b>
<b>CONDITION NUMBER (if relevant):</b>	<b>N/a</b>

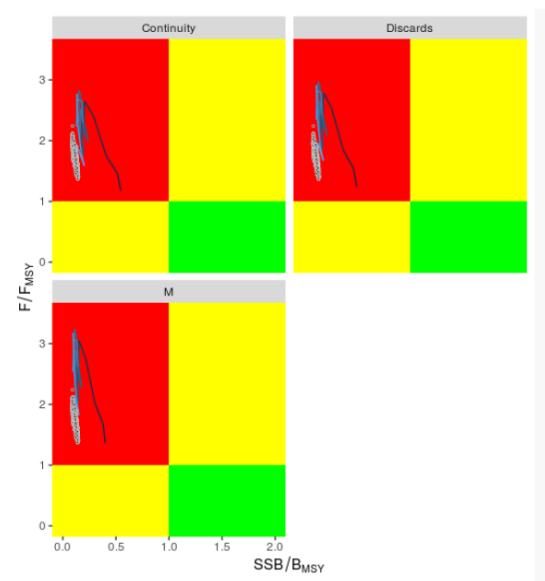
## Appendix 1.2 Principle 2

Evaluation Table for PI 2.1.1 – Primary species outcome

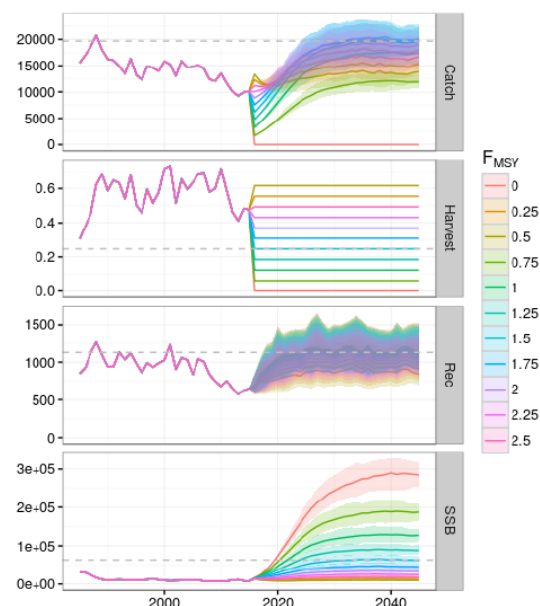
PI 2.1.1		The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	Main primary species stock status			
	<b>Guidepost</b>	<p>Main primary species are <b>likely</b> to be above the PRI</p> <p>OR</p> <p>If the species is below the PRI, the UoA has measures in place that are <b>expected</b> to ensure that the UoA does not hinder recovery and rebuilding.</p>	<p>Main primary species are <b>highly likely</b> to be above the PRI</p> <p>OR</p> <p>If the species is below the PRI, there is either <b>evidence of recovery</b> or a demonstrably effective strategy in place <b>between all MSC UoAs which categorise this species as main</b>, to ensure that they collectively do not hinder recovery and rebuilding.</p>	<p>There is a <b>high degree of certainty</b> that main primary species are above the PRI <b>and are</b> fluctuating around a level consistent with MSY.</p>
	<b>Met?</b>	<p>SWO – Y</p> <p>BSH – Y</p> <p>PIL – Y</p>	<p>SWO – Y</p> <p>BSH – Y</p> <p>PIL – Y</p>	<p>SWO – N</p> <p>BSH – N</p> <p>PIL – N</p>
	<b>Justification</b>	<p>Main primary species are Mediterranean swordfish (SWO), North Atlantic blue shark (BSH) and Adriatic sardine (PIL) (see Section 3.4.2, 3.4.3 and 3.4.4 for discussion).</p> <p><u>Swordfish</u>: The most recent stock assessment was carried out in 2016 (ICCAT-SCRS, 2016). The assessment uses an age-structured population model (XSA) and confirms that the stock is overfished and suffering overfishing and has been since the late 1980s (see Figure A). Recruitment has been declining for the last 15 years, and recent recruitments have been lower than the level expected to be available given recent levels of the spawning stock biomass (SSB). There is considerable uncertainty regarding the possible levels of future recruitment (Figure B). It is unclear whether the most recent levels are associated with a change in stock productivity, if they are an artefact of the estimation process, or if they are a random occurrence that could be reverted naturally by a series of positive recruitment anomalies (ICCAT-SCRS, 2016). Nevertheless, biomass levels over the last 25 years appear to be stable at low levels, with fishing mortality levels showing a declining trend since 2010. Based on this information and taking into account the projections under different F scenarios shown in Figure B, the team concluded that the stock is likely to be above the PRI and that SG60 is met. Nevertheless, the uncertainty associated with recruitment is high. On a precautionary basis, the team therefore concluded that the first part of SG80 is not met. It should thus be demonstrated that there is</p>		



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. According to ICCAT (2016a), the total landings of this stock in 2017 were 8,402 tonnes (ICCAT, 2018a). Based on Table 9, which represents an overestimate of swordfish landings by the UoA as the data do not distinguish between BFT or SWO targeting SATHOAN vessels, 59.5t were landed in 2017 according to 60% of the logbook data. Roughly estimated, this would equate to 99.2t for the whole fishery. Even doubling this figure to account for discards (on which there is limited UoA information) leads to annual estimate of 200t swordfish, or 2.4% of the total ICCAT catch in 2014. In the absence of other fisheries in the MSC programme that interact with this stock, and in line with MSC Guidance GSA3.4.6 (MSC FCRv2.0), the team considered that it is highly likely that UoA does not hinder recovery and rebuilding. SG80 is met.



**Figure A: Kobe Phase Plot, showing trajectories by XSA scenario; points represent the error in the 2015 estimates derived from a Monte Carlo simulation of the internal standard errors of the terminal N-at-age in the last year (from ICCAT-SCRS (2016))**



**Figure B: Projections from 0 to 2.5 times  $F_{MSY}$ ; showing catch and fishing mortality (Harvest), simulated recruitment (Rec) and spawning stock biomass (SSB); lines are medians and ribbons inter-quartiles**

Blue shark: also see Section 3.4.4.2. ICCAT currently only considers a South Atlantic and North Atlantic stock. On that basis, the fishery under assessment interacts with the latter. The most recent assessment for this stock was carried out in 2015 (ICCAT-SCRS, 2015), using both Bayesian Surplus Production Model (BSP) and Stock Synthesis (SS3) assessment methods. Scenarios with the BSP Model estimated that the stock was not overfished ( $B_{2013}/B_{MSY}=1.50$  to  $1.96$ ) and that overfishing was not occurring ( $F_{2013}/F_{MSY}=0.04$  to  $0.50$ ). Estimates obtained with SS3 varied more widely, but still predicted that the stock was not overfished ( $SSF_{2013}/SSF_{MSY}=1.35$  to  $3.45$  – SSF: spawning stock fecundity) and that overfishing was not occurring ( $F_{2013}/F_{MSY}=0.15$  to  $0.75$ ). Overall, the authors of the report stressed that significant uncertainty remains and that some important data are yet to be incorporated into the assessment (e.g. tagging data and spatial fleet structure for the North Atlantic). Because of the levels of uncertainty, no quantitative projections of future stock status have been carried out. The team considered that the North Atlantic blue shark stock is highly likely to be above the PRI (SG80 is met); however, owing to the uncertainty in the stock assessment, the rather dated stock assessment (the most recent year in the assessment is 2013) and the uncertainty as to whether the Mediterranean population should be regarded as a separate stock, SG100 is not met.

Adriatic sardine: also see Section 3.4.4.3. According to the GFCM and STECF stock assessments (GFCM, 2017; STECF, 2017), the stock is overfished with overfishing occurring.  $B_{current}$  (161,297 t) is however at a level above  $B_{lim}$  (125,318 t) according to the GFCM (2017) assessment.

		<p>The team therefore concluded that the stock is likely above the PRI (SG60 is met); however, in the absence of more detailed information on uncertainty levels in the stock assessment, the team considered the second part of SG80 on a precautionary basis. According to Client data, the UoA uses approximately 16.7 t of this stock for bait annually. According to STECF (2017), the estimated annual catch for 2016 was 78,355 t. This fishery therefore accounts for less than 0.1% of the total catch of this stock. In the absence of any other fisheries in the MSC programme that interact with this stock, the team concluded that the UoA is highly unlikely to hinder recovery and rebuilding of the Adriatic sardine. SG80 is met. SG100 is not met because F is significantly above <math>F_{MSY}</math>.</p> <p>Unobserved mortality of primary species is most likely to occur through ghost fishing. However, minimal gear loss is reported, and vessels deploy the longline gear with radio beacons placed at varying intervals along the mainline. These radio beacons enable the captain of the vessel to not only locate the drifting longline but also if the mainline breaks anywhere when hauling or otherwise, the captain is able to locate the separated section with the radio beacons that are placed along this section. Also, longline sets are marked and recorded on GPS so if for some reason the radio beacons are not functioning, the captain can return to the coordinates marked on the GPS, estimate the direction and speed of the current and search for the longline, probably with a 90% or more recovery rate. Therefore, the incidence of gear loss is very rare. In any case, lost pelagic longline or handline gear is only likely to continue to fish if bait remains on the hooks. Bait tends to be stripped relatively quickly off the hooks and as such, the ghost fishing mortality rate associated to lost longlines is usually low (Macfadyen et al., 2009). The team considered that unobserved mortality through ghost fishing was unlikely to be a significant factor in the fishery’s interactions with primary species.</p>		
b	Minor primary species stock status			
	Guidepost			For minor species that are below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species
	Met?			ALB – Y MAC – Y
	Justification	Mediterranean albacore (ALB) and Northeast Atlantic mackerel (MAC) are the only minor primary species (see Section 3.4.2 and 3.4.3). Although there is considerable uncertainty associated with the ALB stock assessment, recent fishing mortality levels appear to be below $F_{MSY}$ , and current biomass is approximately at $B_{MSY}$ level (ICCAT-SCRS, 2017). Albacore is therefore not below the PRI and SG100 is met. For MAC, although F is well above $F_{MSY}$ , B is only just below $MSY B_{trigger}$ and is still above $B_{lim}$ (ICES, 2018). SG100 is met.		
References		Macfadyen et al. (2009), ICCAT-SCRS (2015, 2016), GFCM (2017) and STECF (2017), ICES (2018)		
Swordfish (SWO)				80
Blue shark (BSH)				80

<b>Adriatic sardine (PIL)</b>	<b>80</b>
<b>Minor (ALB, MAC)</b>	<b>100</b>
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>	<b>85</b>
<b>CONDITION NUMBER (if relevant):</b>	<b>N/a</b>

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			
	Guidepost	There are <b>measures</b> 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 be above the point where recruitment would be impaired.	There is a <b>partial strategy</b> 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 <b>strategy</b> in place for the UoA for managing main and minor primary species.
	Met?	SWO – Y BSH – Y PIL – Y Minor – Y (default)	SWO – Y BSH – Y PIL – Y Minor – Y (default)	SWO – Y BSH – Y PIL – N Minor (ALB) – Y Minor (MAC) – N
	Justification	<p>The relevant MSC definitions are as follows (from FCRv2.0):</p> <p>“Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.</p> <p>A “partial strategy” represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.</p> <p>A “strategy” represents 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. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification of fishing practices in the light of the identification of unacceptable impacts.</p> <p>Swordfish: A 15-year recovery plan is in place (ICCAT Rec. 16-05) starting in 2017 and continuing through to 2031, with the goal of achieving <math>B_{MSY}</math> with at least 60% probability. Further detail is provided in Section 3.4.4.1, but in summary the plan relies on a TAC of 10,500 t for 2017 which should be gradually reduced by 3% each year from 2018 to 2022, as well as limits on the number of vessels authorised to fish for Mediterranean swordfish, closed fishing seasons (for the longline fishery: from 1 October to 30 November), an obligation to land swordfish</p>		

		<p>whole, a minimum landing size and gear restrictions for longlines. Rec. 03-04 also prohibits the use of drift-nets targeting large pelagic s in the Mediterranean. A new stock assessment is due to be completed by the SCRS in 2019, at which point the effectiveness of the Recovery plan will be assessed and advice will be provided on possible amendments of the various measures. The team concluded that these measures together meet the MSC definition of a strategy. SG100 is met for swordfish.</p> <p>Blue shark: Catches of the North Atlantic blue shark are subject to ICCAT Recommendation 16-12, which sets a catch limit corresponding to the average level observed during the period 2011-2015 (i.e. 39,102 t) and which was adopted as a TAC under EU legislation (EU, 2018a). If this limit is exceeded in any two consecutive years, ICCAT 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. At UoA level, the fishery has adopted a voluntary measure to release all blue sharks that are caught - this is part of the TRL-PA code of conduct and is audited on a first party, annual basis. Non-compliance with this measure would result in the vessel being struck off the TRL-PA register and therefore being removed from the UoA. Overall, the team decided that this constitutes a strategy and SG100 is met.</p> <p>Sardine and mackerel: As set out in PI 2.1.1(a) and Table 11, the amount of bait used by this fishery is small in comparison to the total landings and biomass for the source stocks. This constitutes a partial strategy to ensure that the fishery has no impact on the stock. It does not, however, meet MSC's definition of a strategy as given above, so SG100 is not met.</p> <p>Albacore: since minor species intervene at SG100 only, SG60 and 80 are met by default. For Mediterranean albacore, Rec. 17-05 aims to prevent an increase in fishing effort and to maintain catches below MSY until the SCRS can deliver more specific advice. Each CPC is therefore required to limit the number of their fishing vessels authorised to fish for Mediterranean albacore to the number of vessels that were authorized in 2017 under article 28 of Recommendation 16-05. CPCs may apply a tolerance of 10% to this capacity limit. There is also a closed season between 1 October to 30 November inclusive, as long as the closure period defined in paragraph 12 of ICCAT Recommendation 16-05 remains in force. The next stock assessment is due in 2021, providing an opportunity to review the stock status and the effectiveness of these management measures. The team considered that this is a strategy and that SG100 is met for this stock.</p>		
b	Management strategy evaluation			
	Guidepost	The measures are considered <b>likely</b> to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some <b>objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	Met?	SWO – Y BSH – Y PIL – Y Minor – Y (default)	SWO – Y BSH – Y PIL – Y Minor – Y (default)	SWO – N BSH – N PIL – N Minor – N

	<b>Justification</b>	<p>Swordfish: projections were carried out as part of the 2016 stock assessment (ICCAT-SCRS, 2016) under several F scenarios from <math>F_{MSY}</math> to <math>2.5F_{MSY}</math> (see Figure B in 2.1.1a). Although the projections provide some objective basis for confidence that the stock will in time rebuild to <math>B_{MSY}</math>, the rate of recovery will depend on possible levels of future recruitment which are at present highly uncertain. According to ICCAT-SCRS (2016), there are three possible scenarios:</p> <ol style="list-style-type: none"> <li>1) If recruitment can naturally come back to the levels of recruitment observed in the 1980s and 1990s, then the stock is severely overfished and will require long recovery times (<i>ca.</i> until 2040) before it reaches again <math>B_{MSY}</math> (this scenario is the one assumed for the projections in the stock assessment report).</li> <li>2) If the tendency of recruitment is an artefact of the estimation process (such as severe underestimation of small fish killed by the fishery (because of discarding), then current recruitment may be underestimated. The stock could recover to the level of <math>B_{MSY}</math> faster than in case a, if undersized fish mortality is reduced.</li> <li>3) If recruitment has changed because of a regime shift or changes in ecological conditions, then current stock productivity may be lower than in the 1990s and current reference points do not represent current stock conditions.</li> </ol> <p>Furthermore, one of the measures included in the rebuilding plan is a minimum size: In order to protect small swordfish, CPCs shall take the necessary measures to prohibit catching, retaining on board, landing, transporting, storing, selling, displaying or offering for sale Mediterranean swordfish measuring less than 100 cm LJFL or, in alternative, weighing less than 11,4 kg of round weight or 10,2 kg of gilled and gutted weight (ICCAT Rec. 16-05). A recent peer-reviewed paper presented at ICCAT SCRS 2019 on reproductive biology of swordfish in the Strait of Gibraltar found that female swordfish attained larger sizes than males and mature at a larger size, at 170 cm, as opposed to 95 cm LJFL for males (noting that the reproductive characteristics of swordfish caught in the Strait of Gibraltar are similar to those of the Mediterranean) (see ICCAT-SCRS (2019) and Abid et al. (2019)). With a minimum landing size at 100 cm LJFL, there is therefore a real risk that immature individuals are being caught by the UoA. At the scale of the UoA (i.e. the SWO catch accounts for 0.02% of the total SWO catch for that stock), the fact that some of these catches may be juveniles will not have any effect on the recoverability of the stock. This provides an objective basis for confidence that the strategy will work, at least at UoA level. SG80 is met. The level of uncertainty in the projections is, however, too significant for SG100 to be met. The team did raise a recommendation in relation to the minimum size and the likelihood of juvenile catches by the UoA (see Section 6.4)</p> <p>Blue shark: No projections were carried out as part of the ICCAT-SCRS (2015) stock assessment. However, the UoA's non-retention policy, combined with the likely high post-capture and post-release survivability of this species in the fishery under assessment (see Section 3.4.4.2 and Poisson et al. (2016)), provides an objective basis for confidence that the strategy will work. SG80 is met. Nevertheless, the Poisson et al. (2016) study was relatively limited in scale (only 44 blue sharks were tagged) and in the absence of formal testing at stock level, SG100 is not met.</p> <p>Bait (sardine and mackerel): the amount of bait used by this fishery being small in comparison to the total landings and biomass for the source stocks, provides an objective basis for confidence that the UoA is not having any impact on the stock. SG80 is met. Although the team had high confidence of a lack of impact, there is nothing in place that would constitute testing. SG100 is not met.</p> <p>For albacore, as far as the team is aware, the strategy has not been tested; improvements to the stock assessment are required for more precision, as noted in SIa. SG100 is not met.</p>
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c	Management strategy implementation			
	Guidepost		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .	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).
	Met?		SWO – Y BSH – Y PIL – Y Minor – Y (default)	SWO – N BSH – N PIL – Y Minor (ALB) – N Minor (MAC) – Y
	Justification	<p>Swordfish: landings of swordfish are closely monitored in the UoA, and vessels either have an authorization to target the species or catch it under a bycatch quota (limited to one specimen per day of fishing). Furthermore, the boats in the UoA are required to register all swordfish landings which are monitored in real-time by SATHOAN for quota-uptake management. Interviews with compliance officers at the DML indicate that non-compliance with swordfish regulations is not an issue in this fishery. This provides some evidence that the strategy is being implemented successfully and SG80 is met. However, considering the very low observer coverage in this fishery (see 2.1.3 rationale), clear evidence is lacking. SG100 is not met</p> <p>For blue shark, the UoA’s non-retention policy is audited on a regular basis by VALPEM (i.e. the organization in charge of the TRL-PA brand). This is therefore a 1<sup>st</sup> party audit and combined with the observer data provides some evidence that the strategy is being implemented successfully. SG80 is met. However, as for swordfish above, the observer coverage is too low for SG100 to be met. The same applies for albacore (minor species) for which SG100 is also not met.</p> <p>The quantity of bait (sardine and mackerel) used is known, as are total landings from the source stocks. SG80 is met. The low quantities of bait used (compared to the total catches of the source stocks) constitute the partial strategy and as such there is clear evidence that it is being implemented successfully and it is achieving its objective. SG100 is met.</p>		
d	Shark finning			
	Guidepost	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.	There is a <b>high degree of certainty</b> that shark finning is not taking place.
	Met?	SWO – N/a BSH – Y PIL – N/a	SWO – N/a BSH – Y PIL – N/a	SWO – N/a BSH – N PIL – N/a

		Minor – N/a	Minor – N/a	Minor – N/a
	<b>Justification</b>	REGULATION (EU) No 605/2013 of 12 June 2013 amending Council Regulation (EC) No 1185/2003 on the removal of fins of sharks on board vessels stipulates that sharks caught by EU vessels anywhere in the world must be landed with their fins naturally attached. Recommendation GFCM/36/2012/3 on fisheries management measures for the conservation of sharks and rays in the GFCM area of application also prohibits the practice of shark finning. In addition, the European market for shark fins is virtually non-existent. In the absence of any non-compliance incidents regarding shark finning, combined with the MCS system in place (see PI 3.2.3) the team was satisfied that it is highly likely that shark finning is not occurring. SG80 is met. SG100 is not met because of the low level of observer coverage (see Section 3.4.2).		
e	Review of alternative measures			
	<b>Guidepost</b>	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	<b>Met?</b>	SWO – Y BSH – Y PIL – N/a Minor – Y (default)	SWO – Y BSH – Y PIL – N/a Minor – Y (default)	SWO – N BSH – N PIL – N/a Minor (ALB) – N Minor (MAC) – N/a
	<b>Justification</b>	Bait species (sardine and mackerel): there is no unwanted catch as all of it is purchased and used. This scoring issue is therefore not relevant.  The SELPAL project (Poisson et al., 2016) (discussed in Section 3.4.2) ran from 2013 to 2016 and had the objective to quantify the impact of the longline fishery targeting bluefin tuna on sensitive species in the Golfe de Lion and to test measures to increase selectivity and mitigate any adverse impacts. The ECHOSEA programme (Section 3.4.2) is one new development that resulted directly from the SELPAL study. Another development has been the introduction of the Good Practice Guide ( <a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a> ), drafted in collaboration with IFREMER and UMR MARBEC and the use of which is obligatory for vessels subscribing to the TRL-PA brand. Furthermore, as part of the TRL-PA brand, regular 1 <sup>st</sup> party audits are undertaken to determine compliance with the code of conduct, gather details on gear use and bait use and make improvements where required. For example, whereas blue sharks were permitted to be landed in previous years, all sharks are now discarded under this programme as of 2018. Overall, there is a regular review of primary species bycatch and measures are implemented as appropriate. SG80 is met. Whether this review is biennial is unclear and remains to be seen now that the SELPAL study in particular has been completed. SG100 is not met.		

<b>References</b>	EU (2018a), ICCAT-SCRS (2015, 2016), Poisson et al. (2016), ECHOSEA ( <a href="http://amop-selpal.com/images/AMOP-A5_version-4-1.pdf">http://amop-selpal.com/images/AMOP-A5_version-4-1.pdf</a> )	
<b>Swordfish</b>		<b>85</b>
<b>Blue shark</b>		<b>85</b>
<b>Adriatic sardine</b>		<b>85</b>
<b>Minor (albacore)</b>		<b>85</b>
<b>Minor (mackerel)</b>		<b>90</b>
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>85</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/a</b>

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 species			
	Guidepost	Qualitative information is <b>adequate to estimate</b> the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is <b>adequate to assess</b> the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is <b>adequate to assess with a high degree of certainty</b> the impact of the UoA on main primary species with respect to status.
	Met?	Y	N	N
	Justification	<p>For both swordfish and blue shark, logbook data provide information on the amount of landed fish (although this should no longer be applicable to blue shark which are according to the client no longer landed by the UoA from 2018 onwards). Although all vessels are required to complete an EU logbook and 100% coverage can therefore be expected, the reality is that the collection of logbook data at national level by FranceAgrimer (made available through SIOP) is partial at best. This is reportedly related to capacity issues and to technical problems. At UoA level, SATHOAN also compiles its members' logbook data with the main aim of monitoring quota uptake. While data on bluefin tuna and swordfish are assumed to be complete, other retained species are only partially entered as only trips for which geolocation data are available contribute to the dataset (related to capacity issues at SATHOAN) – see Section 3.4.2 for more detail. All this relates to landed catch only and information on discards is only available through the IFREMER observer data, collected as part of the French national observer programme (Obsmer). Note that discard data are starting to be collected through the ECHOSEA app (Section 3.4.2) however this has only started to be implemented in 2018. For the UoA, IFREMER observer coverage appears to be low, with on average 12 observed BFT trips per year between 2013 and 2017, corresponding to about 0.5% of the overall effort in terms of trips. Although these data combined provided the team with a good indication of which the 'main' primary species are, as well as what the order of magnitude of catches is, the quality of the data was concerning. Although assumptions can be made to estimate the fishery's impact on the species concerned (see 2.1.1) and therefore SG60 is met, SG80 is not met.</p> <p>Bait species (sardine): There is quantitative information on the amount of sardines used as bait (based on UoA data – Table 11). The quantity of bait used is therefore known, as are the landings of the source stock. Some quantitative information is thus available and adequate to</p>		

		assess the impact of the UoA on the species. SG80 is met. SG100 is not met as bait usage is not systematically monitored by the UoA and the data collected are based on only one year's worth of data.		
b	Information adequacy for assessment of impact on minor species			
	Guidepost			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			N
	Justification	For the same reasons outlined in scoring issue a, SG100 is not met for albacore and mackerel.		
c	Information adequacy for management strategy			
	Guidepost	Information is adequate to support <b>measures</b> to manage <b>main</b> primary species.	Information is adequate to support a <b>partial strategy</b> to manage <b>main</b> Primary species.	Information is adequate to support a <b>strategy</b> to manage <b>all</b> primary species, and evaluate with a <b>high degree of certainty</b> whether the strategy is achieving its objective.
	Met?	Y	N	N
	Justification	For the bait species (sardine and mackerel), the team concluded that there is a 'partial strategy' in place for bait rather than a strategy (see 2.1.2). The information available (purchase data, landings data) is sufficient to support this partial strategy and SG80 is met. Although a good amount of information is available on landings of non-bait primary species, particularly swordfish, UoA information on discarding of both swordfish and blue shark is lacking – some information is available through the Obsmer observer programme, but observer coverage is too low to be truly representative of the fishery. Although a strategy is in place at ICCAT level for swordfish, concern was raised by the SCRS that since the establishment of minimum landing sizes, the discard levels of undersized swordfish may have increased (ICCAT-SCRS, 2016). For blue shark, since the UoA's non-retention policy has come into effect, the only independent data source is the Obsmer data for which coverage is currently insufficient. Overall, UoA level impacts can be estimated for the species concerned, based on a combination of logbook and observer data, sufficient to support relevant management measures (SG60 is met). A meaningful strategy or partial strategy at UoA level should, however, rely on more and better-quality data. SG80 is not met.		
References		ICCAT-SCRS (2015, 2016), Poisson et al. (2016)		
OVERALL PERFORMANCE INDICATOR SCORE:				60
CONDITION NUMBER (if relevant):				3

Evaluation Table for PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biological based limit and does not hinder recovery of secondary species if they are below a biological based limit.		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guidepost	<p>Main Secondary species are <b>likely</b> to be within biologically based limits.</p> <p>OR</p> <p>If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.</p>	<p>Main secondary species are <b>highly likely</b> to be above biologically based limits</p> <p>OR</p> <p>If below biologically based limits, there is either <b>evidence of recovery</b> or a <b>demonstrably effective partial strategy</b> in place such that the UoA does not hinder recovery and rebuilding.</p> <p>AND</p> <p>Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that also have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.</p>	<p>There is a <b>high degree of certainty</b> that main secondary species are within biologically based limits.</p>
	Met?	RBF	RBF	RBF
	Justification	<p>The pelagic stingray (<i>P. violacea</i>) is the only main secondary species according to Obsmer observer data. The dominance of this species in the catch was confirmed by stakeholders during site visit interviews. The species is consistently discarded; as their name suggests, stingrays have a powerful poisonous tail spine that fishers are keen to avoid – any stingray caught is therefore systematically cut off the line, as close to the hook as possible. Due to the lack of population data or stock assessments for this species in the Mediterranean, the Risk-Based Framework (RBF) was triggered in line with Table 3 of the MSC FCR v2.0 to assess this species' outcome score (PI 2.2.1). The results of the Productivity Susceptibility Analysis are given in Appendix 2. A PSA score of 2.44 was calculated, which equates to an MSC PSA derived score of 87. As the RBF was not applied to any of the minor species listed in Table 8 to Table 11, the PI score is capped at 80 (this is in line with clause PF5.3.2.1 of the MSC FCRv2.0)</p>		

<b>b</b>	<b>Minor secondary species stock status</b>			
	<b>Guidepost</b>			For minor species that are below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	<b>Met?</b>	RBF	RBF	RBF
	<b>Justification</b>	See above – the score is capped at 80.		
<b>References</b>		Appendix 2.		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>80</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>N/a</b>



Evaluation Table for PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary 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			
	Guidepost	There are <b>measures</b> in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a <b>partial strategy</b> in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a <b>strategy</b> in place for the UoA for managing main and minor secondary species.
	Met?	Y	Y	N
	Justification	See 2.1.2 for MSC definitions.  No pelagic stingrays are retained in the UoA. All specimens are systematically discarded and cut off the line as close to the hook as possible (as per the Good Practice Handbook which is a requirement for TRL-PA membership), SG60 is met. It is worth noting that fishers have limited interest in bringing this species onboard the vessel due to the dangerous and potentially lethal tail spine. Bearing in mind that this is a relatively robust species (RBF PSA score of 87 – see Appendix 2) with post-release mortality rates estimated at 28% (albeit for a small sample – see Poisson et al. (2016)), this could be considered a partial strategy expected to maintain or not hinder rebuilding of this species. SG80 is met. However, the management in place does not address whether more could be done by the UoA to avoid catches of this species in the first place. For this reason, SG100 is not met. In the absence of a strategy for minor species, SG100 is not met overall.		
b	Management strategy evaluation			
	Guidepost	The measures are considered <b>likely</b> to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is <b>some objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	Y	N	N
	Justification	As mentioned above, the estimated mortality rates, robust nature of the species and best practice handling techniques combined give some plausible argument that the strategy will work. SG60 is met. There remain, however, significant question marks as to what the actual levels		

		of interaction are with pelagic stingrays in this fishery. At 0.5% of the overall effort in terms of trips, the observer coverage in this fishery is too low to enable meaningful analysis of impacts at UoA level, and to determine whether additional management action may be required. The team concluded that this information gap needs to be filled before it can be determined whether there is an objective basis for confidence that the strategy will work. SG80 is not met		
c	Management strategy implementation			
	Guidepost		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
	Met?		Y	N
	Justification	Implementation of the Good Practice Handbook is a requirement for TRL-PA membership. Furthermore, fishers have limited interest in bringing this species onboard the vessel due to the dangerous and potentially lethal tail spine and the absence of a European market for pelagic stingray. This, combined with the observer data which shows that all specimens are systematically discarded, provides some evidence that the partial strategy is being implemented successfully. SG80 is met. In the absence of better observer coverage however, SG100 is not met.		
d	Shark finning			
	Guidepost	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.	There is a <b>high degree of certainty</b> that shark finning is not taking place.
	Met?	Y	Y	N
	Justification	As explained in Section 3.4.2, the fishery also interacts with sharks; these are blue shark, common thresher and short-fin mako. With the exception of blue shark, which is a primary species, sharks are considered under Secondary species.  REGULATION (EU) No 605/2013 of 12 June 2013 amending Council Regulation (EC) No 1185/2003 on the removal of fins of sharks on board vessels stipulates that sharks caught by EU vessels anywhere in the world must be landed with their fins naturally attached. Implementation is confirmed by the French and European (EFCA-no risk)) fisheries surveillance authorities, SG60 and SG80 are met. Recommendation GFCM/36/2012/3 on fisheries management measures for the conservation of sharks and rays in the GFCM area of application also prohibits the practice of shark finning. In addition, the European market for shark fins is virtually non-existent. In the absence of any non-compliance incidents regarding shark finning, the team was satisfied that 80 is met. SG100 is not met because of the low observer coverage in this fishery.		
e	Review of alternative measures to minimise mortality of unwanted catch			

	<b>Justification</b>	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of main secondary species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of main secondary species and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of all secondary species, and they are implemented, as appropriate.
	<b>Met?</b>	Y	Y	N
	<b>Guidepost</b>	The SELPAL project (Poisson et al., 2016) ran from 2013 to 2016 and had the objective to quantify the impact of the longline fishery targeting bluefin tuna on sensitive species in the Golfe de Lion and to test measures to increase selectivity and mitigate any adverse impacts. The SELPAL project also considered the results of the REPAST project which was aimed at quantifying the impact of the longline fishery on the pelagic stingray, SG60 is met. The ECHOSEA programme (Section 3.4.2) is one new development that resulted directly from the SELPAL study. Another development has been the introduction of the Good Practice Guide ( <a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a> ), drafted in collaboration with IFREMER and UMR MARBEC and the use of which is obligatory for vessels subscribing to the TRL-PA brand. Furthermore, as part of the TRL-PA brand, regular audits are commissioned by VALPEM to determine compliance with the code of conduct, gather details on gear use and bait use and make improvements where required. Overall, there is a regular review of secondary species bycatch and measures are implemented as appropriate. SG80 is met. Whether this review is biennial is unclear and remains to be seen now that the SELPAL study in particular has been completed. SG100 is not met.		
<b>References</b>		Appendix 2, Poisson et al. (2016), VALPEM Good Practice Handbook ( <a href="http://www.thonrougedeligne.com/wp-content/uploads/2015/04/espece.pdf">http://www.thonrougedeligne.com/wp-content/uploads/2015/04/espece.pdf</a> ), ECHOSEA ( <a href="http://amop-selpal.com/images/AMOP-A5_version-4-1.pdf">http://amop-selpal.com/images/AMOP-A5_version-4-1.pdf</a> )		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>75</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>4</b>

Evaluation Table for PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guidepost	Qualitative information is <b>adequate to estimate</b> the impact of the UoA on the main secondary species with respect to status. OR <b>If RBF is used to score PI 2.2.1 for the UoA:</b> Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and <b>adequate to assess</b> the impact of the UoA on main secondary species with respect to status. OR <b>If RBF is used to score PI 2.2.1 for the UoA:</b> Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and <b>adequate to assess with a high degree of certainty</b> the impact of the UoA on main secondary species with respect to status.
	Met?	Pelagic stingray - Y	Pelagic stingray - Y	Pelagic stingray - N
	Justification	For the pelagic stingray, the only available information on UoA level interactions stems from the IFREMER observer data, collected as part of the French national observer programme (Obsmer). For the UoA, observer coverage appears to be low, with on average 12 observed BFT trips per year between 2013 and 2017, corresponding to about 0.5% of the overall effort in terms of trips. Due to limited information on stock identity and the absence of reference points for this species, the RBF was triggered to score 2.2.1 (see Appendix 2). The quantitative information available on the species' life-history characteristics was sufficient to score productivity. Some quantitative information was also available to score susceptibility (e.g. the depth profile of the fishery and the species, as well as UoA post-capture and post-release mortality rates for pelagic stingray, all of which were examined empirically as part of the SELPAL study - Poisson et al. (2016)). SG60 and SG80 are therefore met. In the absence of a high degree of certainty on the impact of the UoA on pelagic stingrays, SG100 is not met.		
b	Information adequacy for assessment of impacts on minor secondary species			
	Guidepost			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			Minor - N

	<b>Justification</b>	Although some observer data are available, indicating the likely level of interactions with minor species, the degree of coverage is insufficient for SG100 to be met. Furthermore, The SELPAL report (Poisson et al., 2016) revealed that in addition to blue shark, other pelagic shark species such as the common thresher ( <i>Alopias vulpinus</i> ) and short-fin mako ( <i>Isurus oxyrhincus</i> ) may also be landed by the French tuna longline fishery. Both species would be considered as secondary species. Considering neither species makes an appearance in the observer data (Table 10) any quantities landed by the fishery are probably minor. Nevertheless, the complete absence of those species in the logbook data (Table 8, Table 9) does put into the question the quality of the data received.		
<b>c</b>	Information adequacy for management strategy			
	<b>Guidepost</b>	Information is adequate to support <b>measures</b> to manage <b>main</b> secondary species.	Information is adequate to support a <b>partial strategy</b> to manage <b>main</b> secondary species.	Information is adequate to support a <b>strategy</b> to manage <b>all</b> secondary species, and <b>evaluate</b> with a <b>high degree of certainty</b> whether the strategy is <b>achieving its objective</b> .
	<b>Met?</b>	Pelagic stingray – Y Minor - Y (default)	Pelagic stingray – N Minor - Y (default)	Pelagic stingray – N Minor - N
	<b>Justification</b>	The research into post-capture and post-release mortality rates of pelagic stingrays in the UoA provides some useful information on the effectiveness of the partial strategy. There remain, however, significant question marks as to what the actual levels of interaction are with pelagic stingrays in this fishery. At 0.5% of the overall effort in terms of trips, the observer coverage in this fishery is too low to enable meaningful analysis of impacts at UoA level, and to determine whether additional management action may be required. The team therefore decided that SG80 was not met. For the same reason, SG100 is not met for minor species.		
<b>References</b>		Poisson et al. (2016); Obsmer observer data		
<b>Pelagic stingray</b>				<b>70</b>
<b>Minor species</b>				<b>80</b>
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>75</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>5</b>

Evaluation Table for PI 2.3.1 – ETP species outcome

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		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guidepost	Where national and/or international requirements set limits for ETP species, the effects of the UoA on the population/stock are known and <b>likely</b> to be within these limits.	Where national and/or international requirements set limits for ETP species, the <b>combined effects of the MSC UoAs</b> on the population/stock are known and <b>highly likely</b> to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a <b>high degree of certainty</b> that the <b>combined effects of the MSC UoAs</b> are within these limits.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	None of the ETP species identified as potentially interacting with this fishery have limits. This scoring issue is not relevant.		
b	Direct effects			
	Guidepost	Known direct effects of the UoA are likely to not <b>hinder recovery</b> of ETP species.	Direct effects of the UoA are <b>highly likely</b> to not <b>hinder recovery</b> of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	Met?	Seabirds – Y Sea turtles – Y Marine mammals – Y	Seabirds – N Sea turtles – N Marine mammals - Y	Seabirds – N Sea turtles – N Marine mammals - N
	Justification	The sole source of information on UoA interactions with ETP species is the Obsmer observer data (see Section 3.4.2) although the SELPAL study (Poisson et al., 2016) also gives a more qualitative indication of likely interactions. Based on stakeholder interviews and available literature (e.g. Wallace et al. (2013), Garcia (2013), López et al. (2012) and Poisson et al. (2016)), this fishery is likely to interact with three groupings of ETP species: seabirds, sea turtles and marine mammals. With limited information on the exact species involved (although assumptions can be made – see further on), the team retained these three groupings as scoring elements for the ETP species component. Although the fishery also interacts with sharks, none of the species identified in the data or through stakeholder interviews would qualify as ETP species (these are blue shark, common thresher and short-fin mako). With the exception of blue shark, sharks were therefore considered under Secondary species.		

		<p>According to fishers interviewed during the site visit, interactions with seabirds are relatively rare, with about 2 birds caught each year per vessel. Sea turtles are reportedly never caught and interactions with marine mammals are thought to be extremely rare. Depredation for example is also considered a rare occurrence.</p> <p>A summary of the observer data for the period 2014 – 17 is shown in Table 13, indicating that interactions with <u>seabirds</u> take place each year (varying between 6 and 18 annually, except for 2016 when none were recorded). Some of these interactions result in hooked birds with a degree of associated mortality. However, the nature of all interactions is not detailed in the observer data and information on the fate of all individuals involved is not available. Between 2014 and 2016, none of the seabirds in the dataset were identified to species level although interactions took place with puffins, terns and gulls. In 2017, 18 interactions with <i>Puffinus yelkouan</i> were reported by observers. As explained in Section 3.4.2, the observer coverage in this fishery is low, with on average 12 observed BFT trips per year between 2013 and 2017, corresponding to about 0.5% of the overall effort in terms of trips.</p> <p>According to Garcia (2013), the Gulf of Lions is one of the hotspots of productivity in the Mediterranean Sea, offering ideal conditions for foraging seabirds, which are concentrated on it over much of the year. In addition, the Mediterranean marine avifauna is characterised by a high number of endemic taxa. All four Procellariiforms (petrels and shearwaters) present in the Mediterranean are endemic taxa: two at species level (<i>Puffinus mauretanicus</i> and <i>Puffinus yelkouan</i>) and two at subspecies level (<i>Calonectris d. diomedea</i> and <i>Hydrobates pelagicus melitensis</i>). Besides, one endemic cormorant (Shag <i>Phalacrocorax aristotelis desmarestii</i>), three gulls (Mediterranean <i>Larus melanocephalus</i>, Audouin's <i>Larus audouinii</i> and yellow-legged <i>Larus michahellis michahellis</i>) and one tern (Lesser-crested <i>Sterna bengalensis emigrata</i>) also originate from the Mediterranean region. Table 14 summarises the key points for the main seabird species likely to be encountered by this fishery; three of which, <i>P. yelkouan</i>, <i>P. mauretanicus</i> and <i>Calonectris diomedea</i>, have shown a particular susceptibility to capture in fisheries including pelagic longline fisheries (see Section 3.4.5.2).</p> <p>The team took into account the scale of the UoA (24 vessels), the limited footprint of the fishery (Figure 5 and Figure 6) and the implementation of the Good Practice Guide (<a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a>), drafted in collaboration with IFREMER and UMR MARBEC and the use of which is obligatory for vessels subscribing to the TRL-PA brand, and considered that the majority of interactions between the UoA and seabirds is not likely to result in mortality to the extent that it will hinder recovery of the species concerned. SG60 is met. However, owing to the low observer coverage and the likely overlap between the fishing grounds and known seabird foraging areas described in Table 14, it is not known whether direct effects of the UoA are highly likely to not hinder recovery of ETP species. SG80 is not met.</p> <p><u>Sea turtles</u>: Within the Mediterranean, two species of sea turtle are known to occur – these are the loggerhead (<i>Caretta caretta</i>) and green turtle (<i>Chelonia mydas</i>) which use the basin for reproduction as well as feeding. The leatherback (<i>Dermochelys coriacea</i>) is also increasingly observed. The fishery under assessment overlaps with the three Mediterranean RMUs shown in Figure 14 (see Section 3.4.5.1 for more detail) indicating interactions are likely. In the observer data (Table 10), only one sea turtle was recorded – it was found at the surface in difficulty, however it is unclear whether this was caused by an interaction with the fishery. Overall, according to the fishers and other stakeholders interviewed during the assessment, sea turtle interactions do not appear to be a concern in this fishery. Furthermore, as for seabirds above, all vessels in the UoA are required to adhere to the Good Practice Guide which includes handling techniques for sea turtles. This information, combined with the available observer data, indicates that the UoA is likely to not hinder recovery of sea turtles. SG60 is</p>
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		<p>met. As for seabirds, however, the observer coverage is too low to determine that the UoA is highly likely to not hinder recovery. SG80 is not met.</p> <p>Marine mammals: interactions with marine mammals (either through depredation, entanglement or direct capture) is reportedly very rare – this was confirmed by all stakeholders during site visit interviews. Other than some reported sightings of dolphins (which did not interact with the vessel), no interactions were noted in the observer data. In the Spanish tuna longline fishery, an onboard observer programme was implemented by the Spanish Oceanographic Institute (IEO, <i>Instituto Español de Oceanografía</i>) with the aim to report data on marine mammal bycatch in the western Mediterranean. Data on marine mammal bycatch were collected during the period 2000-2009, revealing that Risso's dolphin (<i>Grampus griseus</i>) is the species most affected by the Spanish longline fishery in the western Mediterranean. Overall however, the bycatch per unit effort (0.011 marine mammals/1000 hooks; for <i>G. griseus</i> this was 0.007 dolphins/1000 hooks) was low compared to other bycatch species, such as sharks, seabirds and sea turtles, and the number of incidental marine mammals per set caught by Spanish drifting longline fisheries in the western Mediterranean remains less than that in other fisheries, such as purse seine and trawl (López et al., 2012). On this basis, and despite the low observer coverage, the assessment team considered that the UoA is highly likely to not hinder recovery of marine mammals. SG60 and SG80 are met. There is, however, no high degree of confidence that this is the case and as such SG100 is not met.</p> <p>Unobserved mortality of ETP species is most likely to occur through ghost fishing. However, gear loss is reportedly minimal, and vessels deploy the longline gear with radio beacons placed at varying intervals along the mainline. These radio beacons enable the captain of the vessel to not only locate the drifting longline but also if the mainline breaks anywhere when hauling or otherwise, the captain is able to locate the separated section with the radio beacons that are placed along this section. Also, longline sets are marked and recorded on GPS so if for some reason the radio beacons are not functioning, the captain can return to the coordinates marked on the GPS, estimate the direction and speed of the current and search for the longline, probably with a 90% or more recovery rate. Therefore, the incidence of gear loss is very rare. In any case, lost pelagic longline or handline gear is only likely to continue to fish as long as bait remains on the hooks. Bait tends to be stripped relatively quickly off the hooks and as such, the ghost fishing mortality rate associated to lost longlines is usually low (Macfadyen et al., 2009). Although ETP species may be more vulnerable to ghost fishing through entanglement than primary or secondary species, the team considered that any effects of ghostfishing are highly likely to not hinder recovery of ETP species.</p>	
c	Indirect effects		
	Guidepost	Indirect effects have been considered and are thought to be <b>highly likely</b> to not create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?	Seabirds – Y Sea turtles – Y Marine mammals – Y	Seabirds – N Sea turtles – N Marine mammals - Y

	<b>Justification</b>	<p>Note: Discard and post-release mortality is accounted for in the data cited above and is therefore not an indirect effect. The team considered possible indirect effects to be as follows:</p> <p>Seabirds: Disturbance around nesting / roosting areas / foraging areas; reduced food availability</p> <p>Sea turtles: Disturbance around nesting areas / inter-nesting foraging areas; reduced food availability</p> <p>Marine mammals: Noise disturbance, change in foraging behavior; reduced food availability</p> <p>Regarding food availability, none of the species mentioned in 2.3.1 above are reliant on any of the principal species caught in this fishery (i.e. bluefin tuna, swordfish, blue shark and pelagic stingray). Although there is likely to be some overlap in prey species with the minor secondary species identified, the quantities taken by the fishery are considered sufficiently low so as not to limit ETP species food resources. Bait species come from a separate ecosystem (see 2.1.1). For sea turtles and seabirds, disturbance around inshore nesting, foraging or roosting areas is highly unlikely as the fishery takes place along some of the most populated coastline around the Mediterranean and most breeding and nesting of seabirds is therefore likely to take place in areas that have been protected by law, as part of the Natura 2000 framework, as follows (from Garcia (2013)):</p> <ul style="list-style-type: none"> <li>- FR9112034 – Cap Béar–Cap Cerbère (very important site <i>P. yelkouan</i> ; important site <i>P. mauretanicus</i> and <i>C. diomedea</i> )</li> <li>- FR9112035 – Côte Languedocienne (very important site <i>P. yelkouan</i>)</li> <li>- FR9310019 – Camargue (very important site <i>P. yelkouan</i> ; presence <i>P. mauretanicus</i>, <i>C. diomedea</i> and <i>H. pelagicus</i>)</li> <li>- FR9112013 – Petite Camargue Laguno-Marine (presence <i>P. mauretanicus</i> and <i>C. diomedea</i>)</li> <li>- FR9312007 – Îles Marseillaises–Cassidaigne (breeding; remarkable site <i>P. yelkouan</i>, <i>P. mauretanicus</i>, <i>C. diomedea</i> and <i>H. pelagicus</i>)</li> <li>- FR9310020 – Îles d’Hyères (breeding; remarkable site <i>P. yelkouan</i>, <i>P. mauretanicus</i> and <i>C. diomedea</i>; important site <i>H. pelagicus</i>)</li> </ul> <p>In terms of foraging, it is likely that the fishery facilitates foraging (through discards) rather than disturbs it as birds are attracted to fishing vessels – it is true however that this may instead lead to direct impacts which is covered in 2.3.1b above.</p> <p>For sea turtles, most of the green sea turtle nesting sites are situated in the Eastern Mediterranean (Greece, Cyprus, Turkey, Lebanon, Israel and Egypt and Libya) (Kasperek et al., 2001). For the loggerhead, the main nesting concentrations are in Greece, Turkey and Cyprus and potentially Libya, and minor nesting aggregations have been described in Egypt, Lebanon, Israel, Italy, Syria and Tunisia (Broderick et al., 2002). Disturbance of nesting and inter-nesting areas along the French Mediterranean coastline is therefore highly unlikely. Sea turtles are also highly migratory and are unlikely to be significantly affected by the relatively small footprint of the UoA.</p> <p>Finally, for marine mammals, noise disturbance is likely to be minimal because of the small number of vessels, all of which are under 18m in length, and the low noise impact from the gear itself (compared to bottom trawls for example). It is known that marine mammals have changed their foraging behaviour in response to the availability of fish on longlines –aside from the risk of bycatch (considered under direct impacts above), it has been shown in other fisheries (e.g. orcas in toothfish fisheries) that the impact on the mammals themselves is positive.</p> <p>Overall, the team concluded that indirect impacts on seabirds, sea turtles and marine mammals are highly unlikely. SG80 is met. Considering the low level of observer coverage, the team felt that a better understanding of interactions with sea turtles and seabirds in particular is</p>
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		needed before there can be a high degree of confidence. SG100 is not met. The low observer coverage is less problematic for marine mammals however which have been shown to benefit from depredating longlines. SG100 is met for marine mammals.
<b>References</b>	Wallace et al. (2013), Broderick et al. (2002), Garcia (2013), Kasperek et al. (2001), López et al. (2012) and Poisson et al. (2016)	
<b>Seabirds</b>		<b>70</b>
<b>Sea turtles</b>		<b>70</b>
<b>Marine mammals</b>		<b>90</b>
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>75</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>6</b>

Evaluation Table for PI 2.3.2 – ETP species management strategy

PI 2.3.2		<p>The UoA has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> <li>• meet national and international requirements;</li> <li>• ensure the UoA does not hinder recovery of ETP species.</li> </ul> <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.</p>		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guidepost	There are <b>measures</b> in place that minimise the UoA-related mortality of ETP species, and are expected to be <b>highly likely to achieve</b> national and international requirements for the protection of ETP species.	There is a <b>strategy</b> in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be <b>highly likely to achieve</b> national and international requirements for the protection of ETP species.	There is a <b>comprehensive strategy</b> in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to <b>achieve above</b> national and international requirements for the protection of ETP species.
	Met?	Y	N	N
	Justification	<p>Measures in place to manage the UoA's impact on ETP species include the following:</p> <p>At regional level:</p> <ul style="list-style-type: none"> <li>- ICCAT Rec. 07-07 on Reducing Incidental Bycatch of Seabirds in Longline Fisheries. This recommendation sets out <i>inter alia</i> requirements for recording interactions with seabirds; for CPCs to seek to achieve reductions in levels of seabird by-catch across all fishing areas, seasons and fisheries, through the use of effective mitigation measures; and the obligatory use of bird-scaring lines (tori poles) for vessels fishing south of 20°S (which is therefore not applicable to the UoA);</li> <li>- ICCAT Rec. 10-09 on the bycatch of Sea Turtles in ICCAT Fisheries, requiring <i>inter alia</i> for longline vessels to carry on board safe handling, disentanglement and release equipment capable of releasing sea turtles in a manner that maximizes the probability of their survival;</li> <li>- ICCAT Rec. 11-10 on Information Collection and Harmonization of Data on bycatch and Discards in ICCAT Fisheries requiring <i>inter alia</i> the collection of bycatch and discard data in CPC's existing domestic scientific observer programs and logbook programs;</li> <li>- ICCAT Rec. 16-14 to establish minimum standards for fishing vessel scientific observer programs, requiring <i>inter alia</i> a minimum of 5% observer coverage of fishing effort in each of the pelagic longline, purse seine, and, as defined in the ICCAT glossary, bait boat, traps, gillnet and trawl fisheries. For vessels less than 15 meters, where an extraordinary safety concern may exist that precludes deployment of an</li> </ul>		

		<p>onboard observer, a CPC may employ an alternative scientific monitoring approach that will collect data equivalent to that specified in this recommendation in a manner that ensures comparable coverage;</p> <ul style="list-style-type: none"> <li>- Recommendation GFCM/35/2011/3 on reducing incidental bycatch of seabirds in fisheries in the GFCM area of application includes requirements for monitoring and recording of seabird bycatch, and provisions for exploring options for the mitigation of seabirds bycatch in the Mediterranean fisheries;</li> <li>- Recommendation GFCM/35/2011/4 on the incidental bycatch of sea turtles in fisheries in the GFCM area of application includes requirements for monitoring and recording of sea turtle bycatch, requires the adoption of sea turtle bycatch mitigation measures (although these are not defined), requires all sea turtles to be safely handled and released and requires all vessels using longlines in the GFCM area of application to carry on board safe handling, disentanglement and release equipment, capable of releasing sea turtles unharmed and in a manner that maximizes the probability of their survival.</li> </ul> <p>At national level:</p> <ul style="list-style-type: none"> <li>- <i>Arrêté du 14 octobre 2005 fixant la liste des tortues marines protégées sur le territoire national et les modalités de leur protection</i> ; prohibiting (<i>inter alia</i>) the harming or killing of any sea turtle ;</li> <li>- <i>Arrêté du 29 octobre 2009 fixant la liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection</i> ; prohibiting (<i>inter alia</i>) the harming or killing of any bird listed in the Arrêté.</li> <li>- <i>Arrêté du 1er juillet 2011 fixant la liste des mammifères marins protégés sur le territoire national et les modalités de leur protection</i></li> </ul> <p>In addition, the Protocol Concerning Mediterranean Specially Protected Areas and Biological Diversity (Adopted on 10 June 1995) has enabled the establishment of Specially Protected Areas of Mediterranean Importance (SPAMI) for the protection of areas of particular natural or cultural value and the protection, preservation and management of threatened or endangered species of flora and fauna – see Appendix 8 for a map showing all SPAMIs. Five of these SPAMIs are located in the UoA area.</p> <p>At UoA level:</p> <p>The implementation of the Good Practice Guide (<a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a>), drafted in collaboration with IFREMER and UMR MARBEC and the use of which is obligatory for vessels subscribing to the TRL-PA brand, is the main instrument for managing the UoA's impact on ETP species. Another measure includes the independent monitoring of UoA vessels under the Obsmer programme (estimated at 0.5% coverage for 2017 – see Section 3.4.2), as well as the recent implementation of the ECHOSEA app which enables self-recording of all species interactions (including ETP) by the fishers.</p> <p>All of these measures aim to minimise the UoA-related mortality of ETP species and are expected to be highly likely to achieve national and international requirements for the protection of ETP species – SG60 is therefore met. In the absence of any other information sources from which to derive the likely level of ETP interactions, the team considered that the observer programme is an integral part of the ETP management strategy. Although 5% monitoring is required at ICCAT level, it does not appear to be implemented in this fishery. The level of monitoring in the UoA with regard to ETP species was therefore found to be insufficient for SG80 to be met.</p>
<b>b</b>	Management strategy in place (alternative)	

	<b>Guidepost</b>	There are <b>measures</b> in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a <b>strategy</b> in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a <b>comprehensive strategy</b> in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species
	<b>Met?</b>	Not scored	Not scored	Not scored
	<b>Justification</b>	Not scored as there are national and international requirements for the protection of ETP species.		
c	Management strategy evaluation			
	<b>Guidepost</b>	The measures are <b>considered likely</b> to work, based on <b>plausible argument</b> (e.g., general experience, theory or comparison with similar fisheries/species).	There is an <b>objective basis for confidence</b> that the measures/strategy will work, based on <b>information</b> directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a <b>quantitative analysis</b> supports <b>high confidence</b> that the strategy will work.
	<b>Met?</b>	Y	N	N
	<b>Justification</b>	All of the measures listed in scoring issue a provide a legal framework for the protection of ETP species and aim to minimise UoA-related mortality through non-retention policies and best handling and release practices. Overall, there is a plausible argument that the measures are considered likely to work and SG60 is met. However, the existing observer data are not sufficient to provide an objective basis for confidence that the measures will work, particularly for seabirds and sea turtles. SG80 is not met.		
d	Management strategy implementation			
	<b>Guidepost</b>		There is some <b>evidence</b> that the measures/strategy is being implemented successfully.	There is <b>clear evidence</b> that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b).
	<b>Met?</b>		N	N
	<b>Justification</b>	Implementation of the Good Practice Handbook is a requirement for TRL-PA membership and compliance is audited on a regular basis (at least 50% of the vessels are audited on an annual basis). Overall, the team was satisfied that fishers comply with the management measures to the extent that post-capture mortality is minimised and specimens are released as soon as is practicable. In relation to monitoring, however, although 5% monitoring is required at ICCAT level, it does not appear to be implemented in this fishery, and the existing observer data are not sufficient to provide objective evidence about implementation of the requirements. SG80 is not met.		

<b>e</b>	Review of alternative measures to minimize mortality of ETP species			
	<b>Guidepost</b>	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species, and they are implemented, as appropriate.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	The SELPAL project (Poisson et al., 2016) ran from 2013 to 2016 and had the objective to quantify the impact of the longline fishery targeting bluefin tuna on sensitive species in the Golfe de Lion and to test measures to increase selectivity and mitigate any adverse impacts. The ECHOSEA programme (Section 3.4.2) is one new development that resulted directly from the SELPAL study. Another development has been the introduction of the Good Practice Guide ( <a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a> ), drafted in collaboration with IFREMER and UMR MARBEC and the use of which is obligatory for vessels subscribing to the TRL-PA brand. Furthermore, as part of the TRL-PA brand, regular audits are commissioned by VALPEM to determine compliance with the code of conduct, gather details on gear use and bait use and make improvements where required. Overall, there is a regular review of ETP species interactions which supplements the data gathered through the Obsmer programme, and measures are implemented as appropriate. SG80 is met. Whether this review is biennial is unclear and remains to be seen now that the SELPAL study in particular has been completed. SG100 is not met.		
<b>References</b>		Appendix 8, Poisson et al. (2016), VALPEM Good Practice Handbook ( <a href="http://www.thonrougedeligne.com/wp-content/uploads/2015/04/espece.pdf">http://www.thonrougedeligne.com/wp-content/uploads/2015/04/espece.pdf</a> ), ECHOSEA ( <a href="http://amop-selpal.com/images/AMOP-A5_version-4-1.pdf">http://amop-selpal.com/images/AMOP-A5_version-4-1.pdf</a> )		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>65</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>7</b>



Evaluation Table for PI 2.3.3 – ETP species information

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: <ul style="list-style-type: none"><li>• Information for the development of the management strategy;</li><li>• Information to assess the effectiveness of the management strategy; and</li><li>• Information to determine the outcome status of ETP species.</li></ul>		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guidepost	Qualitative information is <b>adequate to estimate</b> the UoA related mortality on ETP species.  OR  If RBF is used to score PI 2.3.1 for the UoA:  Qualitative information is <b>adequate to estimate productivity and susceptibility</b> attributes for ETP species.	Some quantitative information is <b>adequate to assess</b> the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species.  OR  If RBF is used to score PI 2.3.1 for the UoA:  Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.	Quantitative information is available to assess with a high degree of certainty the <b>magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status</b> of ETP species.
	Met?	Y	N	N
	Justification	Some quantitative information is available from the Obsmer observer programme and this, combined with the SELPAL study (Poisson et al., 2016) and anecdotal information gathered during site visit interviews provides a qualitative assessment of the likely UoA-related mortality on ETP species, SG60 is met. However, the level of implementation of the observer programme (0.5% observed trips in 2017) is below that required through ICCAT Rec. 16-14 (5%), meaning the data are insufficient to evaluate the impact of the fishery to an adequate level to determine whether the UoA may be a threat to protection and recovery of ETP species. Furthermore, for most of the ETP interactions recorded in the observer data, identification to species-level was not carried out. SG80 is not met.		
b	Information adequacy for management strategy			
	Guidepost	Information is adequate to support <b>measures</b> to manage the impacts on ETP species.	Information is adequate to measure trends and support a <b>strategy</b> to manage impacts on ETP species.	Information is adequate to support a <b>comprehensive strategy</b> to manage impacts, minimize mortality and injury of ETP species,

				and evaluate with a <b>high degree of certainty</b> whether a strategy is achieving its objectives.
	<b>Met?</b>	Y	N	N
	<b>Justification</b>	Some quantitative information is available from the Obsmer observer programme and this, combined with the SELPAL study (Poisson et al., 2016) and anecdotal information gathered during site visit interviews provides a qualitative assessment of the likely UoA-related mortality on ETP species. This is sufficient to support measures to manage the impacts on ETP species and SG60 is therefore met. There remain significant question marks, however, as to what the actual levels of ETP species interactions are in this fishery. At 0.5% of the overall effort in terms of trips (for 2017), the observer coverage in this fishery is too low to enable meaningful analysis of impacts at UoA level, and to determine whether additional management action may be required. A strategy requires an element of monitoring of impacts for the species in question, and adjustment of management measures if the monitoring results suggest they are not sufficient. There is not presently enough monitoring in this fishery for this to be possible. The team therefore decided that SG80 was not met.		
<b>References</b>		Poisson et al. (2016)		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>60</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>8</b>

Evaluation Table for PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area(s) covered by the governance body(s) responsible for fisheries management.		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guidepost	The UoA is <b>unlikely</b> to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is <b>highly unlikely</b> to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	Y	Y	Y
	Justification	The longline and handline gear is deployed in upper part of the water column (between <i>ca.</i> 4 and 20m depth) and is highly unlikely to interact with benthic features (Section 3.4.6). Gear loss is reportedly minimal in the UoA – if it does occur, lost gear may consist of monofilament and/or hooks and is only likely to continue to fish as long as bait remains on the hooks. Bait is stripped relatively quickly off the hooks and as such, the mortality rate associated to lost longlines is low (Macfadyen et al., 2009). SG100 is therefore met.		
b	VME habitat status			
	Guidepost	The UoA is <b>unlikely</b> to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is <b>highly unlikely</b> to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	Met?	Y	Y	Y
	Justification	See above. SG100 is met.		
c	Minor habitat status			
	Guidepost			There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of

				the minor habitats to a point where there would be serious or irreversible harm.
	<b>Met?</b>			Y
	<b>Justification</b>	As above. Met.		
<b>References</b>		Macfadyen et al. (2009); site visit interviews		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>N/a</b>

Evaluation Table for PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guidepost	There are <b>measures</b> in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a <b>partial strategy</b> in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a <b>strategy</b> in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	Y	Y	N
	Justification	Considering that this fishery is extremely unlikely to impact benthic habitats, the term ‘if necessary’ applies here and management measures should not be required. SG 60 and 80 are therefore met by default. There is, however, no strategy in place which specifically aims to manage the impacts of the fishery on habitat types (either directly or through ghost fishing), as required by MSC for a score of 100. SG100 is therefore not met.		
b	Management strategy evaluation			
	Guidepost	The measures are <b>considered likely</b> to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some <b>objective basis for confidence</b> that the measures/partial strategy will work, based on <b>information directly about the UoA and/or habitats</b> involved.	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on <b>information directly about the UoA and/or habitats</b> involved.
	Met?	Y	Y	Y
	Justification	The ‘partial strategy’ is the nature of the fishery (pelagic only); there is therefore high confidence that it works, based on information directly about the gear type and deployment. SG100 is met.		
c	Management strategy implementation			
	Guidepost		There is <b>some quantitative evidence</b> that the measures/partial strategy is being implemented successfully.	There is <b>clear quantitative evidence</b> that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).

	Met?		Y	Y	
	Justification	Poisson et al. (2016) provide a depth profile for the UoA which clearly demonstrates that this is a shallow-set pelagic longline fishery which is highly unlikely to interact with benthic features. SG100 is met.			
d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs				
	Guidepost	There is <b>qualitative evidence</b> that the UoA complies with its management requirements to protect VMEs.	There is <b>some quantitative evidence</b> that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is <b>clear quantitative evidence</b> that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	
	Met?	Y	Y	Y	
	Justification	In the absence of interactions with VMEs (see 2.4.1), this issue is met by default. SG100 is met.			
References		Poisson et al. (2016); site visit interviews			
OVERALL PERFORMANCE INDICATOR SCORE:					95
CONDITION NUMBER (if relevant):					N/a

Evaluation Table for PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guidepost	The types and distribution of the main habitats are <b>broadly understood</b> . OR If CSA is used to score PI 2.4.1 for the UoA: Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and <b>vulnerability</b> of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	Met?	Y	Y	N
	Justification	Knowledge of demersal habitats is not relevant to this fishery, so SG60 and SG80 are met by default. SG100 is not met because it does not include a statement about ‘relevant to the scale and intensity of the UoA’.		
b	Information adequacy for assessment of impacts			
	Guidepost	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR <b>If CSA is used to score PI 2.4.1 for the UoA:</b> Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR <b>If CSA is used to score PI 2.4.1 for the UoA:</b> Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.



	Met?	Y	Y	Y
	Justification	Since the gear does not interact with habitats, the (lack of) physical impacts are clear. SG100 is met.		
c	Monitoring			
	Guidepost		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in habitat distributions over time are measured.
	Met?		Y	N
	Justification	No information is required, so SG80 is met by default. SG100 is not met because such measurements are not necessary in this fishery.		
References		Poisson et al. (2016); site visit interviews		
OVERALL PERFORMANCE INDICATOR SCORE:				85
CONDITION NUMBER (if relevant):				N/a

Evaluation Table for PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	Ecosystem status			
	<b>Guidepost</b>	The UoA is <b>unlikely</b> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is <b>highly unlikely</b> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is <b>evidence</b> that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	Please see Section 3.4.7 for a detailed discussion on fishing impacts on the northwest Mediterranean ecosystem. The main ecosystem impact of the UoA is likely the removal of large predators such as bluefin tuna, pelagic stingray, swordfish and blue shark which make up much of the catch. The study carried out by Bănară et al. (2013) concerns the Gulf of Lions directly where the majority of UoA fishing effort takes place. Similar to other studies in the northwest Mediterranean (e.g. Coll et al. (2006); Coll et al. (2019)), the authors found that small pelagic fish species, particularly sardine and anchovy, represent key link groups in term of consumption and flows between pelagic primary producers and consumers from both the pelagic and the demersal compartments, highlighting possible wasp-waist predator–prey interactions. Although fishing was considered an important pressure component in the Gulf of Lions food-web as it is responsible for a high rate of “consumption” of the fish compartment, the flows in the upper trophic levels (consisting of anglerfish, European conger, juvenile Atlantic bluefin tuna and European hake) were almost insignificant. This was confirmed by a more recent study (Van Beveren et al., 2017) that found that tuna predation is unlikely to be the main cause of major changes in the small pelagic fish populations from this area. This information, combined with the scale of the UoA (limited number of vessels, small quota allocations for bluefin tuna and swordfish), and the implementation of the TRL-PA Code of Conduct (non-retention of sharks, best handling and release for ETP species) provides evidence that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. SG60, 80 and 100 are met.		
<b>References</b>		Bănară et al. (2013) ; Coll et al. (2006); Van Beveren et al. (2017); Coll et al. (2019)		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>N/a</b>

Evaluation Table for PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	Management strategy in place			
	<b>Guidepost</b>	There are <b>measures</b> in place, if necessary which take into account the <b>potential impacts</b> of the fishery on key elements of the ecosystem.	There is a <b>partial strategy</b> in place, if necessary, which takes into account <b>available information and is expected to restrain impacts</b> of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a <b>strategy</b> that consists of a <b>plan</b> , in place which contains measures to <b>address all main impacts of the UoA</b> on the ecosystem, and at least some of these measures are in place.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>The FAO code states that fisheries management should ensure the conservation not only of target species, but also sympatric non-target species (Allain et al., 2011). The intent behind the FAO code is now explicit in <u>ICCAT</u> measures, through Rec. 15-11 concerning the application of an ecosystem approach to fisheries management, SG60 is met. The recommendation calls for <i>inter alia</i>:</p> <p>a) the consideration of the interdependence of stocks and species belonging to the same ecosystem or associated with or dependent upon target stocks;</p> <p>b) the consideration of the impacts of fishing, other relevant human activities, and environmental factors on target stocks, non-target species and species belonging to the same ecosystem or associated with or dependent upon target stocks in the Convention area; and</p> <p>c) the minimization of negative impacts of fishing activities on the marine ecosystem.</p> <p>At <u>EU level</u>, both the Water Framework Directive (WFD; Directive 2000/60/EC), and the Marine Strategy Framework Directive (MSFD; Directive 2008/56/EC) outline the need for better water quality, and prescribe to achieve ‘good environmental status’, following the precautionary approach through the use of an ecosystem-based approach. The implementation of the Habitat- and Bird Directives (Council Directive 92/43/EEC and Directive 2009/147/EC) into designated Natura 2000-sites can be regarded as part of the tools to achieve the ‘good environmental status’, SG60 is met.</p> <p>The CFP explicitly states in Article 2: (3) “The CFP shall implement the ecosystem-based approach to fisheries management so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimised, ...”</p> <p>The MSFD outlines the legislative framework for an ecosystem-based approach to the management of human activities which supports the sustainable use of marine goods and services, with the overarching goal of achieving ‘Good Environmental Status’ by 2020 across Europe’s marine environment. To do so, a series of detailed criteria and indicators have been produced by the Commission which are used by member states as a blueprint for the implementation of the MSFD. The MSFD requires member states to:</p>		

		<ul style="list-style-type: none"><li>• Provide an assessment of the current state of their seas by July 2012</li><li>• Provide a set of detailed characteristics of what good environmental status means for their waters, and associated targets and indicators, by July 2012</li><li>• Establish a monitoring programme to measure progress by July 2014</li><li>• Establish a programme of measures for achieving good environmental status by 2020</li></ul> <p>The team considered that all the ICCAT recommendations listed previously under Principle 1 and Principle 2, in conjunction with EU and French national legislation, the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (and designation of SPAMIs – see Appendix 8) and the fishery-specific management implemented through the TRL-PA Code of Conduct and Good Practices Guide (<a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a>; e.g. on hook types, leader types, use of light sticks, use of de-hookers, line cutters and dip nets, safe handling and release practices for sea turtles, seabirds and elasmobranchs) constituted at least a partial strategy and that SG80 was therefore met. However, although the intent is clearly there, a coherent ecosystem-based fisheries management plan for the northwestern Mediterranean remains to be developed. SG100 is not met.</p>		
b	Management strategy evaluation			
	Guidepost	The <b>measures</b> are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ ecosystems).	There is <b>some objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the UoA and/or ecosystem involved
	Met?	Y	Y	N
	Justification	Collectively, the approaches implemented at regional (ICCAT, EU), national and UoA level are working toward a common goal of maintaining ecosystem structure and function throughout the Mediterranean Sea and are encouraging sustainable exploitation of marine resources, SG60 is met. The northwest Mediterranean ecosystem structure and function is well-studied with multiple reports (e.g. Bănară et al. (2013); Coll et al. (2006); Coll et al. (2019) and Van Beveren et al. (2017)) and data available on species, fishing impacts (Poisson et al., 2016) and functional relationships upon which to base informed management decisions. On this basis, the team considered that there is some objective basis for confidence that the strategy will work and SG80 is met. Although some projections for individual stocks have been carried out (e.g. bluefin tuna and swordfish), management at ecosystem level has not been tested. SG100 is not met.		
c	Management strategy implementation			
	Guidepost		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).

	<b>Met?</b>		Y	Y
	<b>Justification</b>	The partial strategy consists of maintaining the fishery impact at a low level, through a limited number of vessels that are permitted to fish for bluefin tuna, and to minimise impacts on individual species through non-retention policies and maximizing post-capture survival through best practice handling and release practices. Although short-comings in the monitoring of discards and ETP interactions have been identified for the UoA, this performance indicator ultimately assesses ecosystem-level impacts for which modelling (e.g. Bănaru et al. (2013); Coll et al. (2019) and Van Beveren et al. (2017)) has shown that irreversible impacts are highly unlikely (see 2.5.1). There is reasonable confidence that levels of IUU are low (see PI 3.2.3). Overall, there is some evidence that the partial strategy is being implemented successfully - SG80 is met. For SG100, the objective from scoring issue a is: ' <b>to restrain impacts</b> of the UoA on the ecosystem to achieve the Ecosystem Outcome 80 level of performance'. This is being achieved therefore SG100 is also met.		
<b>References</b>		Bănaru et al. (2013), Coll et al. (2006); Poisson et al. (2016); Coll et al. (2019) and Van Beveren et al. (2017) <a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a>		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>85</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>N/a</b>

Evaluation Table for PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guidepost	Information is adequate to <b>identify</b> the key elements of the ecosystem.	Information is adequate to <b>broadly understand</b> the key elements of the ecosystem.	
	Met?	Y	Y	
	Justification	There is ongoing work to collect detailed data on the structure of the northwest Mediterranean ecosystem, e.g. through observer programmes (Obsmer), ecosystem modelling (Coll et al., 2006, 2019; Bănaru et al., 2013; Van Beveren et al., 2017) and UoA-specific research (Poisson et al. (2016) and ECHOSEA). This information is thought to be adequate to broadly understand the key elements of the ecosystem, i.e. the main features of the ecosystem and their major inter-relationships. SG60 and SG80 are met.		
b	Investigation of UoA impacts			
	Guidepost	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but <b>have not been investigated</b> in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and <b>some have been investigated in detail</b> .	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and <b>have been investigated in detail</b> .
	Met?	Y	Y	Y
	Justification	The studies carried out by Bănaru et al. (2013), Coll et al. (2019) and Van Beveren et al. (2017) cover the Northwest (NW) Mediterranean and the Gulf of Lions where the UoA operates. Bănaru et al. (2013) examined the effects of seven different fisheries (including the UoA fishery) on structure and functioning of the Gulf of Lions marine ecosystem. Their model was composed of 40 compartments, including 1 group of seabirds, 2 groups of cetaceans, 18 groups of fish, 12 groups of invertebrates, 5 groups of primary producers, detritus and discards. This understanding was supplemented more recently with studies modelling the effects of key drivers (including fishing pressure) on the NW Mediterranean pelagic food web (Coll et al., 2019) and exploring the interactions between bluefin tuna predation and small pelagic fish populations (Van Beveren et al., 2017). On this basis, the team concludes that Main interactions between the UoA and these ecosystem elements can be inferred from existing information and have been investigated in detail. SG60, SG80 and SG100 are met.		
c	Understanding of component functions			

	Guidepost		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are <b>known</b> .	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are <b>understood</b> .
	Met?		Y	N
	Justification	The impacts of the UoA on each of the components are known as discussed in the preceding P1 and P2 performance indicators. Bănaru et al. (2013) examined the effects of seven different fisheries (including the UoA fishery) on structure and functioning of the Gulf of Lions marine ecosystem. Their model was composed of 40 compartments, including 1 group of seabirds, 2 groups of cetaceans, 18 groups of fish, 12 groups of invertebrates, 5 groups of primary producers, detritus and discards. Interactions between key drivers (fishing pressure, climate change, zooplankton abundance) and the NW Mediterranean pelagic food web have also been explored (Coll et al., 2019) in addition to bluefin tuna predation effects on small pelagic fish populations (Van Beveren et al., 2017) which are thought to be the key link groups in term of consumption and flows between pelagic primary producers and consumers from both the pelagic and the demersal compartments. SG80 is met. However, because of the identified issues regarding data availability on UoA impacts on the P2 components (see Primary, Secondary and ETP species performance indicators and conditions), it is not clear that all impacts have been identified. SG100 is not met.		
d	Information relevance			
	Guidepost		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components <b>and elements</b> to allow the main consequences for the ecosystem to be inferred.
	Met?		Y	N
	Justification	Despite the short-comings in the observer data (see previous Principle 2 components), information on the UoA (see scoring issue a) and its impacts on the ecosystem components and elements is adequate overall so that the main consequences for the ecosystem can be inferred. SG80 is met. However, owing to the paucity of data discussed in the preceding performance indicators, and the inability to properly estimate fleet-level impacts on some of the components, SG100 is not met.		
e	Monitoring			
	Guidepost		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.

	<b>Met?</b>		Y	N
	<b>Justification</b>	Logbook and observer data combined with self-reporting (ECHOSEA) and independent research (Poisson et al., 2016) are sufficient to detect any changes which might have ecosystem impacts; e.g. changes in rates of bycatch, SG80 is met. Since there is not something that could be formally defined as an ecosystem management strategy, SG100 is not met.		
<b>References</b>		Bănară et al. (2013), Coll et al. (2006); Poisson et al. (2016); Coll et al. (2019) and Van Beveren et al. (2017)		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>85</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>N/a</b>



### Appendix 1.3 Principle 3

Evaluation Table for PI 3.1.1 – Legal and/or customary framework

PI 3.1.1	<p>The management system exists within an appropriate legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> <li>• Is capable of delivering sustainability in the UoA(s); and</li> <li>• Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li> <li>• Incorporates an appropriate dispute resolution framework.</li> </ul>		
Scoring Issue	SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management		
Guidepost	There is an effective national legal system <b>and a framework for cooperation</b> with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and <b>organised and effective cooperation</b> with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and <b>binding procedures governing cooperation with other parties</b> which delivers management outcomes consistent with MSC Principles 1 and 2.
Met?	Y	Y	N
Justification	<p>There are three jurisdictions of importance to this fishery: the tuna RFMO ICCAT, the EU as the Fishery's Policy maker and France as flag state, port state and market state.</p> <p><u>ICCAT</u> provides the overarching framework to deliver cooperation with all parties to deliver management outcomes for Principle 1 and 2 for the BFT-e. The International Convention for the Conservation of Atlantic Tunas (ICCAT, 2007) is the formal document that establishes the international legal and administrative structure for the management of tuna and tuna-like stocks. The European Union has been a contracting party since 1997 and is an active member of its four Panels including Panel 2-Northern temperate tunas and 4-Other species. Delegates from EU member states, including France also contribute actively to all Committees and Working Groups related to Principle 1 and Principle 2 indicators relating to the BFT-e fishery. In 2016, an independent review panel noted that since 2008 "ICCAT has redressed the situation, both in terms of the status of the stock and the conduct of the (BFT-e) fishery" (ICCAT, 2016a), and therefore that ICCAT now provides an effective framework for organised and active cooperation for this fishery.</p> <p>The <u>European Parliament and the Council</u> have translated the current basis of the BFT-e Recovery Plan (Rec.17-07) into Regulation (EU) 2017/ 2107 of 15 November 2017 laying down management, conservation and control measures applicable in the Convention area of the International Commission for the Conservation of Atlantic Tunas (ICCAT), which has direct effect in the legal order of all member states, <u>France included</u>. Following the adoption of ICCAT Rec. 18-02 setting out the details of the multi-annual management plan that will take effect in June 2019, the EU has already indicated that it is drafting a new regulation, which will also be binding for all EU member States. Although the EU could take over a year in transposing the recovery/management plan, it adopts annually a Regulation fixing fishing possibilities (TACs) and other provisions (including those</p>		

		from ICCAT) for the following fishing season (see as examples Annex ID of Council Regulation (EU) 2018/120 for the TACs of 2018 (EU, (2018a). The provisions adopted by ICCAT usually apply from the following fishing season through different provisions at EU and Member State level, even before its official date of entry into force at ICCAT level.		
		SG60 and SG80 are met for ICCAT, Europe and France, however ICCAT recommendations are not binding to all, SG100 is not met.		
b	Resolution of disputes			
	Guidepost	The management system incorporates or is subject by law to a <b>mechanism</b> for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a <b>transparent mechanism</b> for the resolution of legal disputes which is <b>considered to be effective</b> in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a <b>transparent mechanism</b> for the resolution of legal disputes that is appropriate to the context of the fishery and has been <b>tested and proven to be effective</b> .
	Met?	Y	Y	N
	Justification	<p><u>ICCAT</u> has a tradition of making decisions by consensus and resolving disputes informally, e.g. ICCAT members discuss issues in species panels, approving panel reports and raising relevant issues at Commission sessions providing a full airing of concerns in an effort to avoid disputes. However, in cases where disputes cannot be settled, the ICCAT Convention provides a process of objection allowing individual Contracting Parties (CPs) to withdraw from endorsing and implementing an ICCAT recommendation (ICCAT, 2007) Convention Article VIII (2,3)). The procedure has been used infrequently (12 times between 1969 and 2015), with 9 objections raised by two ICCAT CPs with respect to their bluefin tuna allocation, SG60 is met. ICCAT's Conservation and Management Measures Compliance Committee (COC) monitors compliance with the Convention and ICCAT recommendations, which are binding insofar as the Contracting Parties agree to implement them domestically. The COC has the potential to address disputes over implementation of ICCAT recommendations but was found to be generally ineffective by ICCAT's Independent Review Panel (Spencer et al., 2016). ICCAT recognised the need for a more formal dispute settlement procedure, and the matter has been progressing slowly according to the Working Group on Convention Amendment (CWG). The latest CWG report has now agreed on proposals, which will need to be incorporated into the ICCAT's Convention to be final before they can be tested and proven effective as the need arises (ICCAT, 2018e). Only SG80 is met.</p> <p>The BFT-e management system also includes dispute resolution mechanisms at EU and national levels. For matters between EU member states, the European Court of Justice (ECJ) may be used, which has been done over the years when all conciliation avenues have been exhausted and cases Regarding BFT fisheries in the Mediterranean have been brought to the ECJ by various parties. The process takes time, but it is transparent and considered to be effective.</p> <p>Although the fishery is managed at EU-level, some prerogatives remain with the member states, in particular the allocation of quota, especially as the BFT-e stock is recovering and the French share of the TAC has been increasing. In particular, some small-scale operators (SSF) from the Golfe du Lion who are outside Producer Organisations and wish to obtain some or more BFT quota have taken the French Ministry to the Administrative Court in 2017 (SPLMR, 2017), while proceeding through other avenues. Dispute mechanisms are transparent, and considered to be appropriate and effective, as opportunities for SSF appear to have been increased for 2019. SG80 is met. However, the Court case is still pending, SG100 is not met.</p>		

c	Respect for rights			
	<b>Guided post</b>	The management system has a mechanism to <b>generally respect</b> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to <b>observe</b> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to <b>formally commit</b> to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>ICCAT Resolution 15-13 deals specifically with “Criteria for Allocation of Fishing Possibilities” to CPCs and recognises priority interests of artisanal, subsistence, small-scale coastal fishers, coastal fishing communities, coastal states and regions dependent on fishing for the stocks, and fisheries on the High Seas, together with the economic and/or social importance of the fishery for qualifying participants whose fishing vessels have habitually participated in the fishery in the Convention area (ICCAT, 2015c). SG60, SG80 and SG100 are met.</p> <p>The CFP Basic Regulation (1380/2013) recognizes the importance of small-scale fisheries (recital.4). The present rules restricting access to resources within the 12 nautical mile zones of Member States are also noted “to benefit conservation by restricting fishing and also preserving traditional fishing activities on which the social and economic development of certain coastal communities is highly dependent”, and “Member States should endeavour to give preferential access to small-scale, artisanal or coastal fishermen” (recital 19). Article 17 of the CFP deals specifically with "Criteria for the allocation of fishing opportunities by Member States") and states that "When allocating the fishing opportunities available to them, as referred to in Article 16, Member States shall use transparent and objective criteria including those of an environmental, social and economic nature. The criteria to be used may include, inter alia, the impact of fishing on the environment, the history of compliance, the contribution to the local economy and historic catch levels.” EU, 2013b. Inside a decreasing and now increasing French share of the TAC, the allocation of fishing rights is the prerogative of the French authorities. For the EU-managed BFT, France must submit a fishing capacity and fishing plan, which then forms part of the EU plan submitted to ICCAT. There are set rules of procedures governing the deliverance of AEP (European fishing authorisation), which are a key tool to control fishing capacity. AEP were introduced in 2013 and must be renewed every year. AEP are limited in numbers nationally, separately for the Atlantic and the Mediterranean, and per length of vessel and gear-type. In the case of this fishery, longline vessels less than 24m, and rod vessel less than 17m. An AEP is attributed for a specific vessel, and on the condition that the applicant is up to date with his mandatory professional membership fees (<i>cotisations professionnelles obligatoires – CPO - article R.921-24 du code rural et de la pêche maritime</i>). The PO also has to certify that the vessel applying for the BFT AEP has some BFT quota, SG60 is met.</p> <p>There are also set procedures and criteria for quota allocation, which were originally based on track records for the period 1<sup>st</sup> January 2009 to 31<sup>st</sup> August 2010. Annual quota allocations are published every year in French legislation (e.g. Arrêté JORF n°0037 8 Feb.2018 and n°0036 12 Feb. 2019, France, 2019). However, the reference years do not reflect the historical involvement of small-scale French Mediterranean fishers who used to catch bluefin tuna with local types of pelagic drift nets, the “seinche, thonaille and courantille” that were used in the 1950s and 1960s, progressively abandoned and eventually banned in the Mediterranean by EU legislation in 1998 and French legislation in 2005 (Petit, 2011). In practice, the French management system has a mechanism to observe the legal rights established by custom consistent with MSC Principles 1 and 2 therefore SG80 is met.</p>		

		However, the system of quota allocation is contested because it did not go back in time enough, which was not possible because of a lack of reliable statistics. For this fishery, all vessels in the UoA are members of the Producer Organisation (PO) SATHOAN. POs have the possibility to manage their members' quota allocation over the year, based on a Plan de Pêche and may also facilitate transfers as allowed by the annual BFT Arrêté. For instance, in a process between SATHOAN members, the purse seiner fleet has transferred some of its quota to the SATHOAN longliners annually. There appears to be plans but details of the French administration commitment to future redistribution to benefit small-scale vessel owners are not clear, only SG80 is met.
<b>References</b>	(ICCAT, 2007, 2015c, 2016a, 2018e; Spencer et al., 2016; SPLMR, 2017)	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>80</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/a</b>

Evaluation Table for PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guidepost	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>generally understood</b> .	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>explicitly defined and well understood for key areas</b> of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>explicitly defined and well understood for all areas</b> of responsibility and interaction.
	Met?	Y	Y	Y
	Justification	The ICCAT Convention defines the roles and responsibilities of the Commission, of the Secretariat and the Contracting Parties. The ICCAT Manual provides an organigram and explicitly describes the functions, roles and responsibilities of the various ICCAT subsidiary bodies (see section 3.5.1.2), SG60 is met. ICCAT meetings are advertised in advance and the preparatory and final reports are accessible to all. They explain clearly the role and areas of responsibilities. Contributions from stakeholders including environmental NGOs submitted to ICCAT and reports from the press demonstrate how all parties interact and roles are well understood, SG80 and SG100 are met.  The SATHOAN bluefin tuna fishery French Mediterranean Bluefin tuna artisanal longline and handline fishery is part of a shared stock managed at ICCAT and European level. All French professional fishermen have to be members of a regional fisheries co-management committee (CRPMEM). There are three concerned by the fishery along the French Mediterranean coast (Occitanie, PACA and Corsica). The national Committee ( <i>Comité national des pêches maritimes et des élevages marins</i> - CNPMEM) has a dedicated Bluefin tuna and Swordfish Commission of which SATHOAN is a member, holds regular meetings (with the central administration department (DPMA) and research institute IFREMER to prepare, analyse and discuss around ICCAT meetings. The fishery is also represented at European level, through the PO, and PO associations, and the Mediterranean Advisory Council (MEDAC) through CRPMEMs and the PO for aspects regarding Principle 2 (non-target species, protected areas, ecosystem change etc.) It is apparent that the functions, roles and responsibilities of all those involved in management are clearly defined and are well understood in all areas. SG60, SG80 and SG100 are met.		
b	Consultation processes			
	Guidepost	The management system includes consultation processes that <b>obtain relevant information</b>	The management system includes consultation processes that <b>regularly seek and accept</b> relevant information, including	The management system includes consultation processes that <b>regularly seek and accept</b> relevant information, including local knowledge. The

		from the main affected parties, including local knowledge, to inform the management system.	local knowledge. The management system demonstrates consideration of the information obtained.	management system demonstrates consideration of the information and <b>explains how it is used or not used</b> .
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	ICCAT has an extensive programme of data collection through vessel and port registration, electronic catch reporting and scientific observations and inspections agreed through recommendations, that has been agreed by all stakeholders in the fishery, SG60 is met. ICCAT Resolution 11-17 on "best available science" reinforces cooperation among CPC, ICCAT Commission and the SCRS, and the participation of scientists. Consideration of the information obtained is demonstrated in the EU (France) and other CPCs annual reports and discussions the ICCAT Panel 2, WG and biennial Commission reports, which also explain how the information is used or not for stock assessment. SG80 and SG100 are met. The French management system relies on co-management through the CRPMEMs for local fisheries including those shared at Mediterranean level with the GFCM, and on the POs to manage quotas for BFT-e, SWO since 2017 and other stocks with specific management plans, SG60 is met. Each of these local institutions and the national-level CNPMM have specific BFT committees that regularly seek and accept information, including local knowledge and regularly communicate with scientists from IFREMER and the <i>Agence française pour la Biodiversité</i> , all key actors know how their information are used (or not) at local, national and European levels. SG80 and SG100 are met.		
<b>c</b>	Participation			
	<b>Guided post</b>		The consultation process <b>provides opportunity</b> for all interested and affected parties to be involved.	The consultation process provides <b>opportunity and encouragement</b> for all interested and affected parties to be involved, and <b>facilitates</b> their effective engagement.
	<b>Met?</b>		Y	Y
	<b>Justification</b>	The ICCAT Convention (Article 11) states that the Commission may invite any appropriate international organization and any non-member Government that is a member of the UN or of any Specialized Agency to send observers to meetings of the Commission and its subsidiary bodies (ICCAT, 2007). There is a Meeting Participation Fund (ICCAT Recommendation 11-26) to facilitate participation of developing ICCAT CPC countries in all ICCAT activities (training, inspections, meetings). The need to further support participation of stakeholders from developing countries was noted in the second Performance Evaluation (Spencer et al., 2016), SG80 is met. The participation of independent expert and academic researchers is also explicitly encouraged in SCRS and for the Peer Review mechanisms (see ICCAT Resolution on the best available science (ICCAT, 2018d)). ICCAT meeting dates are advertised on the ICCAT website from year to year, providing an opportunity for all interested and affected parties to be involved, including in the Scientific process. Various stakeholders also participate to Commission meetings as part of the national delegations. All meetings are opened to Observers who have to register on the website 50 days ahead of time and cover their costs and a fee to cover ICCAT's additional expenses. The Guidelines and Criteria for Granting Observer Status at ICCAT Meetings (ICCAT, 2005) clearly state that "All non-governmental organizations (NGOs) which support the objectives of ICCAT and with a demonstrated interest in the species under the purview of ICCAT should be eligible to participate as an observer in all meetings of the organization and its subsidiary bodies, except extraordinary meetings held in executive sessions or meetings of		

		<p>Heads of Delegations.” Applications are accepted unless one-third of the CPCs object. Observers are not allowed to vote, but they can, upon invitation by the chair, make an oral statement during the meeting and distribute documents at meetings through the Secretariat. Considering the active participation of NGOs for the last 15 years in the SCRS and Commission meetings (through position papers and scientific contributions to the SCRS), SG100 is met.</p> <p>At EU level, the Mediterranean Advisory Council (MEDAC) encourages and facilitates an effective engagement of all stakeholders, SG80 is met. At national level, the POs (PO SATHOAN for this fishery) and CRPMEMs (Occitanie, PACA and Corsica) have specific provisions for good governance including consultation and active participation. POs and the CNPMEM are informed by IFREMER scientists and consulted prior to European ministerial meetings, they are briefed by the central administration (DPMA) prior and after ICCAT Commission meetings on future implications of outcomes and generally solicited to help draft local and national management measures. SG100 is met</p>
<b>References</b>	(ICCAT, 2005, 2007, 2018d, n.d.; Spencer et al., 2016)	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/a</b>

Evaluation Table for PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC fisheries standard, and incorporates the precautionary approach.		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guidepost	Long-term objectives to guide decision-making, consistent with the MSC fisheries standard and the precautionary approach, are <b>implicit</b> within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach are <b>explicit</b> within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach, are <b>explicit</b> within <b>and required by</b> management policy.
	Met?	Y	Y	Y
	Justification	<p>The long-term objective set out in Article VIII of the ICCAT Convention (ICCAT, 2007) is to maintain the populations of tuna and tuna-like fishes that may be taken in the Convention area at levels which will permit the maximum sustainable catch. There is no mention of the precautionary approach in the Convention but Resolution 15-11 states that the “Commission should apply an ecosystem-based approach to fisheries management” and Resolution 15-12 states that “when making recommendations pursuant to Article VIII of the Convention, the Commission should apply a precautionary approach, in accordance with relevant international standards.” Furthermore, Recommendation 11-13 “on the principles of decision making for ICCAT conservation and management measures”, recalls that “that management decisions should be based upon scientific advice and consistent with the precautionary approach” and aim to support its application (ICCAT, 2018g), SG60 and SG80 are met.</p> <p>For BFT-e specifically, Recommendation 17-07 the BFT-e Recovery Plan sets explicitly the objective of “managing fishing activities by maintaining catches at or below the MSY estimate shall also be supported by a Spawning Stock Biomass (SSB) maintained over or at a level of the corresponding <math>SSB_{MSY}</math>, referring to the <u>SCRS most precautionary MSY estimate</u>.” The management objective of 17-07 and previous iterations of the rebuilding plan was to achieve <math>B_{MSY}</math> with at least 60 % probability. Rec. 17-07 will be replaced by Rec. 18-02 in 2019, with a slightly different management objective: to achieve <math>B_{0.1}</math> (proxy for <math>B_{MSY}</math>) by fishing ‘at or below’ <math>F_{0.1}</math>; i.e. a slightly lower objective (ICCAT, 2018h) but one that still that can be considered precautionary.</p> <p>Although resolutions are not binding, the recommendations relating to the current management of BFT-e are presently binding to all CPCs exploiting the resource, and therefore one could conclude that the precautionary approach is required by ICCAT management policy for BFT-e, and therefore that for ICCAT, SG100 is met.</p> <p>The European Common Fisheries Policy (CFP) sets out clear objectives ((EU, 2013a) CFP Regulation 1380/2013 Article 2): 1. To ensure that fishing and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and contributing to the availability of food supplies ; 2. To apply the precautionary approach to fisheries management, and aim to ensure that exploitation of living marine biological resources restores and maintains populations of harvested species above levels, which can produce the maximum sustainable yield. In order to reach the objective of progressively restoring and maintaining populations of fish stocks above biomass levels capable of producing maximum sustainable yield, the maximum sustainable yield exploitation rate shall be achieved by 2015 where possible and, on a progressive, incremental basis at the latest by 2020 for all stocks ; and 3. To implement the</p>		



		<p>ecosystem-based approach to fisheries management so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimised, and shall endeavour to ensure that aquaculture and fisheries activities avoid the degradation of the marine environment. SG60 and SG80 are met.</p> <p>Regarding Principle 2, the EU Marine Strategy Framework Directive (MSFD – Dir 2008/56/EC of 17 June 2008 establishing a framework for community action in the field of marine environmental policy) sets out clear the objectives, including for the Western Mediterranean Sea marine sub-region, where the fishery is based. The MSFD Descriptor 3 relates specifically to the reduction of ecosystem impacts from fishing activities. The MSFD relies on EU member states to establish and implement a programme of measures devised on the basis of the precautionary principle to reach Good Environmental Status by 2020 at the latest.</p> <p>The objectives of the French fisheries policy are clearly set out for P1 in the <i>Code Rural et de la Pêche Maritime</i> (art.L2) to be at MSY (art. D922-1). For P2 in the <i>Code de l'Environnement</i> (in conformity with the CFP and EU marine environment protection directives, and with international obligations), to exploit fisheries sustainably (art. L219-1).</p> <p>For the overarching objectives of the reformed CFP and those of the French policies, SG100 is also met.</p>
<b>References</b>	(ICCAT, 2005, 2018g, 2018h; EU, 2013a)	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/a</b>

### Evaluation Table for PI 3.2.1 Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guided ost	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <b>implicit</b> within the fishery-specific management system.	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <b>explicit</b> within the fishery-specific management system.	Well defined and measurable short and long-term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system.
	Met?	Y	Y	N
	Justification	<p>The overarching objective of ICCAT is to maintain catches of species in their purview at maximum sustainable catch levels (ICCAT, 2007). For BFT-e specifically, Recommendation 17-07 (ICCAT, 2018g) follows on from a number of binding previous recommendations for CPCs, with vessels actively fishing for bluefin tuna (<i>Thunnus thynnus</i>) in the eastern Atlantic and Mediterranean to "implement a 15 year Recovery Plan for bluefin tuna in the eastern Atlantic and Mediterranean starting in 2007 and continuing through 2022, with the goal of achieving <math>B_{MSY}</math> with at least 60 % probability."</p> <p>Rec. 17-07 regarding the Recovery Plan (and previously Rec. 14-04) sets TAC increase over 3 years as part of the Recovery Plan, that reviewed every year, with a Management Plan due for 2018. In Rec 17-07 that came into effect in August 2018 the objective is explicit: "managing fishing activities by maintaining catches at or below the MSY estimate shall also be supported by a Spawning Stock Biomass (SSB) maintained over or at a level of the corresponding <math>SSB_{MSY}</math>, referring to the SCRS most precautionary MSY estimate and noting that annual increases of 20% of the TAC over three years would correspond to a moderate and gradual increase of the catch level to the most precautionary MSY estimate of the SCRS. Rec. 17-07 is to be replaced by Rec. 18-02 in June 2019, with a slightly different management objective: to achieve <math>B_{0.1}</math> (proxy for <math>B_{MSY}</math>) by fishing 'at or below' <math>F_{0.1}</math>; i.e. a slightly lower objective (ICCAT, 2018g), but one that still that can be considered precautionary, SG60 and SG80 are met.</p> <p>Regarding Principle 2, the Commission adopted the Resolution by ICCAT on Atlantic Sharks (Resolution 01-11), the Recommendation by ICCAT Concerning the Conservation of Sharks caught in association with fisheries managed by ICCAT (Rec. 04-10) (ICCAT, 2018g), the Supplemental Recommendation by ICCAT concerning Sharks (Rec. 07-06), including the obligation of CPCs to annually report Task I &amp; II data for sharks in accordance with ICCAT data reporting procedures and the Recommendation by ICCAT on the Development of Harvest Control Rules and of Management Strategy Evaluation (Rec. 15-07) for commercially exploited species and catch avoidance and survival estimation for released sharks. Catch limits have been set for Blue shark (<i>Prionace glauca</i>) (Rec 16-12) (ICCAT, 2018g). Similarly, for ETP species, ICCAT has developed explicit policy objectives to avoid catches and data collection binding recommendations to that effect e.g. REC 10-09 regarding sea turtles (ICCAT, 2010); 11-09 regarding seabirds (ICCAT, 2011a),,; there are also two (non-binding) resolutions regarding Co-operation with CITES: 93-08 and 93-09 (ICCAT, 1993a, 1993b), SG60 and SG80 are met. It cannot be said that objectives are well defined and measurable for P2 species. Although objectives are well-defined and measurable</p>		

		for the BFT (and now SWO) caught by the fishery, this is not yet the case for non-target species, for which objectives are set to avoid interactions of mitigate their impacts, without numbers being set. Only SG80 is met.
<b>References</b>	(ICCAT, 2007, 2018g)	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>80</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/a</b>

Evaluation Table for PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guided post	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are <b>established</b> decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	Y	Y	
	Justification	<p>ICCAT's principle objective is to maintain fish stocks at levels that will permit the maximum sustainable catch. The ICCAT Convention (art.3) requires decisions to be taken by a majority of Contracting Parties (CPs), each with one vote. Two thirds of the CPs constitute a quorum, but ICCAT mostly seeks consensus. The Commission receives advice from its Panels and Committees, e.g. scientific advice on issues such as stock status and catch limits comes from the SCRS. Its regular meetings are biennial, with Special meetings the other years as needed. Its main subsidiary bodies, such as the SCRS involved the scientific management advice of BFT-e have met every year, or more often for specialized Working Groups, SG60 is met.</p> <p>The last Performance Review (Spencer et al., 2016) noted that "The desire to manage on a consensus basis is laudable, but approaches may have to change bearing in mind there are 52 CPs now in ICCAT. In the view of the Panel, the pursuit of the consensus objective has often led to either the postponement of decisions, the change in proposals from a legally binding recommendation to a non-legally binding resolution, or continued deferral of decision-making on the adoption of measures." As reported by the Work of the Ad Hoc Working Group on Follow up of the Second ICCAT Performance Review (ICCAT, 2017i) work is on-going to improve this and other points of governance. Nevertheless, decision-making processes are well-established and, for the BFT-e fishery, have shown in recent years that they can result in measures and strategies to achieve the fishery-specific objectives, SG80 is met.</p> <p>The European Union is an ICCAT CP. It has a mechanism in place to translate ICCAT's recommendation (for example Rec. 17-07 for the BFT recovery Plan) as soon as adopted into a Regulation of the European Parliament and the Council (of EU Fisheries Ministers, in this case Reg (EU) 2017/2017). EU Regulations have direct effect in the member states legal order. ICCAT Recommendations on bluefin tuna are normally implemented at CP level from the following fishing season through different legal provisions, but the transposition process of the Recovery/Management plan into EU law usually takes more than one year. The process of transposition of the currently in force management plan (Rec. 18-02) is still ongoing. The European Commission have submitted the Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a multiannual management plan for bluefin tuna in the eastern Atlantic and the Mediterranean repealing the previous one (Regulation (EU) 2016/1627) in November 2019 and is currently (January 2020) awaiting the decision of the Fisheries Committee of the European Parliament. Once ICCAT's management measures set in its Recommendation are translated as a Regulation, they become part of the EU Common Fisheries Policy (CFP), and the familiar decision-making processes are immediately established, at EU and at member states (in this case France) levels. SG60 and SG80 are met.</p>		

b	Responsiveness of decision-making processes			
	Guided post	Decision-making processes respond to <b>serious issues</b> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to <b>serious and other important issues</b> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to <b>all issues</b> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	Y	Y	N
	Justification	As the BFT-e stock became alarmingly over-exploited, existing decision-making processes proved ineffective for some years. Since the BFT-e Recovery Plan in 2013, which marked a large decrease in fishing capacity and improved monitored and complemented as needed, through ICCAT's decision-making processes, it seems that ICCAT has responded to serious and other important issues identified in relevant research, monitoring and consultation, SG60 is met. The 2016 ICCAT Performance Review concluded that progress is still needed generally regarding timeliness and transparency. This does not apply to the BFT-e, for which "major efforts were made by ICCAT and its CPCs to bring this fishery under control and that has been achieved. The stock appears to be in a significantly improved status based on SCRS evaluations. The ICCAT experience on bluefin tuna in the last 10 years is an example that, with the correct synergy between CPCs and with the ICCAT secretariat, such challenges can be addressed and overcome. As such, it is an example to other RFMOs faced with major conservation challenges." (ICCAT, 2016a). For the Atlantic BFT fishery, serious and important issues are presently being addressed. SG80 is met. ICCAT is increasingly focusing on the fisheries impacts on other species, but some issues are still pending. SG100 is not met.  The French local decision-making processes for this fishery are clearly defined, informed by scientific information and advice from IFREMER scientists who are key contributors to ICCAT scientific working groups. The matter of fishing authorisation (AEP) and quota allocation for existing and possible new entrant vessels is debated within the SATHOAN PO and the various CRPMEMs (Occitanie, PACA, Corse) according to track records, compliance and other socio-economic criteria under the scrutiny of the central administration (DPMA) and in agreement with the French policy. Licences and vessel quota are awarded according to clear management rules to achieve fishery-specific objectives. For decisions relating to P2, there are established processes both at EU, Mediterranean and French levels (CNPMEM, MEDAC, GFCM, MPA networks, MSFD) for debating and setting local and national fisheries regulations for temporal and seasonal closures, gear use, protected species, SG60 and SG80 are met. However, until the Strategy de façade for the Western Mediterranean brings together P1 and P2 aspects in a comprehensive programme of measures, maybe not all issues are addressed. Only SG80 is met.		
c	Use of precautionary approach			
	Guided post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Y	

	<b>Justification</b>	ICCAT's decisions are based on the best available scientific information and science (ICCAT, 2011b), and for BFT and this fishery, the precautionary approach is used by SCRS, Panel 2 and other WG, and their advice is followed by the ICCAT Commission as clearly stated in the recommendations and management measures (see Rec. 17-07 and 18-02) (ICCAT, 2017g, 2018h). The precautionary approach and use of best available information are also evident in the decisions that are made at European level and implemented at national and local levels, as evident from the national and EU annual fishing plans. SG80 is met.  At national level, the precautionary principle is enshrined in French law since the <i>Loi Barnier</i> (2 Feb. 1995) on improved environmental protection. It was integrated in the French Constitution in 2005 and through the <i>Charte de l'Environnement</i> became a legal obligation for all government services in 2008. SG80 is met.		
d	Accountability and transparency of management system and decision-making process			
	<b>Guided post</b>	Some information on the fishery's performance and management action is generally available on request to stakeholders.	<b>Information on the fishery's performance and management action is available on request</b> , and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders <b>provides comprehensive information on the fishery's performance and management actions</b> and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	The ICCAT website provides an easy and full access to the set of documents produced by the Commission and its subsidiary bodies in three languages (Spanish, English and French), SG60 is met. The preamble to ICCAT Recommendations generally describes the mandate within which ICCAT is acting, the reason(s) why management measures are necessary and elements of research or other information that provide reasons for why action is or is not being taken (see Rec 18-02). ICCAT reports the decisions taken by the Commission in its biennial reports including stock assessment, justification for existing or new management measures and CPCs annual reports, all posted on the ICCAT website. SG80 and SG100 are met.  Interested parties may obtain comprehensive information on the wider small-scale French liners fishery's performance and management actions, through the CRPMEMs, the CNPMEM and the EU Fishery Council MEDAC, which describes how the management system responded to findings and recommendations emerging from research, monitoring, evaluation and review activity, SG60 and SG80 are met. However, formal reporting specifically for the UoA fishery's performance is only available on request, because it is a subset of vessels. SG100 is not met.		
e	Approach to disputes			
	<b>Guided post</b>	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.

		regulation necessary for the sustainability for the fishery.		
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>ICCAT's bodies (Commission, SCRS, Species Panels, WG) regularly meet and providing opportunities for discussion and airing of any possible concerns (see Compliance Committee – COC reports). These and the consensus favoured decision-making process effectively avoid the risk of legal challenges. None could be found, SG60 is met. In cases when disputes cannot be settled, the ICCAT Convention provides a process for Contracting Parties to object and withdraw from endorsing and implementing an ICCAT Recommendation (ICCAT Convention art. VIII). However, following the last performance Review (Spencer et al., 2016) Art. VIII of the Convention is currently redrafted to clarify dispute resolution procedures. Until then, Recommendations are not always adopted rapidly as a result. Therefore, only SG80 is met.</p> <p>The European and French management systems have well-established decision-making mechanisms for administrative and legal appeals and legal and other frameworks respond to judicial decisions in a timely fashion. All vessels in the UoA are members of the SATHOAN PO, which in addition to the regional committees (CRPMs) provide an additional local level of management working proactively to avoid legal disputes. Legal and administrative sanctions, when they arise may also be enforced locally, through disciplinary actions enforceable immediately. SG80 is met and SG100 at this level is met. However, for the reasons given above, SG100 overall is not met.</p>		
	<b>References</b>	(Spencer et al., 2016; EU, 2017; ICCAT, 2017i, 2018g)		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>80</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>N/a</b>

**Evaluation Table for PI 3.2.3 – Compliance and enforcement**

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guidepost	Monitoring, control and surveillance <b>mechanisms</b> exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance <b>system</b> has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A <b>comprehensive</b> monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Y	Y	N
	Justification	The 2 <sup>nd</sup> Performance Review found that “ICCAT does not possess sufficient mechanisms for effective at-sea monitoring of fishing operations for most stocks, with the exception of eastern bluefin tuna, and that a modern high seas' boarding and inspection (HSBI) Scheme needs to be adopted” (ICCAT, 2017i). For BFT-e overall, the system has been comprehensive for some years, but as the stock recovers, some CPCs, such as the EU may have relaxed some rules, such as increasing the number of small ports as designated ports, that have stretched their inspection capacity and increased the risk for over-quota or un-tagged BFT-e fish being landed. This has happened in the past two years in Spain and France as revealed by the recent Interpol investigations involving Malta-based tuna farms (see main report). Therefore, the MCS system for BFT-e in the Mediterranean cannot be seen as comprehensive at present. Only SG80 is met.		
b	Sanctions			
	Guidepost	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, <b>are consistently applied</b> and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and <b>demonstrably</b> provide effective deterrence.
	Met?	Y	Y	N
	Justification	ICCAT relies on its Contracting Parties to implement effective sanctions over their flagged vessels. ICCAT can impose trade sanctions and remove, suspend or reduce quota allocated to non-compliant CPCs. This happened with several EU countries with purse seiner fleets and tuna-farms in the past, SG60 is met. Even though recent instances of non-compliance do not concern this UoA, sanctions consistently applied by EU member states in recent years seem to have provided effective deterrence in the French EU capture fisheries (see section 3.5.6), SG80 is met. However, they do not appear to have had a lasting deterrent effect on the tuna-farming operations and their associated vessels as demonstrated by the ongoing EUROPOL investigation. Only SG80 is met.		



		Sanctions range from warning to penalties to temporary suspension (of membership and fishing for BFT-e) or even exclusion (PPC reports 2017, 2018, 2019). They may be applied by the PO, for quota overage for example, or for excessive landing of undersized fish (a tolerance with a specific quota). However, the PO tries to accommodate exceptional circumstances and no sanctions have been applied for the vessels in the fishery in the past three years (SATHOAN, 2019). For the fishery itself, SG100 would be met.		
c	Compliance			
	Guidepost	Fishers are <b>generally thought</b> to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	<b>Some evidence exists</b> to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a <b>high degree of confidence</b> that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	Y	Y	Y
	Justification	ICCAT - Not applicable  According to the PO, the vessels in the UoA demonstrate a high level of compliance by providing logbook (paper and electronic for vessels>12m), landing reports, and ICCAT daily electronic catch and sales declarations (e-BCD) for bluefin tuna, SG60 is met. The PO also cross-checks the daily landings and sales data submitted by all its members (TRQ database) systematically against the list of numbered tail tags provided to each vessel and the databases held by government, and reports any discrepancies. The fishermen and PO representatives also regularly participate in meetings with scientists and the central (through the CNPMEM) and regional (DIRM) administrations to provide information of importance to the effective management of the fishery, evidence from the MCS competent authority (DIRM from CNSP, see section 3.5.6) confirmed that the the fishers comply with the management system. The SATHOAN PO also participates in and encourages research into the development of tools for additional at sea data collection and voluntary research cooperation on bycatch identification (ECHOSEA), mitigation measures (SELPAL) and ecosystem research (Wendling et al., 2018). SG80 and SG100 are met.		
d	Systematic non-compliance			
	Guidepost		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	From the ICCAT perspective, there is no evidence of systematic non-compliance. Presently, no amount of unreported catches have been included in the models used by SCRS although this assumption does not rule out the risk of IUU catches . A large number of Monitoring, Control and Surveillance (MCS) components and partners come together including a widespread application of the Port State Measures Agreement (PSMA) in the North Atlantic		

		<p>and the Mediterranean, also the electronic catch reporting for BFT-e (eBCD), the EU Fisheries Control Agency (EFCA) Joint Deployment plan and coordination with NEAFC and ICCAT.</p> <p>The EFCA, in collaboration with French MCS competent authority (CROSS-Étel) has clearly identified elevated IUU fishing risks on the stock (EFCA, 2017), which are closely monitored by a local coordination of Affaires Maritimes (ULAM, pers. comm.), Gendarmerie, Police and Customs. Even though, some risks of systematic non-compliance exist, they are not suspected for this fishery. A score of SG80 is met in the fishery and is assumed to hold for the BFT-e resource as a whole at present, and until the non-compliance detected by the ongoing EUROPOL investigation or other MCS operations suggest otherwise. The team agrees that presently SG80 is met.</p>
<b>References</b>	(EFCA, 2017; ICCAT, 2017g; Wendling et al., 2018; SATHOAN, 2019)	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>85</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/a</b>

**Evaluation Table for PI 3.2.4 – Monitoring and management performance evaluation**

PI 3.2.4		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives. There is effective and timely review of the fishery-specific management system.		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guidepost	There are mechanisms in place to evaluate <b>some</b> parts of the fishery-specific management system.	There are mechanisms in place to evaluate <b>key</b> parts of the fishery-specific management system	There are mechanisms in place to evaluate <b>all</b> parts of the fishery-specific management system.
	Met?	Y	Y	N
	Justification	ICCAT has mechanisms to evaluate and review all parts of the fishery specific management system through various committees, e.g. the SCRS evaluates scientific research, the COC monitors and evaluates compliance with the Convention and ICCAT Recommendations. ICCAT also conducts independent periodic reviews of its own performance by using external experts (Spencer et al., 2016), and external review of its BFT research programme (GYBP 2 <sup>nd</sup> review see (MRAG, 2016) SG60 and SG80 are met.  The management systems that apply to the fishery, the EU and French policies and specific BFT-e management measures, are regularly evaluated, SG60 is met. The MCS system performance for small-scale longliners in the Mediterranean forms the basis of EFCA’s risk and effectiveness analysis (Blomeyer and Sanz, 2017); research projects and outputs are also regularly evaluated through peer review at French, European and ICCAT levels. However, for the West Mediterranean where the fishery is taking place, the evaluations are focused on BFT, swordfish and other species with EU quota or international management plans. The Marine Strategy Framework Directive local strategy ( <i>Stratégie de façade</i> ) and programme of measures for the region is not yet finalized, and until implemented, most likely in 2022, only SG80 is met.		
b	Internal and/or external review			
	Guidepost	The fishery-specific management system is subject to <b>occasional internal</b> review.	The fishery-specific management system is subject to <b>regular internal</b> and <b>occasional external</b> review.	The fishery-specific management system is subject to <b>regular internal</b> and <b>external</b> review.
	Met?	Y	Y	N
	Justification	ICCAT regularly reviews the fishery specific management system through different committees, SG60 is met. Its Conservation and Management Measures Compliance Committee (COC) monitors and evaluates compliance with the Convention and ICCAT’s Recommendations. An ad hoc Working Group (ICCAT Doc. No. GEN-001C/ 2017) reports annually (ICCAT, 2017i) on progress achieved by all components of the ICCAT structure following the last external independent Performance Review (Spencer et al., 2016). SG80 is met.  The PO Production and Marketing Plan (for ex. (SATHOAN, 2019) has to be submitted annually to the French central administration (DPMA), which reviews it closely, and this also holds for the French BFT-e management system performance at a whole, which is submitted to the EU and presented		

		to ICCAT as part of the EU submission, SG60 is met. However, presently, the regular internal and external reviews concern only the target species, and swordfish since 2017), for P2-related fisheries management aspects, external reviews conducted by the Parc Marins, for example, remain occasional. SG100 is not met.
<b>References</b>	(MRAG, 2016; Spencer et al., 2016; Blomeyer and Sanz, 2017; ICCAT, 2017i; SATHOAN, 2019)	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>80</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/a</b>

## Appendix 2 Risk Based Framework (RBF) Outputs

The RBF was triggered for the assessment of pelagic stingray (*P. violacea*) under PI 2.2.1 (Secondary Species outcome) – see Section 3.4.4.4 for further detail. The Productivity Susceptibility rationale tables are shown below.

**Table 1.2.2.a. PSA Rationale Table**

PI number	2.2.1	
Productivity		
Scoring element (species)	Pelagic stingray	
Attribute	Rationale	Score
Average age at maturity.	3.5 years (FishBase)	1
Average maximum age	At least 10 years (Neer, 2008)	2
Fecundity	In captivity, the species can produce up to 13 embryos twice a year (Poisson et al., 2016)	3
Average maximum size	<100 cm (Hamlett, 1999)	1
Average size at maturity	37.5 – 47.8 cm disk width (males) 40 – 50 cm disk width (females) (Neer, 2008)	2
Reproductive strategy	Live bearer (Hamlett, 1999)	3
Trophic level	~ 4 (Hamlett, 1999)	3
Overall productivity score		2.14
Susceptibility		
Fishery only where the scoring element is scored cumulatively	There are no other Mediterranean fisheries in the MSC programme that interact with pelagic stingray	
Attribute	Rationale	Score
Areal Overlap	The UoA fishery is concentrated on the plateau of the Golfe de Lion, along the French Mediterranean coast and in some localities around Corsica (Figure 6). Stakeholders present at the site visit initially indicated a very small degree of overlap (<10%) between the species and the fishery, based on the species’ ubiquitous presence, with some suggesting that the species is highly migratory (as blue shark) and its population is likely to straddle the Mediterranean and Atlantic Ocean. A score of 1 was initially awarded. Subsequent consultation with Francois Poisson, researcher at MARBEC / IFREMER and expert in pelagic stingray interactions with the BFT/SWO longline fishery, indicated that although the species is considered ubiquitous in the Mediterranean, the population should be considered at the scale of the western Mediterranean. Furthermore, the species has a strong seasonal presence in the fishery, with a higher concentration of stingrays interacting with the fishery during the summer months (Poisson et al., 2016) accompanied by a change	2

	in sex ratio favoured towards females (F. Poisson, pers. comm.). Therefore, although the spatial overlap between the fishery and the distribution of the species in the western Mediterranean is low (probably less than 10%), the team agreed to award a precautionary score of 2, corresponding to 10 – 30% overlap.	
Encounterability	The depth of the shallowest hook is 4 – 6m and that of the deepest hook <i>ca.</i> 20m (also see depth profile of the fishery in Poisson et al. (2016)). Tagging studies carried out as part of the SELPAL project (Poisson et al., 2016) indicate the pelagic stingray can tolerate temperature differences from 3 to 12°C over a 24-hour period, traversing the thermocline to depths of up to 480m. On this basis, there is low vertical overlap. During site visit interviews, this degree of overlap was initially estimated at less than 10%; however, here also subsequent consultation with F. Poisson indicated the need to consider seasonal variations in the distribution of this species, with a higher concentration of stingrays found in shallower waters during the summer months. A precautionary score of 2 was therefore awarded, corresponding to 10 – 30% overlap.	2
Selectivity of gear type	Average size at maturity is between 37.5 and 50cm disk width (Neer, 2008). The majority of catches are between 35 and 90cm according to fishers and the majority of individuals caught are thought to be mature; in fact, it is generally unknown where the juveniles of the species are as they do not tend to occur in the fishery (F. Poisson, pers. comm.). On this basis, individuals below the size of maturity are rarely caught and can escape or avoid the gear. A score of 1 is awarded.	1
Post capture mortality	Although all stingrays are systematically cut off the line (Section 3.4.4.4), they may be left on the line for several hours which influences survivability. Furthermore, because they are cut off the line, any line that remains attached is susceptible to fouling and may decrease individual fitness. The species overall, however, is considered robust and even has demonstrated an ability to remove the hook in captivity (although less so with circular hooks) (F. Poisson, pers. comm.). According to fishers, stingrays are also often caught with ‘piercings’ already in place which suggests high post-release survivability. According to F. Poisson, however, survivability depends to a great extent on how the animals are handled post-capture. If the stingrays are removed from the line according to best practice (as per the TRL-PA code of conduct), survival may be as high as 95%. If not, it could be as low as 40%. It is worth noting that Poisson et al. (2016) examined post-release survival for a small sample of tagged stingrays (7 specimens) and estimated a mortality rate of 28%. The post-capture mortality rate was considered negligible, at less than 2%. Therefore, although the majority of individuals are likely to survive, there is still a high degree of uncertainty associated with post-release survival which depends to a great extent on how each individual is released. For this reason, a precautionary score of 2 was awarded.	2
Catch (weight) only where the scoring element is scored cumulatively	Not applicable	N/a
Overall susceptibility score		1.18

Overall PSA score	2.44
MSC PSA-derived score	87

## RBF Scoring spreadsheet

Only main species scored?			Yes						Productivity Scores [1-3]								Susceptibility Scores [1-3]			Cumulative only										
Scoring element	First of each scoring element	Species Grouping only ID 'At Risk' species by selecting associated species group	Species Grouping only Number of species in species group which this species represents (N2)	Family name	Scientific name	Common name	Species type	Fishery descriptor	Average age at maturity	Average max age	Fecundity	Average max size	Average size at Maturity	Reproductive strategy	Trophic level	Density Dependence	Total Productivity (average)	Availability	Encounterability	Selectivity	Post-capture mortality	Total (multiplicative)	PSA Score	Catch (tons)	Weighting	Weighted Total	Weighted PSA Score	MSC PSA-derived score	Risk Category Name	MSC scoring guidepost
1	First			Dasyatidae	Pteroplatytrion violacei	Pelagic stingray (pastern)	Non-invertebrate	Pelagic longline	1	2	3	1	2	3	3		2.14	2	2	1	2	1.18	2.44					87	Low	≥80



## Appendix 3 Conditions

Table 29. Condition 1.

<b>Performance Indicator</b>	<b>1.2.2 - There are well defined and effective harvest control rules (HCRs) in place</b>
<b>Score</b>	65
<b>Rationale</b>	<p><u>Scoring issue a (SG80)</u>: 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, or for key LTL species a level consistent with ecosystem needs.</p> <p>There is, however, an issue with how the HCR operates should the PRI be approached. The HCR stipulates exploitation at <math>F_{0.1}</math>. This should operate such that the stock is maintained at equilibrium biomass <math>B_{0.1}</math> as explained above. This occurs because if biomass falls below <math>B_{0.1}</math>, fishing effort would have to be reduced to avoid <math>F</math> exceeding <math>F_{0.1}</math> (and vice versa if biomass is above <math>B_{0.1}</math>, as appears to be the case currently). However, this is not the same as arguing that the exploitation rate is reduced – in fact, fishing effort is reduced to keep the exploitation rate at the same level.</p> <p>As is clear from the recent history of the stock (see rationale for 1.1.1a) it is highly likely that this HCR will maintain the stock far away from the PRI unless there is a catastrophic and long-lasting failure of recruitment for environmental reasons (and this argument applies to any managed fish stock). There are also elements of the harvest strategy that in practice will act to reduce the exploitation rate as biomass declines; such as the MLS (the proportion of the stock above a given size declining as stock biomass declines). There is also a clear process of review and revision of the harvest strategy and the TACs as explained above, with the MSE process also underway (if behind schedule). For these reasons, the HCR can be ‘expected to reduce the exploitation rate as the PRI is approached’ – SG60 is met. The team concludes that the HCR cannot be argued to ‘ensure’ that the exploitation rate is reduced as the PRI is approached. SG80 is not fully met.</p> <p><u>Scoring issue b (SG80)</u>: The HCRs are likely to be robust to the main uncertainties.</p> <p>As noted above, some of the main uncertainties have been incorporated into the HCR (i.e. via applying it to <math>F</math> rather than <math>B</math>) but some have not (e.g. choice of stock assessment model, future recruitment). SCRS have so far proposed (and ICCAT have agreed) to apply the HCR with circumspection; i.e. maintaining in 2018-02 the agreed TACs from 2017-07 rather than setting TACs based on <math>F_{0.1}</math> as implied by the HCR. This suggests that they are not confident that the HCR is robust to the main uncertainties. Indeed, if at the next stock assessment the Stock Synthesis model can be developed to a point where it is equally as suitable as the VPA for providing management advice (as is the case for the western stock), conclusions as to <math>F</math> and TACs may be somewhat different. On this basis, it is hard to argue that the HCR is robust to the main uncertainties; in our view, ICCAT are wise to use it with caution. SG80 is not met.</p>
<b>Condition</b>	By Year 4 the client should be able to show that the HCR is able to ensure that the exploitation rate is reduced as the PRI is approached and is likely to be robust to the main uncertainties.
<b>Milestones</b>	Year 1: The client should support the MSE process to improve the harvest strategy and provide evidence to the CAB at the surveillance of how they have done this. Score 75

	<p>Year 2: The client should support the MSE process, and work to ensure that any recommendations as to changes in the management plan arising from that process, which would make the harvest strategy more robust to uncertainty and would ensure a reduction in the exploitation rate at low biomass (e.g. by agreeing a LRP or by other means), are incorporated into management. Score 75</p> <p>Year 3: The client should support the MSE process, and work to ensure that any recommendations as to changes in the management plan arising from that process, which would make the harvest strategy more robust to uncertainty and would ensure a reduction in the exploitation rate at low biomass, are incorporated into management. Score 75</p> <p>Year 4: The client should demonstrate that the harvest strategy will ensure that the exploitation rate is reduced as the PRI is approached and is robust to the main uncertainties. Score 80</p>
<b>Client action plan</b>	<p><b>Support for the scientific approach to take into account the main uncertainties in stock assessments and control rules for catch levels.</b></p> <p><u>Year 1:</u> In order to identify the main uncertainties for HCRs, the fishery stakeholders make sure the item is put on the agenda of meetings with IFREMER (many exchanges are in progress between OP and IFREMER in the framework of the various projects of scientific partnerships (FISH &amp; SHIP, PROMPT, SHARKGUARD, ..). Exchanges with different NGOs are in progress (WWF, Planete mer).</p> <p>Item put on the agenda of Bluefin tuna and swordfish national working group's meetings with DPMA . Written communication to DPMA to insist on the fishermen support of the MSE process through the regular meetings of the CNPMEM Bluefin tuna and swordfish national working group.</p> <p><u>Year 2 and 3:</u></p> <p>Prepare ICCAT annual meetings, through exchanges with IFREMER, other research organizations and within the CNPMEM with DPMA (See Agenda and Minutes), to insist on the importance of the MSE process and support recommendations for management plan changes resulting from this process to be integrated and to improve the capture strategy, including the reduction in the exploitation rate as the PRI is approached .</p> <p>Year 4: Support proposals of IFREMER and other research organizations for new HCRs robust to the main uncertainties and support proposals which lead a reduction in the exploitation rate as the PRI is approached.</p>
<b>Consultation on condition</b>	<p>The current arrangements for the preparation of ICCAT meetings and panels already consist of regular meetings with the central administration department (DPMA) and research institute IFREMER to prepare, analyse and discuss around ICCAT meetings (see Evaluation table PI 3.1.2). No additional consultation needed.</p>

**Table 30. Condition 2.**

<b>Performance Indicator</b>	<b>1.2.3 - Relevant information is collected to support the harvest strategy</b>
<b>Score</b>	75
<b>Rationale</b>	<p><u>Scoring issue c (SG80)</u>: There is good information on all other fishery removals from the stock</p> <p>MSC guidance GSA2.6.1: <i>The reference to ‘other’ fishery removals in scoring issue (c) relates to vessels outside or not covered by the unit of assessment. These require good information but not necessarily to the same level of accuracy or coverage as that covered by the second scoring issue.</i></p> <p>The ICCAT requirements for recording catch information (catch documentation scheme) are summarised in Section 2.3.9.1. These apply to all fisheries targeting bluefin tuna or which have bluefin quota. There is therefore good information on these removals. There are two areas of potential concern: IUU removals and the recreational fishery.</p> <p>WWF-Mediterranean have been compiling information on seizures of illegal bluefin tuna in the Mediterranean (which has been the key area for IUU on BFT-e for several decades) since 2015. They record IUU landings over the last 4 years (2015-2018) ranging from 35-117 tonnes per year, from four countries – Spain, Italy, Tunisia and Algeria. 117 t of bluefin represents 0.4% of the TAC for 2018.</p> <p>It is likely the real quantity of IUU landings is much higher than the quantity seized. If we assume that 10% of IUU landings are seized and recorded by WWF, this means that Mediterranean IUU would account for ~4% of the TAC. (This is, however, just an order of magnitude estimate.) The team were given an overall estimate of 2500 t IUU, but neither the source nor the time period over which this occurred is clear, however, if over one year this would represent 9% of the (2018) TAC.</p> <p>The recreational fishery is likewise mainly from the Mediterranean, and mainly from EU countries. The stock assessment data preparation workshop (ICCAT 2017j) indicates that recreational catches are quantified in the catch data, at least in the more recent parts of the time series (since 1990), although they may not be that accurate. It is reported in France that recreational catches are estimated to be minor (~1% of the quota) but this may not be the case throughout the Mediterranean.</p> <p>Overall, there is not clear evidence that unquantified removals are a major concern for the stock assessment; they are one of a range of uncertainties, and most likely not the most serious. However, it is not possible to say at this point that there is ‘good’ information on all removals from the stock – not met.</p>
<b>Condition</b>	By Year 4 the client should be able to show evidence that there is good information on all other fishery removals from the stock.
<b>Milestones</b>	<p>Year 1: The client should consider how to best support projects that aim to quantify IUU and recreational removals from the stock. (Score 75).</p> <p>Year 2: Working with other fisheries or organisation as relevant, the client should support projects that aim to quantify IUU and recreational removals from the stock. (Score 75).</p> <p>Year 3: Working with other fisheries or organisation as relevant, the client should support projects that aim to quantify IUU and recreational removals from the stock. (Score 75).</p>

	Year 4: The client should provide evidence that there is good information on all other fishery removals from the stock. (Score 80).
<b>Client action plan</b>	<p><b>Support projects that aim to quantify IUU and recreational removals from the stock</b></p> <p><u>Year 1 – 3:</u></p> <p>To ensure that more surveillance is available to qualify and quantify any non-declared removals of BFT in France :</p> <ul style="list-style-type: none"> <li>- The fishery PO will send letters to the DIRM (French Monitoring, Surveillance and Control competent authority) asking for increased controls on recreational fishing and landings outside authorized ports, and to the DGCCRF (Fraud Office) to ask for more controls of points of sale in particular the restaurants (respect traceability)</li> <li>- The fishery PO to contribute to political lobbying to increase the means of control of undeclared (illegal and recreational) fisheries at national and European level: annual letter to the Ministry and meetings with French and European members of parliaments.</li> </ul> <p>To support activities to quantify IUU and recreational removals from the stock :</p> <ul style="list-style-type: none"> <li>- Hold discussions with the organization France Filière Pêche (of which the SATHOAN PO Director is a Trustee) and scientists (IFREMER and other research organizations) to support a project proposal that would promote better understanding of undeclared catch (IUU and recreational) with quantitative data.</li> <li>- Provide annual updates to the CAB on the development of measures to understand IUU quantities and progress towards its inclusion in the stock assessments.</li> </ul> <p><u>Year 4 :</u></p> <p>Summary report of progress in the knowledge of unreported quantities of fishing and taking into account illegal fishing quantities in ICCAT stock assessments.</p> <p>Quantitative information on IUU and recreational catch of BFT are improved enough to be included in the ICCAT stock assessment.</p>
<b>Consultation on condition</b>	<p>The current arrangements already include exchanges with DIRM about controls. Written requests will be more frequent. No additional consultation needed.</p>

**Table 31. Condition 3.**

<b>Performance Indicator</b>	<b>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</b>
<b>Score</b>	60
<b>Rationale</b>	<p><u>Scoring issue a (SG80)</u>: Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status.</p> <p>For both swordfish and blue shark, logbook data provide information on the amount of landed fish (although this should no longer be applicable to blue shark which are according to the client no longer landed by the UoA from 2018 onwards). Although all vessels are required to complete an EU logbook and 100% coverage can therefore be expected, the reality is that the collection of logbook data at national level by France. Agrimer (made available through SIOP) is partial at best. This is reportedly related to capacity issues and to technical problems. At UoA level, SATHOAN also compiles its members' logbook data with the main aim of monitoring quota uptake. While data on bluefin tuna and swordfish are assumed to be complete, other retained species are only partially entered as only trips for which geolocation data are available contribute to the dataset (related to capacity issues at SATHOAN) – see Section 3.4.2 for more detail. All this relates to landed catch only and information on discards is only available through the IFREMER observer data, collected as part of the French national observer programme (Obsmer). For the UoA, observer coverage appears to be low, with on average 12 observed BFT trips per year between 2013 and 2017, corresponding to about 0.5% of the overall effort in terms of trips. Although these data combined provided the team with a good indication of which the 'main' primary species are, as well as what the order of magnitude of catches is, the quality of the data was concerning. Although assumptions can be made to estimate the fishery's impact on the species concerned (see 2.1.1) and therefore SG60 is met, SG80 is not met</p> <p><u>Scoring issue c (SG80)</u>: Information is adequate to support a partial strategy to manage main Primary species</p> <p>Although a good amount of information is available on landings of non-bait primary species, particularly swordfish, UoA information on discarding of both swordfish and blue shark is lacking – some information is available through the Obsmer observer programme, but observer coverage is too low to be truly representative of the fishery. Although a strategy is in place at ICCAT level for swordfish, concern was raised by the SCRS that since the establishment of minimum landing sizes, the discard levels of undersized swordfish may have increased (ICCAT-SCRS, 2016). For blue shark, since the UoA's non-retention policy has come into effect, the only independent data source is the Obsmer data for which coverage is currently insufficient. Overall, UoA level impacts can be estimated for the species concerned, based on a combination of logbook and observer data, sufficient to support relevant management measures (SG60 is met). A meaningful strategy or partial strategy at UoA level should, however, rely on more and better quality data. SG80 is not met.</p>
<b>Condition</b>	By Year 4, some quantitative information should be available and adequate to assess the impact of the UoA on the main primary species with respect to status. The information collected should be adequate to support a partial strategy to manage these species.
<b>Milestones</b>	Year 1: Evaluate current data collection strategy and identify areas of improvement so that the information is adequate to 1) assess the impact of the UoA on the main

	<p>primary species with respect to status and 2) support a partial strategy to manage these species. Develop improved data collection plan (Score: 60).</p> <p>Year 2: Demonstrate new data collection plan has been implemented. (Score: 60).</p> <p>Year 3: Continued data collection. (Score: 60).</p> <p>Year 4: Quantitative information is available and adequate to assess the impact of the UoA on the main primary species with respect to status. The information collected is adequate to support a partial strategy to manage these species. (Score: 80)</p>
<b>Client action plan</b>	<p><b>Increase available data to assess the UoA impacts on the primary species swordfish and blue shark</b></p> <p><b><u>Year 1 :</u></b></p> <p><b>1) Improved data recording for vessels by the PO SATHOAN (hiring a part-time person to check and record all data + improved monitoring and data collection tools)</b></p> <p><u>Fishing activities and possible interactions:</u> Transmission to the PO by all UoC vessels of the fishing location of each fishing trips and integration in the database: for vessels less than 12 m manual entry of the GPS point of the set longline in the logbook, for larger vessels direct transmission to the PO of the electronic logbook and VMS information.</p> <p><u>Landed catches:</u></p> <ul style="list-style-type: none"> <li>- Recording of every individual swordfish (mandatory since 2018, traceability system and quota monitoring similar to that for the bluefin tuna / SWO specific tags obtained from DPMA)</li> <li>- Entry by the PO of all data noted on the fishing logsheets (= all catches landed for all species with the weight of each catch and any other information) for all fishing trips in its database.</li> <li>- Produce Annual report on the data available and comparison between PO data and data entered by FranceAgriMer available via SIOP, to be discussed at CNPMM meetings.</li> <li>- Formal request from PO to FranceAgriMer to validate for fishing and logbook returns, through CNPMM.</li> </ul> <p><u>Catches that are released and not landed (Blue shark – BSH and juvenile swordfish - SWO):</u> two tools exist (notebooks and echosea app) for all vessels to collect data systematically (=&gt; Cf. Action plan for 2.2.3). The data will be presented in annual reports to IFREMER.</p> <p><b>2) Improved representativeness of Obsmer data:</b></p> <p>Discussion with DPMA (and CNPMM) to request an increase in the number of observer (OBSMER) trips on longliners in the Mediterranean</p> <p><b><u>Year 2-3 :</u></b></p> <p>Annual meetings with IFREMER for presentation and analysis of data collected by the PO, discussion and search for improvements.</p> <p>Annual report</p> <p>Annual Impact Assessment Report from the Primary Species Fishery</p> <p>+ continuation of the improved information collection system</p>

	<p><b><u>Year 4 :</u></b></p> <p>At least 3 years of quantitative information are available and adequate to assess the impacts of the UoA on the main primary species with respect to status.</p> <p>The actions above are part of a greater action plan that covers all Principle 2 conditions – see Appendix 11.</p>
<b>Consultation on condition</b>	<p>Work done in collaboration with scientists (IFREMER) and fisheries managers (DPMA) as part of existing work programmes and through regular meetings. Additional work carried by the PO.</p>

**Table 32. Condition 4.**

<b>Performance Indicator</b>	<b>2.2.2 – There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.</b>
<b>Score</b>	75
<b>Rationale</b>	<p><u>Scoring issue b (SG80):</u> There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.</p> <p>The estimated mortality rates, robust nature of the species and best practice handling techniques combined give some plausible argument that the strategy will work. SG60 is met. There remain, however, significant question marks as to what the actual levels of interaction are with pelagic stingrays in this fishery. At 0.5% of the overall effort in terms of trips, the observer coverage in this fishery is too low to enable meaningful analysis of impacts at UoA level, and to determine whether additional management action may be required. The team concluded that this information gap needs to be filled before it can be determined whether there is an objective basis for confidence that the strategy will work. SG80 is not met.</p>
<b>Condition</b>	By Year 4, there should be an objective basis for confidence that the partial strategy in place for pelagic stingrays will work, based on some information directly about the UoA and/or this species, including seasonal and spatial catch patterns.
<b>Milestones</b>	<p>Year 1: Evaluate current partial strategy for pelagic stingray and associated data collection protocols. Identify areas of improvement so that the information is adequate to provide an objective basis for confidence that the partial strategy will work. Develop improved data collection protocols (Score: 75).</p> <p>Year 2: Demonstrate new data collection plan has been implemented. (Score: 75).</p> <p>Year 3: Continued data collection. (Score: 75).</p> <p>Year 4: The information collected provides an objective basis for confidence that the partial strategy in place for pelagic stingrays will work. (Score: 80)</p>
<b>Client action plan</b>	<p>Actions will concern two complementary directions :</p> <p><b>1) Develop a strategy from existing measures to minimise possible mortality of captured pelagic stingray implemented by all UoC vessels</b></p> <p><u><b>Year 1:</b></u></p> <p>At the beginning of the season, all rays and sharks release rules are reminded to all vessel skippers in the UoC (release in survival conditions and systematic recording of all catches on Echosea App (paper or electronic). On-board verification (1 check per year on each vessel) by a PO-mandated agent.</p> <p>Weekly verification and recording of received data =&gt; evaluation of the recording rate and presentation summary report to vessels as a reminder of the rules.</p> <p><u><b>Year 2, 3 and 4 :</b></u></p> <p>Verification and demonstration during on-board checks (1 check per year on each ship). Annual report presented.</p>



	<p>Scientific research (post-graduate project) to devise a standardized pelagic catch per unit of effort (CPUE) indicator to follow potential impact on pelagic ray mortality.</p> <p><b>2) Test a sharks and rays (elasmobranch) catch avoidance strategy using a new technology which is an electric pulse device to deter from fishing hooks</b></p> <p><b><u>Year 1:</u></b></p> <p>Test of the device in real situation on 2 UoC vessels</p> <p>On the basis of existing collaboration between FISHTEK Marine, ISI-Fish, SATHOAN and marine biologists at the University of Exeter with funding from the European Commission's Eurostars and France Filière Pêche</p> <p><b><u>Year 2:</u></b></p> <p>Project report: assessment of efficiency of the device, and proposals for development with costing for implementation on larger scale Decision</p> <p><b><u>Year 3:</u></b></p> <p>If the trials are conclusive, search for funding Implementation of strategy</p> <p><b><u>Year 4:</u></b></p> <p>Implementation of the remaining avoidance strategy complemented by release strategy in survival conditions</p> <p><b><u>Year 2, 3 and 4 :</u></b></p> <p>Effect monitored and evaluated through a scientific research post-graduate project to devise a pelagic catch per unit of effort (CPUE) indicator to follow potential impact on pelagic ray mortality.</p> <p>The actions above are part of a greater action plan that covers all Principle 2 conditions – see Appendix 11.</p>
<b>Consultation on condition</b>	<p>This research is already ongoing: Description of the project  <a href="https://www.isifish.fr/isi-fish-et-fisktek-marine-associes-dans-le-projet-sharkguard-laureat-du-programme-eurostars/">https://www.isifish.fr/isi-fish-et-fisktek-marine-associes-dans-le-projet-sharkguard-laureat-du-programme-eurostars/</a> </p>

**Table 33. Condition 5.**

<b>Performance Indicator</b>	<b>2.2.3 – Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.</b>
<b>Score</b>	75
<b>Rationale</b>	<p><u>Scoring issue c (SG80):</u> Information is adequate to support a partial strategy to manage main secondary species.</p> <p>The research into post-capture and post-release mortality rates of pelagic stingrays in the UoA provides some useful information on the effectiveness of the partial strategy. There remain, however, significant question marks as to what the actual levels of interaction are with pelagic stingrays in this fishery. At 0.5% of the overall effort in terms of trips, the observer coverage in this fishery is too low to enable meaningful analysis of impacts at UoA level, and to determine whether additional management action may be required. The team therefore decided that SG80 was not met.</p>
<b>Condition</b>	By Year 4, the information available on interactions with pelagic stingray should be adequate to manage the UoA's impact on this species, taking into account seasonal and spatial catch patterns.
<b>Milestones</b>	<p>Year 1: Evaluate current partial strategy for pelagic stingray and associated data collection protocols. Identify areas of improvement so that the information is adequate to manage the UoA's impact on this species, taking into account seasonal and spatial catch patterns. Develop improved data collection protocols (Score: 75).</p> <p>Year 2: Demonstrate new data collection plan has been implemented. (Score: 75).</p> <p>Year 3: Continued data collection. (Score: 75).</p> <p>Year 4: The information available on interactions with pelagic stingray is adequate to manage the UoA's impact on this species and takes into account seasonal and spatial catch patterns. (Score: 80)</p>
<b>Client action plan</b>	<p><b>Improved data collection on interactions with pelagic stingray and estimation of potential impacts</b></p> <p><b><u>Year 1:</u></b></p> <p><b><u>SATHOAN-PO Data collection programme for non-landed catches:</u></b> Tools put in place by the SATHOAN-PO: notebook for non-landed catches through hole-punched notecards and/or <a href="http://www.echosea.fr">www.echosea.fr</a> phone app to estimate all released catches, aiming to obtain detailed information on at least 80% of all UoC vessels fishing trips.</p> <ul style="list-style-type: none"> <li>- Update of TRL Code of practice rules to include mandatory record (notebook or Echosea) of all released catches of sharks and rays (initiated 2018);</li> <li>- Each fisher to receive an information letter and on-board kit, and annual awareness meeting;</li> <li>- Increased frequency of landing checks by VALPEM complemented by external controls via the Pêche durable ecolabel;</li> <li>- Data collection of all data from UoC vessels (Echosea ou carnet) geo-referenced or not.</li> </ul> <p>(Means : half-time of PO employee + correspondence and meetings with vessel captains) ;</p>

	<p><b>Improvement of the representativeness of Obsmer data:</b> Annual discussions with DPMA and CNPME and written requests to increase in the number of observed trips (OBSMER) on longliners in the Mediterranean;</p> <p><b>Improvement of the confidence in data collected via Echosea:</b> Setting up of a steering committee to monitor data collected via Echosea by associating IFREMER, DPMA, CPMR, AFB (Marine Park), LPO-Birdlife, CestMed and Ailerons (Shark protection NGO) (end 2019) with annual meetings;</p> <p><b><u>Year 2 and 3:</u></b></p> <p>Annual report to Steering Committee and annual meetings with IFREMER, to present the data collected, research needs and projects.</p> <p><b><u>Year 4:</u></b></p> <p>Data are available to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.</p> <p>The actions above are part of a greater action plan that covers all Principle 2 conditions – see Appendix 11.</p>
<p><b>Consultation on condition</b></p>	<p>Actions, additional staff and meeting times through on-going SATHOAN-PO projects Through existing regular DPMA and CNPME meetings, including participation of IFREMER research staff. The Echosea Steering Committee is currently being set up, with the first meeting held on 10 March 2020. See Appendix 12 for supporting documentation.</p>

**Table 34. Condition 6.**

<b>Performance Indicator</b>	<b>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</b>
<b>Score</b>	75
<b>Rationale</b>	<p><u>Scoring issue b (SG80)</u>: Direct effects of the UoA are highly likely to not hinder recovery of ETP species. (seabirds and sea turtles)</p> <p>The sole source of information on UoA interactions with ETP species is the Obsmer observer data (see Section 3.4.2) although the SELPAL study (Poisson et al., 2016) also gives a more qualitative indication of likely interactions. Based on stakeholder interviews and available literature (e.g. Wallace et al. (2013), Garcia (2013), López et al. (2012) and Poisson et al. (2016)), this fishery is likely to interact with three groupings of ETP species: seabirds, sea turtles and marine mammals. With limited information on the exact species involved (although assumptions can be made – see further on), the team retained these three groupings as scoring elements for the ETP species component. Although the fishery also interacts with sharks, none of the species identified in the data or through stakeholder interviews would qualify as ETP species (these are blue shark, common thresher and short-fin mako). With the exception of blue shark, sharks were therefore considered under Secondary species.</p> <p>According to fishers interviewed during the site visit, interactions with seabirds are relatively rare, with about 2 birds caught each year per vessel. Sea turtles are reportedly never caught and interactions with marine mammals are thought to be extremely rare. Depredation for example is also considered a rare occurrence.</p> <p>A summary of the observer data for the period 2014 – 17 is shown in Table 13, indicating that interactions with <u>seabirds</u> take place each year (varying between 6 and 18 annually, except for 2016 when none were recorded). Some of these interactions result in hooked birds with a degree of associated mortality. However, the nature of all interactions is not detailed in the observer data and information on the fate of all individuals involved is not available. Between 2014 and 2016, none of the seabirds in the dataset were identified to species level although interactions took place with puffins, terns and gulls. In 2017, 18 interactions with <i>Puffinus yelkouan</i> were reported by observers. As explained in Section 3.4.2, the observer coverage in this fishery is low, with on average 12 observed BFT trips per year between 2013 and 2017, corresponding to about 0.5% of the overall effort in terms of trips.</p> <p>According to Garcia (2013), the Gulf of Lions is one of the hotspots of productivity in the Mediterranean Sea, offering ideal conditions for foraging seabirds, which are concentrated on it over much of the year. In addition, the Mediterranean marine avifauna is characterised by a high number of endemic taxa. All four Procellariiforms (petrels and shearwaters) present in the Mediterranean are endemic taxa: two at species level (<i>Puffinus mauretanicus</i> and <i>Puffinus yelkouan</i>) and two at subspecies level (<i>Calonectris d. diomedea</i> and <i>Hydrobates pelagicus melitensis</i>). Besides, one endemic cormorant (Shag <i>Phalacrocorax aristotelis desmarestii</i>), three gulls (Mediterranean <i>Larus melanocephalus</i>, Audouin's <i>Larus audouinii</i> and yellow-legged <i>Larus michahellis michahellis</i>) and one tern (Lesser-crested <i>Sterna bengalensis emigrata</i>) also originate from the Mediterranean region. Table 14 summarises the key points for the main seabird species likely to be encountered by this fishery; three of which, <i>P. yelkouan</i>, <i>P. mauretanicus</i> and <i>Calonectris diomedea</i>, have shown a particular susceptibility to capture in fisheries including pelagic longline fisheries (see Section 3.4.5.2).</p> <p>The team took into account the scale of the UoA (24 vessels), the limited footprint of the fishery (Figure 5 and Figure 6) and the implementation of the Good Practice Guide (<a href="https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf">https://www.opquota.com/assets/pdf/Guidelfremer_2016_web.pdf</a>), drafted in collaboration with IFREMER and UMR MARBEC and the use of which is obligatory for</p>

	<p>vessels subscribing to the TRL-PA brand, and considered that that the majority of interactions between the UoA and seabirds is not likely to result in mortality to the extent that it will hinder recovery of the species concerned. SG60 is met. However, owing to the low observer coverage and the considerable overlap between the fishing grounds and known seabird foraging areas described in Table 14, it is not known whether direct effects of the UoA are highly likely to not hinder recovery of ETP species. SG80 is not met.</p> <p><u>Sea turtles:</u> Within the Mediterranean, two species of sea turtle are known to occur – these are the loggerhead (<i>Caretta caretta</i>) and green turtle (<i>Chelonia mydas</i>) which use the basin for reproduction as well as feeding. The leatherback (<i>Dermochelys coriacea</i>) is also increasingly observed. The fishery under assessment overlaps with the three Mediterranean RMUs shown in Figure 14 (see Section 3.4.5.1 for more detail) indicating interactions are likely. In the observer data (Table 10), only one sea turtle was recorded – it was found at the surface in difficulty, however it is unclear whether this was caused by an interaction with the fishery. Overall, according to the fishers and other stakeholders interviewed during the assessment, sea turtle interactions do not appear to be a concern in this fishery. Furthermore, as for seabirds above, all vessels in the UoA are required to adhere to the Good Practice Guide which includes handling techniques for sea turtles. This information, combined with the available observer data, indicates that the UoA is likely to not hinder recovery of sea turtles. SG60 is met. As for seabirds, however, the observer coverage is too low to determine that the UoA is highly likely to not hinder recovery. SG80 is not met.</p>
<b>Condition</b>	By Year 4, direct effects of the UoA should be highly likely to not hinder recovery of sea turtles and ETP seabirds.
<b>Milestones</b>	<p>Year 1: Evaluate current data collection strategy and identify areas of improvement to monitor the UoA's direct effects on ETP species, particularly sea turtles and ETP seabird species. Develop improved data collection plan (Score: 75).</p> <p>Year 2: Demonstrate new data collection plan has been implemented. (Score: 75).</p> <p>Year 3: Continued data collection. (Score: 75).</p> <p>Year 4: The information available on the UoA's direct effects on ETP species, shows that the UoA is highly likely to not hinder recovery of sea turtles and ETP seabirds. (Score: 80)</p>
<b>Client action plan</b>	<p>Observation log notebook with punch holes and app <a href="http://www.echosea.fr">www.echosea.fr</a> have been set up to collect data complementary to those produced by Obsmer for turtles and birds. Some weaknesses regarding records of interactions with birds (Cf. point 2.2.2) have been rectified in the app <a href="http://www.echosea.fr">www.echosea.fr</a>: every record has to indicate if capture took place (real interaction) or if it is an observation of presence at sea. In case of capture, the bird health (released alive or found dead) has to be noted. A manual has been put together and communicated to the UoA vessels (correspondence, meeting) as part of the on-going Echosea project. There is also now a requirement for fishers to call the local bird rescue centre for advice and report any injured bird caught and any tagging information.</p> <p><b><u>Improved information base to evaluate the implementation and effectiveness of the strategy:</u></b></p> <p><b><u>Year 1:</u></b></p> <ul style="list-style-type: none"> <li>- Creation of a steering committee for monitoring data collected via Echosea by associating IFREMER, DPMA, CPMR, AFB (Marine Park), LPO, CestMed and NGO Ailerons with annual meeting (end 2019)</li> </ul>

	<ul style="list-style-type: none"> <li>- First meeting of the steering committee with review of existing data collection provisions and propose improvements (registration modalities, additional mechanism to be put in place;</li> </ul> <p><b><u>Year 2 and 3:</u></b></p> <ul style="list-style-type: none"> <li>- Implementation of the conclusions / Continuation of the collection of information</li> <li>- Updated data report</li> <li>- Annual meeting of the steering committee: presentation / exchange of data (Score 75)</li> </ul> <p><b><u>Year 4:</u></b></p> <p>Report. Direct impacts monitored and evaluated through a scientific research post-graduate project to monitor the fishery's potential direct impacts on marine turtles and seabirds (post graduate student project in collaboration with the Marine Park)</p> <p>The actions above are part of a greater action plan that covers all Principle 2 conditions – see Appendix 11.</p>
<b>Consultation on condition</b>	The Echosea Steering Committee is currently being set up, with the first meeting held on 10 March 2020. See Appendix 12 for supporting documentation.

**Table 35. Condition 7.**

<b>Performance Indicator</b>	<p><b>2.3.2 – The UoA has in place precautionary management strategies designed to:</b></p> <ul style="list-style-type: none"> <li>• <b>meet national and international requirements;</b></li> <li>• <b>ensure the UoA does not hinder recovery of ETP species.</b></li> </ul> <p><b>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species</b></p>
<b>Score</b>	65
<b>Rationale</b>	<p><u>Scoring issue a (SG80):</u> There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>Note: the following is an extract from the rationale: (...) All of these measures aim to minimise the UoA-related mortality of ETP species, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species – SG60 is therefore met. The team considered however, that adequate monitoring is an integral part of any management strategy (also see the MSC definition for a strategy as per the FCRv2.0). Although 5% monitoring is required at ICCAT level, it does not appear to be implemented in this fishery. The level of monitoring in the UoA with regard to ETP species was therefore found to be insufficient for SG80 to be met.</p> <p><u>Scoring issue c (SG80):</u> There is an objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved.</p> <p>All of the measures listed in scoring issue a provide a legal framework for the protection of ETP species and aim to minimise UoA-related mortality through non-retention policies and best handling and release practices. Overall, there is a plausible argument that the measures are considered likely to work and SG60 is met. However, the existing observer data are not sufficient to provide an objective basis for confidence that the measures will work, particularly for seabirds and sea turtles. SG80 is not met.</p> <p><u>Scoring issue d (SG80):</u> There is some evidence that the measures/strategy is being implemented successfully.</p> <p>Implementation of the Good Practice Handbook is a requirement for TRL-PA membership and compliance is audited on a regular basis. Overall, the team was satisfied that fishers comply with the management measures to the extent that post-capture mortality is minimised and specimens are released as soon as is practicable. In relation to monitoring, however, although 5% monitoring is required at ICCAT level, it does not appear to be implemented in this fishery, and the existing observer data are not sufficient to provide objective evidence about implementation of the requirements. SG80 is not met.</p>
<b>Condition</b>	By Year 3, there should be a strategy in place for managing the UoA's impact on ETP species, designed to be highly likely to achieve national and international requirements for the protection of ETP species. There should be an objective basis for confidence that the strategy will work and evidence that it is being implemented successfully.
<b>Milestones</b>	Year 1: Review management in place for managing the UoA's impact on ETP species. Identify short comings at fleet level in the implementation of relevant national and regional regulations in relation to ETP species, including observer coverage. Develop improved strategy which should have an objective basis for confidence that it will work. (Score: 65)

	<p>Year 2: Implement improved strategy (Score: 65)</p> <p>Year 3: Demonstrate that new strategy is in place (Score: 80).</p>
<b>Client action plan</b>	<p><b>Improvement of the representativeness of Obsmer data:</b> Annual discussions with DPMA and CNPMM and written requests to increase in the number of observed trips (OBSMER) on longliners in the Mediterranean;</p> <p><b>Improvement of the confidence in data collected via Echosea</b></p> <p><b>Year 1:</b></p> <ul style="list-style-type: none"> <li>- Setting up of a steering committee to monitor data collected via Echosea by associating IFREMER, DPMA, CPMR, AFB (Marine Park), LPO-Birdlife, CestMed and Ailerons (Shark protection NGO) (end 2019) with annual meetings;</li> <li>- Updated report of available data (OP Echosea database + notebook, and Obsmer);</li> <li>- Telephone Survey of the rescue centers / Assessment of the calls received;</li> <li>- Meeting of Echosea Steering Committee with presentation of available data;</li> <li>- Identification of areas for improvement to minimize the impact of fishing on ETP species and evaluate the effectiveness of measures.</li> </ul> <p><b>Year 2:</b></p> <ul style="list-style-type: none"> <li>- Implementation of the conclusions / Continuation of the collection of information;</li> <li>- Updated data report ;</li> <li>- Annual meeting of the steering committee: presentation / exchange of data.</li> </ul> <p><b>Year 3:</b></p> <p>Assessment report of the direct impact of the UoA on sea turtles and seabirds showing that it does not hinder their recovery.</p> <p>The actions above are part of a greater action plan that covers all Principle 2 conditions – see Appendix 11.</p>
<b>Consultation on condition</b>	<p>The Echosea Steering Committee is currently being set up, with the first meeting held on 10 March 2020. See Appendix 12 for supporting documentation.</p>



**Table 36. Condition 8.**

<b>Performance Indicator</b>	<b>2.3.3 – Relevant information is collected to support the management of UoA impacts on ETP species, including:</b> <ul style="list-style-type: none"> <li>• <b>Information for the development of the management strategy;</b></li> <li>• <b>Information to assess the effectiveness of the management strategy; and</b></li> <li>• <b>Information to determine the outcome status of ETP species.</b></li> </ul>
<b>Score</b>	60
<b>Rationale</b>	<p><u>Scoring issue a (SG80):</u> Some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species.</p> <p>Some quantitative information is available from the Obsmer observer programme and this, combined with the SELPAL study (Poisson et al., 2016) and anecdotal information gathered during site visit interviews provides a qualitative assessment of the likely UoA-related mortality on ETP species (SG60 is met. However, the level of implementation of the observer programme (0.5% observed trips in 2017) is below that required through ICCAT Rec. 16-14 (5%), meaning the data are insufficient to evaluate the impact of the fishery to an adequate level to determine whether the UoA may be a threat to protection and recovery of ETP species. Furthermore, for most of the ETP interactions recorded in the observer data, identification to species-level was not carried out. SG80 is not met.</p> <p><u>Scoring issue b (SG80):</u> Information is adequate to measure trends and support a strategy to manage impacts on ETP species.</p> <p>Some quantitative information is available from the Obsmer observer programme and this, combined with the SELPAL study (Poisson et al., 2016) and anecdotal information gathered during site visit interviews provides a qualitative assessment of the likely UoA-related mortality on ETP species. This is sufficient to support measures to manage the impacts on ETP species and SG60 is therefore met. There remain significant question marks, however, as to what the actual levels of ETP species interactions are in this fishery. At 0.5% of the overall effort in terms of trips (for 2017), the observer coverage in this fishery is too low to enable meaningful analysis of impacts at UoA level, and to determine whether additional management action may be required. A strategy requires an element of monitoring of impacts for the species in question, and adjustment of management measures if the monitoring results suggest they are not sufficient. There is not presently enough monitoring in this fishery for this to be possible. The team therefore decided that SG80 was not met.</p>
<b>Condition</b>	By Year 4, some quantitative information should be available and adequate to assess the impact of the UoA on ETP species. The information collected should be adequate to measure trends and to support a strategy to manage these species.
<b>Milestones</b>	<p>Year 1: Evaluate current data collection strategy and identify areas of improvement so that the information is adequate to 1) assess the impact of the UoA on ETP so that it can be determined whether the UoA may be a threat to protection and recovery of these species and 2) measure trends and to support a strategy to manage these species. Develop improved data collection plan (Score: 60).</p> <p>Year 2: Demonstrate new data collection plan has been implemented. (Score: 60).</p> <p>Year 3: Continued data collection. (Score: 60).</p> <p>Year 4: Quantitative information is available and adequate to assess the impact of the UoA on ETP species and to measure trends and to support a strategy to manage them.</p>

	It can be shown that the UoA is no threat to the protection and recovery of these species (Score: 80)
<b>Client action plan</b>	<p><b>See Action Plan for 2.3.2</b></p> <p><b>Year 1 :</b></p> <ul style="list-style-type: none"> <li>- Interaction with ETP species including observation, capture and release are systematically noted as specific incident and reported directly to CestMED for turtles ;</li> <li>- Report on all ETP data collection (PO Echosea + notebook and Obsmer) ;</li> <li>- Telephone enquiries with Turtle and birds rescue centres ;</li> <li>- SATHOAN-OP organised meetings with vessel captains and with IFREMER, LPO and CestMED, + DPMA to review data collection and propose possible improvements.</li> </ul> <p><b>Year 2 :</b></p> <ul style="list-style-type: none"> <li>- Implementation of the conclusions / Continuation of the collection of information;</li> <li>- Updated data report ;</li> <li>- Annual meeting of the steering committee: presentation / exchange of data.</li> </ul> <p><b>Year 3 :</b></p> <p>Meeting of Echosea Steering Committee and report of Fishery's impacts on ETP species and on the effectiveness of management measures (Score 80).</p> <p>The actions above are part of a greater action plan that covers all Principle 2 conditions – see Appendix 11.</p>
<b>Consultation on condition</b>	The Echosea Steering Committee is currently being set up, with the first meeting held on 10 March 2020. See Appendix 12 for supporting documentation.

## Appendix 4 Peer Review Reports

### Appendix 4.1 Peer reviewer 1

#### General comments

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
Is the scoring of the fishery consistent with the MSC standard, and clearly based on the evidence presented in the assessment report?	Yes	Scoring generally agreed. A few score changes are proposed for different scoring issues. Some of them will not change the final scoring of the PI (1.2.1 (d); 1.2.3 (a)), but some, although they won't represent a material reduction of the final scoring of the PI, they might need a new or a more expanded condition (2.2.2 (e); 3.1.1 (c)). New references and information are also suggested to be considered for the scoring of some PI.	Thank you - please see our responses to your individual comments.
Are the condition(s) raised appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCP v2.1, 7.18.1 and sub-clauses]	Yes		No comment required.
Is the client action plan clear and sufficient to close the conditions raised? [Reference FCR v2.0, 7.11.2-7.11.3 and sub-clauses]	Yes	Condition 1: The issue could be also raised by stakeholders at the consultation meetings organized by the European Commission before and during the ICCAT Commission meeting. Collaboration with environmental NGOs should be also considered.	The client has amended the action plan.
Is the client action plan clear and sufficient to close the conditions raised? [Reference FCR v2.0, 7.11.2-7.11.3 and sub-clauses]	Yes	<u>Condition 2:</u> An effort to quantify recreational and IUU bluefin tuna catches at regional level would be also necessary (through the GFCM specific Working Group on small scale and recreational fisheries or ICCAT) in order to improve data for the stock assessment.	The action plan includes activities to address recreational and IUU catches at French and European level, which the team agreed is the appropriate sphere of influence in the context of this fishery.

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
Is the client action plan clear and sufficient to close the conditions raised? [Reference FCR v2.0, 7.11.2-7.11.3 and sub-clauses]	Yes	<u>Condition 3</u> : The PO should ensure to include size of the caught swordfish among the data collected in order to support strategies to improve selectivity of the species.	The client has added detail on this to the action plan for this condition, although a recommendation has now also been added by the team.
Is the client action plan clear and sufficient to close the conditions raised? [Reference FCR v2.0, 7.11.2-7.11.3 and sub-clauses]	Yes	<u>Condition 4, 6 and 8</u> : Increase of observers coverage should be also considered.	An increase on observer coverage is already explicitly mentioned throughout the action plan for these conditions.
Is the client action plan clear and sufficient to close the conditions raised? [Reference FCR v2.0, 7.11.2-7.11.3 and sub-clauses]	Yes	In general, all information relevant to test alternative measures to effectively avoid incidental catches of primary and secondary species should be also collected (size of the fish, hooks, fishing practice, etc.).	We are not clear on what the peer reviewer means here. The action plan already includes research activities on bycatch mitigation combined with extensive data collection.
Enhanced fisheries only: Does the report clearly evaluate any additional impacts that might arise from enhancement activities?	N/A	N/A	N/A
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	Contents of the PRDR are in general very well supported by the relevant information available. However, some suggestions are given in the PI comments worksheet and here below in order to improve the text and justifications.	Thank you - please see our responses to your individual comments.
Optional: General Comments on the Peer Review Draft Report (including comments on the	N/A	The report mentioned several times the existence of 26 vessels in the UoA. However, Table 2 contains only 24.	Has been corrected, thank you.

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
adequacy of the background information if necessary)			
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	ICCAT provisions on the CPC Observer Programme (Rec. 17-07 (88) and Rec. 18-02 (83) (particularly relevant in Principle 3) are not referred throughout the report. According to the LOA of fishing vessels in Table 2, only 4 vessels could qualify for the Programme. ("Each CPC shall ensure coverage by observers, issued with an official identification document, on vessels and traps active in the bluefin tuna fishery on at least: .... 20% of its active longline vessels (over 15 m)"...	ICCAT provisions on the CPC Observer Programme are referred to in section 3.5.1.2 ICCAT (page 59). The lack of sufficient observer information is discussed and leads to conditions being placed for each relevant P2 information PI (PI 2.1.3, PI 2.2.3, PI 2.3.3).
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	In 3.2.2 (the client fishery), the CAB states that "all vessels are members of the Sète-based Producer Organisation (PO) Société Coopérative Maritime des Pêcheurs de Sète Môle (SATHOAN) and subscribe to the Thon Rouge de ligne Pêche Artisanale (TRL-PA) brand, which sets both environmental and product quality best practice. <b>Note that not all SATHOAN members subscribe to this brand and these vessels are therefore not part of the UoA.</b> " However, it is relevant to say, if so, that all SATHOAN longline vessels under 18 m length subscribe to the Thon Rouge de ligne Pêche Artisanale (TRL-PA) brand and are within the UoA, since, if not the case, it could have implications on traceability.	It is not guaranteed that all under 18m vessels subscribe to the TRL-PA brand. Therefore, pending the successful outcome of this assessment, the certificate would be published with an up-to-date vessel register. Only TRL-PA vessels would be listed and eligible to use the certificate. This mitigates any traceability risk.
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	Delimitations of GFCM GSAs 7 and 8 should be superpose to the maps of Figures 5 and 6 in order to facilitate the characterization of the UoA. Some fishing operations seem to occur in GSA 6. If so, a justification would be needed.	The Mediterranean is different from other EU waters in that the 12nm are specific to the coastal states, and beyond is shared between them. This fleet does not operate in Spanish waters inside 12nm. Any minor activity in GSA6 would still be allocated to France and subject to the same management as if operating in

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
			<p>GSA7 and 8. However, it is clear that the UoA needs better defining. We have reworded the UoA as follows:</p> <p>Geographical range of the fishery: French and EU shared Western Mediterranean waters, <del>FAO 37.1.2 Gulf du Lion (GSA 7)</del> and <del>around Corsica FAO 37.1.3 (GSA 8)</del>. A statement has been published on the MSC website.</p>
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	<p>The multi-annual recovery plan for bluefin tuna in the Eastern Atlantic and Mediterranean was adopted in 2006 (ICCAT Rec. 06-05) and was later replaced by ICCAT Rec. 08-05, 10-04, 12-03, 13-07, 14-04 and 17-07. <b>References to Rec. 14-04 (replaced by Rec. 17-07) should be updated.</b> The recovery plan changed later to management plan through Rec. 18-02 which also replaced Rec. 17-07.</p>	Has been clarified, thank you. Rec. 18-02 was still forthcoming (Table 18, page 59) at the time of report writing.
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	<p>Some relevant data might be added in section 3.3.8 in order to facilitate the understanding of the stock assessment (catch levels for the species was first fixed in 1998 (98-05) in 32,000 t (not 34,000 t) and from 2007 started to be reduced to a minimum value of <b>12,900 t in 2010</b>. One of the measures of the plan proven to be very effective since its adoption in <b>2006</b> was the size limit of the fish, <b>raised from 10kg in 2004 (6,4kg in 2002) to 30kg</b>.</p>	This has been added thank you.
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	<p>In Table 11, Sardine from the Adriatic, as primary main species, should be written in red for consistency with the rest of the report and clarity.</p>	Has been amended.

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	No much reference is done to the handline vessel. Even if small and with no impacts on the scoring, details of its fishing practice should be included.	Details have been added.
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	Rec. 14-04 was already not active in December 2018 (Table 17). Recommendations 11-13 and 11-17 are also relevant.	Remaining references to Rec. 14-04 replaced by Rec. 17-07. Rec. 14-04 taken out and Rec. 11-13 and Resolution 11-17 added to Table 17, thank you.
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	Section 3.5.1.3. The EU and France are both members of the GFCM (different than in ICCAT).	Corrected, thank you.
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	Section 3.5.3.2 (GFCM). Articles 5 and 8 of the GFCM Agreement are crucial here (precautionary approach and ecosystem approach).	Reference added, thank you.
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	Section 3.5.3.3. Criteria and methodological standards for Descriptor 3 of the MSFD are laid down in the Annex of Commission Decision (EU) 2017/848 (fishing mortality, spawning stock biomass, age and size distribution...).	Reference added, thank you.
Optional: General Comments on the Peer Review Draft Report (including comments on the	N/A	Section 3.5.6.1. The ICCAT Statistical Document for BFT was replaced by the BFT Catch Documentation Scheme (Rec 07-10).	Reference added, thank you.

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
adequacy of the background information if necessary)			

### Performance indicator comments

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
1.1.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
1.1.2						
1.2.1	No (non-material score reduction expected)	No (non-material score reduction expected)	NA	(d) The multi-annual recovery plan for bluefin tuna in the Eastern Atlantic and Mediterranean was adopted in 2006 (ICCAT Rec. 06-05) and was later replaced by ICCAT Rec. 08-05, 10-04,12-03, 13-07, 14-04 and 17-07. Catch levels for the species was first fixed in 1998 (98-05) in 32,000 t and although maintained above 29,500 t before 2007 real catches of twice the TAC were acknowledged. The SCRS has estimated real catches on the order of 50,000 t to 61,000 t per year based on the number of vessels operating in the Mediterranean Sea and their respective catch rates between the mid-1990s through 2007 (ICCAT REPORT 2018-2019 (I)). Catches started to be reduced by ICCAT from 2007 to a minimum value of 12,900 t in 2010. MCS measures have been strengthened to ensure compliance. One of the measures of the plan proven to be effective since its adoption in 2006 was the size limit of the fish, raised from 10kg in 2004 (6,4kg in 2002) to 30kg. Later, in 2014 and as a consequence of the improvement of the stock, ICCAT	The point is certainly taken about uncertainties in the stock assessment; the changes made from 17-07 to 18-02 are not likely to be detectable in terms of stock outcomes partly for this reason. However, looking at the slightly longer term (i.e. from the start of the recovery plan process rather than just the move from 17-01 to 18-02) it is evident that the strategy has been i) reviewed frequently and ii) improved significantly. The MSE process points to ongoing efforts at improvement. Overall, it seems right that this be scored as met.	Not accepted (no score change)



PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				started to increase the TAC until the "multi-annual management plan" currently in place adopted in 2018 (Rec. 18-02). This latest recommendation, as stated in the report, notably softened (target biomass and several technical measures). The level of uncertainties in the stock assessment and the still reported cases of non-compliance would advise the need of more caution in the case of this just recovered stock. Therefore, although the harvest strategy is periodically reviewed, it doesn't seem to be improved as necessary and therefore SG 100 would not be met at this scoring issue.		
1.2.2	Yes	Yes	Yes	Scoring agreed. ICCAT Recommendation 15-07 "on the development of Harvest Control Rules and of Management Strategy" and its implications for the eastern bluefin tuna stock should be mentioned.	The team reviewed the rationales with this in mind but could not really see where it was relevant to scoring the SGs, which all focus on the current harvest strategy rather than future improvements. The commitment for a RFMO to put in place a formal harvest strategy is important in cases where the HCR is being scored as 'available' at SG60, but this is not the case here. However, it did seem pertinent to the argument about reviewing and improving the harvest strategy (discussion above) so it was mentioned there.	Not accepted (no score change)
1.2.3	No (no score change expected)	No (no score change expected)	Yes	(a) Although the final score of this PI will not change, the level of uncertainties, unreported catches and reported IUU activities would advise to score this scoring issue at 80 instead of 100.	A browse through the database of information derived from the GBYP immediately shows that the information base is spectacular. The question of unreported catch and IUU is dealt with under SIc and the uncertainties in PI1.2.4 so they are considered in this assessment already.	Not accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
1.2.3	No (no score change expected)	No (no score change expected)	Yes	The following information can be also relevant in scoring issue (a): "Information available has demonstrated that catches of bluefin tuna from the East Atlantic and Mediterranean were seriously under-reported between the mid-1990s through 2007. The Committee has estimated that realized catch during this period likely was on the order of 50,000 t to 61,000 t per year based on the number of vessels operating in the Mediterranean Sea and their respective catch rates. The 2017 assessment uses these estimates (1996-2007) rather than the declared catches." (ICCAT REPORT 2018-2019 (I))	This has been summarised under 'removals'	Accepted (no score change)
1.2.4	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.1.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.1.2	No (non-material score reduction expected)	No (non-material score reduction expected)	NA	<u>Swordfish</u> : Although ICCAT Recs. 13-04 and 16-05 have improved the management of Mediterranean swordfish, several aspects remains to be adjusted. (1) "Current quotas correspond to fishing mortality levels that are higher than FMSY" ( <b>F2015/Fmsy and F2015/F01 are reported to be 1,85 and 2.64 respectively</b> (ICCAT REPORT 2018-2019 (I))). (2) Another issue of big concern is the catch of immature fish. The minimum catch size established by Rec. 16-05 (100 cm) might be well below the size of maturity ("In the western Mediterranean, mature females as small as 110 cm LJFL have been observed and <b>the estimated size at which 50% of the female population is mature occurs at about 140 cm.</b> According to the growth curves used by the SCRS, these two sizes correspond to <b>2 and 3.5 year-old fish</b> , respectively. Males reach sexual maturity at smaller sizes and mature specimens have been found at	Regarding fishing mortality levels being higher than Fmsy, the matter remains that the removal by the UoA is still very small compared to the total catch, at 0.02% and is therefore highly unlikely to hinder recovery of this stock (see SA3.4.6 for guidance on this). Regarding the minimum size, the peer reviewer raises an important point which was not covered in our rationale which we have amended. However, because the UoA takes such a small portion of the catch, the fact that some of these catches may be juveniles will not have any effect on the recoverability of the stock. For this reason, the scoring is maintained at 80; however, a recommendation has been raised.	Accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				<p>about 90 cm LJFL. Based on the fish growth pattern and the assumed natural mortality rate of 0.2, the maximum yield would be obtained through instantaneous fishing at age 6, while current catches are dominated, in terms of number, by <b>fish less than 4 years old.</b>" (ICCAT REPORT 2018-2019 (I)).</p> <p>According to Figure 6 of the mentioned report and Figure 13 of the stock assessment report (ICCAT-SCRS, 2016), <b>the dominant year classes in the catch are 1.5 and 2</b>, which, according to the previously reported information would correspond to immature fish. The SCRS Recommendations in the above mentioned report includes the following three points:</p> <ul style="list-style-type: none"> <li>- "<i>Size and age at maturity</i>: As there may be spatial differences between the east and west Mediterranean swordfish, the Group recommended that future work is conducted to determine region specific size and age at maturity."</li> <li>- "<i>Gear selectivity</i>: Further research on gear design and use is encouraged in order to minimize catch of juvenile swordfish and increase yield and spawning biomass per recruit from this fishery."</li> <li>- "Discards. Recently adopted management measures may have increased discard levels, therefore the Group noted that participating countries should improve their estimates of discards of juvenile swordfish, when applicable, and submit such information to the ICCAT Secretariat. Therefore, good practices to improve selectivity of swordfish should be also considered."</li> </ul>		
2.1.3	Yes	Yes	No	<p><u>Condition</u>: A reference about collection of the information necessary to support a strategy to improve selectivity of catches of primary species</p>	This is now addressed through the separate recommendation raised on 2.1.2b which will require the UoA to demonstrate that no	Accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				should be included. The quantification of swordfish caught only by the UoA should be mentioned.	immature swordfish are caught. The client has also amended their action plan to better reflect this.	
2.2.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.2.2	Yes	Yes	Yes	Scoring agreed. (d) A justification of the applicability of scoring this issue by identifying the shark species potentially caught by the UoA as secondary species is missing here. However, from the information given in PI 2.3.1 (b) blue shark, common thresher and short-fin mako are expected.	Clarification has been added	Accepted (no score change)
2.2.2	Yes	No (no score change expected)	Yes	Scoring agree. (e) From the given explanation it is not clear if the alternative measures being tested to increment selectivity are being implemented and its effectiveness regularly reviewed. Reducing the score of this scoring issue to 60 won't change the scoring of PI 2.2.2 but would require completing the condition accordingly.	The pelagic stingray was identified as the only main secondary species. The Selpal study referred to in the rationale examined bycatch rates and post-release survival for this species and made recommendations to increase survival through best-practice handling and release techniques. These recommendations were adopted in the Good Practice Guide, the use of which is mandatory under the TRL-PA brand (as audited by VALPEM). On this basis, the team considered that SG80 should be met. The scoring was not changed.	Not accepted (no score change)
2.2.2	Yes	Yes	Yes	<u>Condition</u> : Increase of observer coverage should be also mentioned (as in condition 3).	The aim for increased observer coverage is mentioned throughout the Principle 2 action plan which is now also summarized in Appendix 11.	Accepted (no score change)
2.2.3	Yes	Yes	Yes	Scoring agreed.	Thank you - no comment required.	
2.3.1	Yes	Yes	Yes	Scoring agreed.	Thank you - no comment required.	

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
2.3.2	Yes	Yes	Yes	Scoring agreed. (a) GFCM Recommendations 35/2011/3 and 35/2011/4 on reducing incidental bycatch of seabirds and sea turtles respectively in fisheries in the GFCM area of application can be also mentioned.	Has been added, thank you	Accepted (no score change)
2.3.3	Yes	Yes	Yes	Scoring agreed.	Thank you - no comment required.	
2.4.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.4.2	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.4.3	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.5.1	Yes	Yes	NA	Scoring agreed. However, there have been important changes in the ecosystem structure after 2008 likely not covered by the cited references that should be reviewed. See Van Beveren et al., 2017 (Predator–prey interactions in the face of management regulations: changes in Mediterranean small pelagic species are not due to increased tuna predation); Coll, et al., 2018 (Who is to blame? Plausible pressures on small pelagic fish population changes in the Northwestern Mediterranean Sea); Saraux et al., 2019 (Small pelagic fish dynamics: A review of mechanisms in the Gulf of Lions); and references in the texts. EC STECF stock assessments of anchovy and sardine in the Gulf of Lions should be also considered (Scientific, Technical and Economic Committee for Fisheries (STECF) - Mediterranean Stock Assessments 2017 part I (STECF-17-15). Both species have experienced drastic changes in the last 10 years which are not yet well understood.	These have been added, thank you.	Accepted (no score change)
2.5.2	Yes	Yes	NA	Same justification as in 2.5.1	These have been added, thank you.	Accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
2.5.3	Yes	Yes	NA	Same justification as in 2.5.1	These have been added, thank you.	Accepted (no score change)
3.1.1	Yes	Yes	NA	Scoring agreed. (a) Although ICCAT Recommendations enter into force after 6 months and the EU could take over a year in transposing the recovery/management plan, the EU adopts annually a Regulation fixing fishing possibilities (TACs) and other provisions (including those from ICCAT) for the following fishing season (see as examples ANNEX ID of COUNCIL REGULATION (EU) 2018/120 and 2019/124 for the TACs of 2018 and 2019. The provisions adopted by ICCAT usually apply from the following fishing season through different provisions at EU and Member State level, even before its official date of entry into force at ICCAT level.	Precision added in section 3.5.1 and in the scoring rationale; thank you	Accepted (no score change)
3.1.1	No (material score reduction expected to <80)	No (material score reduction expected to <80)	NA	(c) Although Recitals 4 and 19 (not articles) of the CFP Basic Regulation (1380/2013) highlights the importance of small-scale fisheries and promotes its preferential access, as such there are not binding. However, it is Article 17 of the same Regulation ("Criteria for the allocation of fishing opportunities by Member States") that states that "When allocating the fishing opportunities available to them, as referred to in Article 16, Member States shall use transparent and objective criteria including those of an environmental, social and economic nature. The criteria to be used may include, inter alia, the impact of fishing on the environment, the history of compliance, the contribution to the local economy and historic catch levels. Within the fishing opportunities allocated to them, Member States shall endeavour to provide incentives to fishing vessels deploying selective fishing gear or using fishing	PR A raises an important point, which concerns the present demand from small-scale vessel owner operators to access a larger share of the French BFT quota. There are legal provisions, in the CFP and the French legislation to do so. We contend that this is not the case because of recent history when small-scale fishers were relying on pelagic driftnets. When these were banned, many fishers continued using them and therefore did not declare their catches to avoid prosecution. In turn they did not have official historical catch records on which to base their claim to historical rights. Therefore, contrary to PR A's point that the French system does not have a mechanism to observe SS fishers' legal rights, a mechanism exists, but cannot be applied to	Not accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				techniques with reduced environmental impact, such as reduced energy consumption or habitat damage." The French management system does not seem to include a mechanism to <b>observe</b> this legal provision (not explicit in the "Arrêtés établissant les modalités de répartition du quota de thon rouge (Thunnus thynnus) accordé à la France pour la zone « océan Atlantique à l'est de la longitude 45° O et Méditerranée" for 2018 and 2019) SG80 would not be met. This would require a condition for this specific scoring issue.	this specific fishery. The rationale for 3.1.1c has been complemented to clarify this point, no score change.	
3.1.2	Yes	Yes	NA	Scoring agreed. ICCAT Resolution 11-17 on "best available science" reinforcing cooperation among CPC, ICCAT Commission and the SCRS, and participation of scientists, although not binding, could be mentioned. The active participation of NGOs for the last 15 years in the SCRS and Commission meetings (through position papers and scientific contributions to the SCRS) also supports the current score.	Element of clarification added to the rationale, thank you.	Accepted (no score change)
3.1.3	Yes	Yes	NA	Scoring agreed. Recommendation 11-13 "on the principles of decision making for ICCAT conservation and management measures", recalling that "that management decisions should be based upon scientific advice and consistent with the precautionary approach" and aiming to support its application (although explicitly stated only in the preamble), could be mentioned.	Element of clarification added to the rationale, thank you.	Accepted (no score change)
3.2.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
3.2.2	Yes	Yes	NA	Scoring agreed. (a) ICCAT adopted Recommendations on bluefin tuna are normally implemented at Member State level from the following fishing season	Element of clarification added to the rationale, thank you.	Accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				trough different legal provisions. The transposition process of the Recovery/Management plan into EU law usually takes more than one year. The process of transposition of the currently in force management plan (Rec. 18-02) is still ongoing. The European Commission have submitted the Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a multiannual management plan for bluefin tuna in the eastern Atlantic and the Mediterranean repealing the previous one (Regulation (EU) 2016/1627) in November 2019 and is currently awaiting the decision of the Fisheries Committee of the European Parliament.		
3.2.3	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
3.2.4	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	

#### RBF comments

PI	RBF Scoring	RBF Information	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
2.2.1 (RBF)	Yes	Yes	Scoring agreed	Thank you, no comment required.	



## Appendix 4.2 Peer reviewer 2

### General comments

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
Is the scoring of the fishery consistent with the MSC standard, and clearly based on the evidence presented in the assessment report?	Yes	The scoring is appropriate and within the lee-way that should be given to independent assessors. I have made a few suggestions for consideration by the assessors as an alternative way to score some of the issues that they have identified.	Thank you - please see our responses to your individual comments.
Are the condition(s) raised appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCP v2.1, 7.18.1 and sub-clauses]	No	Broadly, the conditions are appropriate, but could be improved and I would urge the assessors to reconsider condition 2. Specific issues are raised where necessary on each PI comment. However, an overarching problem identified was the lack of observer coverage. I am not sure that 5% cover as required under ICCAT Rec. 16-14 para. 4.a is achievable, but it would be valuable to address this directly. ICCAT Rec. 16-14 para. 4.b states that alternative arrangements can be made for vessels less than 15 meters, which applies to most of the UoA. However, the CPC is requested to present details of the alternative approach to the ICCAT SCRS for evaluation. This could perhaps form one of the initial condition milestones if it has not already been done.	Please see our reply to your comment on Condition 2 under PI 1.2.2  Regarding the level of observer coverage, the need for increased observer coverage is addressed throughout P2 scoring and condition setting. The MSC is not prescriptive about the required observer coverage and neither is the team. However, compliance with the ICCAT 5% coverage requirement is addressed in 2.3.2d and the associated condition and client action plan. Again, we cannot be prescriptive on how this coverage should be achieved.
Is the client action plan clear and sufficient to close the conditions raised? [Reference FCR v2.0, 7.11.2-7.11.3 and sub-clauses]	Yes	Broadly, the client action plans address the requirements of the conditions raised. Clarity in the action plan is not helped by the MSC condition template requirements. Conditions on 2.2.2/2.2.3/3.2.1/3.2.2/3.2.3 are effectively a single project to collect data on the fishery and thereby improve the management strategy on unwanted catch. This could be made more explicit, perhaps in a separate project plan in an appendix. In addition, the project could explicitly evaluate whether there are any differences between the longline and	The client has attempted to address the peer reviewer's concerns by adding a summary action plan that covers the activities planned under Principle 2 – see Appendix 11.

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
		handline gears. The action plans would benefit from a more formal structure identifying activities, outputs and means of verification as this would probably avoid problems in future surveillance audits. These are present in most cases, but are not clearly defined.	
Enhanced fisheries only: Does the report clearly evaluate any additional impacts that might arise from enhancement activities?		NA	
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)	N/A	Overall, a nicely written clear report.	Thank you

### Performance indicator comments

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
1.1.1	Yes	Yes	NA	Minor point: The justification text says "but under that [high recruitment] scenario, recruitment is not impaired by definition". This is not really true because the VPA doesn't include a S-R and therefore not a PRI. The high recruitment scenario is really referring to the productivity (R0) or recruitment deviates. Also, in 1.1.1.b, do you mean 50%F0.1 rather than F0.05?	Sla. Point taken; it is meant more as a general comment rather than a technical point about where the stock is in relation to the PRI. The question of what constitutes the PRI under the VPA is discussed further down in the rationale. Sib. Yes we did, apologies. Although the rationale has since been revised and the reference has gone.	Accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
1.1.2			NA	Scoring agreed.	Thank you - no comment required.	
1.2.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
1.2.2	Yes	Yes	Yes	Condition 1: Bearing in mind that meeting the condition will be outside the direct control of the client, it is worth noting that the requirement to meet 1.2.2.a only needs an agreement to set TACs below the estimated F0.1 level if the stock is detected too far below some BMSY proxy. This does not require an MSE which may take a very long time to complete. The client might be encouraged to support some preliminary agreement defining a point when TAC calculation switches from F0.1 to, say, 50%F0.1, pending completion of the MSE and subsequent work.	According to our analysis, there is sufficient time in the condition even if the MSE overruns further on its timetable. Currently it is predicted that the MSE should be available for use by '2021 at the earliest'; however if the fishery is certified during 2020, 2021 would only be the end of Year 1, while the condition runs to the end of Year 4 - i.e. three further years. Obviously if the timetable slips further such that there will not be sufficient time, the client will have to consider other approaches, but we think that the condition and client action plan are reasonable.	Not accepted (no score change)
1.2.2	Yes	Yes	Yes	For 1.2.2.c, I agree with the scoring here, but it may be useful to explain why there is a condition on 1.2.3.c (if you intend to keep it), but the TAC is not compromised.	A comment has been added	Accepted (no score change)
1.2.2	Yes	Yes	Yes	Minor point: In 1.2.2.a 2nd para., it refers to "fishing effort". Perhaps reference should be kept to TAC as this is the main control. The justification is correct in relation to TAC.	The rationale has since been amended and the term 'fishing effort' is no longer there.	Accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
1.2.3	Yes	No (score increase expected)	No	For 1.2.3.c, the justification points out significant errors in catch records. It is true that these are always worth reducing and if no efforts were being made to do this, I would support this score and condition. However, this has been and is being addressed, and the uncertainties reported in the justification while significant, are not the current biggest problem in the stock assessment. This is not to say that historical IUU in particular could be an explanation for the retrospective bias and model uncertainty, but this cannot now be fixed. If there was evidence that the UoA contributed to uncertain catches, this would be addressed in 1.2.3.b. I would argue that catches outside the control of the UoA have a less rigorous requirement under 1.2.3.c, and that under the catch documentation scheme they are probably adequately recorded for the stock assessment. See also PI 3.2.3.	The reviewer may well be right, however the team considered all available evidence and stakeholder input and on the basis of that, retained the condition on a precautionary basis.	Not accepted (no score change)
1.2.3	Yes	No (score increase expected)	No	Condition 2: Given the above, it is very unclear to me at what point SG80 would be met or how this would be measured. What would be "good enough"? There is no clear final outcome. So, while the condition is laudable, I am not sure that it is appropriate for this UoA unless there was a clearer action to be undertaken by the management authority dealing with a particular problem.	Please see response above. Bear in mind that while we were scoring the fishery, the story about extensive IUU in EU Mediterranean fisheries was just coming to light, and no information was available about the extent of this IUU catch. As investigations continue (by Europol, the European Commission and NGOs) estimates of the amount of this catch are emerging. We suggest that the condition can be reconsidered when the IUU is quantified (in tonnage and in time) such that it can be taken into account in the stock assessment, and/or it can be shown that it is not	Not accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				This could still be addressed in a recommendation.	sufficiently significant to be needed to be taken into account.	
1.2.4	Yes	No (material score reduction expected to <80)	NA	For 1.2.4.c, the rationale supports SG60 as uncertainties have been identified, and I agree SG100 is not supported because the assessments have not modelled uncertainty (e.g. as in a Bayesian model). I do not think the rationale provides sufficient evidence to meet SG80 however. A major problem with VPA is it doesn't really attempt to model uncertainty (overfitting selectivity for example), so the main uncertainty is represented between models. This is difficult to incorporate into stock assessment output as demonstrated by the lack of Kobe plots etc. The models are not comparing different scenarios or states of nature, they are simply different software/fitting approaches. I would therefore argue that the stock assessment as currently done does not take sufficient account of uncertainty but is relying on more precautionary decisions instead (which are imprecise). A condition requiring moving to a statistical based model would meet 1.2.4.c SG80. Finally, an overall score of 85 on 1.2.4 implies that the current stock assessment approach is adequate, whereas the output information (multiple models with significantly different results) suggests otherwise.	The point about measuring uncertainty in the VPA is well taken, however we interpret 'stock assessment' in this context to refer to the stock assessment process rather than the final stock assessment model specifically. It is not a requirement for an MSC fishery at SG80 to have a statistical stock assessment model - MSC guidance is very explicit that a wide range of approaches are in principle acceptable. The approach used by ICCAT based on working with a range of different models at the same time (and considering different scenarios within each) is arguably better in terms of obtaining a realistic impression of the uncertainty associated with the stock assessment outcome (in the larger sense) than the approach of other RFMOs who run the same single statistical model each time, even if the conclusions about uncertainty are qualitative (imprecise, as the reviewer rightly says) rather than quantified (precise maybe, but are they accurate?).	Not accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
2.1.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.1.2	Yes	Yes	NA	Suggested recommendation: It may be worth adding a recommendation to formalise baiting strategy - to minimise bait use per hook (and explore ways to achieve this) and wherever possible to obtain bait from sustainable sources, included perhaps as guidance in the Good Practice Handbook. This could guard against possible future problems and encourage an improvement in the fishery.	Has been added.	Accepted (no score change)
2.1.3	Yes	Yes	Yes	Scoring agreed.	Thank you - no comment required.	
2.2.1	Yes	Yes	NA	See RBF comments	See our responses to the RBF comments.	
2.2.2	Yes	Yes	Yes	Scoring agreed.	Thank you - no comment required.	
2.2.3	Yes	Yes	Yes	Scoring agreed. For the condition, it would be useful if the size composition for a random sample of captured rays were recorded. I understand that this might be difficult.	Your recommendation has been provided to the client.	Accepted (no score change)
2.3.1	Yes	Yes	Yes	Scoring agreed.	Thank you - no comment required.	
2.3.2	Yes	Yes	Yes	Although the condition 7 is adequate, the timing (milestones) may need to be reconsidered in relation to condition 8 on 2.3.3. It would make sense if they were more aligned, with more time to meet condition 7	The team did aim to align these milestones; in fact, in order to ensure an outcome of 80 for 2.3.1 by Year 4, a strategy should be in place as required - ideally this	Not accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				(demonstration of an effective strategy being in place) so that the quantitative information to support this can be collected.	happens before Year 4. The milestones for outcome, management and information are all linked.	
2.3.2	Yes	Yes	Yes	Minor point: 2.3.2.a paragraph starting "ICCAT Rec. 07-07" - Last sentence should presumably state: "(which is therefore <b>not</b> applicable to the UoA)".	Indeed, thank you.	Accepted (no score change)
2.3.3	Yes	Yes	Yes	Scoring agreed.	Thank you - no comment required.	
2.4.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.4.2	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.4.3	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.5.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
2.5.2	No (no score change expected)	Yes	NA	For 2.5.2, the primary concern is for UoA itself rather than the entire management system (although the system is relevant). It may be worth making reference in the justification to the elements of the code of practice relevant to this PI as these are the actions the UoA actually does to minimise impact.	Additional detail has been added.	Accepted (no score change)
2.5.3	No (non-material score)	Yes	NA	For 2.5.3.b-d, as I understand it, the justification for meeting SG100 is broadly based only on qualitative evaluation of the	Please see our individual responses below.	

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
	reduction expected)			UoA's direct impact on species, rather than any indirect or secondary effects. This seems to me to be a rosy view of our understanding of ecosystem impacts. Below I try to point to specific problems with the scoring issues.		
2.5.3	No (non-material score reduction expected)	Yes	NA	For 2.5.3.b, the evidence presented supports that the main impacts of the UoA are known and some have been investigated. However, SG100 requires that main interactions have been investigated in detail, and I am not sure this is supported. Perhaps a quick list of what you think are the interactions, as opposed to the impacts, are might clarify this.	We have provided further detail as well as some more up to date references to justify the SG100 score. The scoring was not changed.	Accepted (no score change)
2.5.3	No (non-material score reduction expected)	Yes	NA	For 2.5.3.c, while I can accept the main functions of the components are known, understanding would require more in depth study. For example, if information was sufficient, reference points in stock assessments would include an explicit reference to ecosystem effects. Bluefin does not even have an MSY reference point, let alone one that includes ecosystem considerations. The EwE modelling would give some indication of trophic relationships, but stops well short of a full ecosystem model. As pointed out, the impact on seabirds could be various, and would include changing behaviour in response to fishing vessels for example. These are the sort of issues which I	We reviewed the rationale for the scoring issue and although we do not agree with all points raised by the reviewer about what is required at SG100, it is true that significant data gaps remain for the UoA. It is therefore not clear that all impacts have been identified and on that basis we reduced the scoring to 80.	Accepted (non-material score reduction)

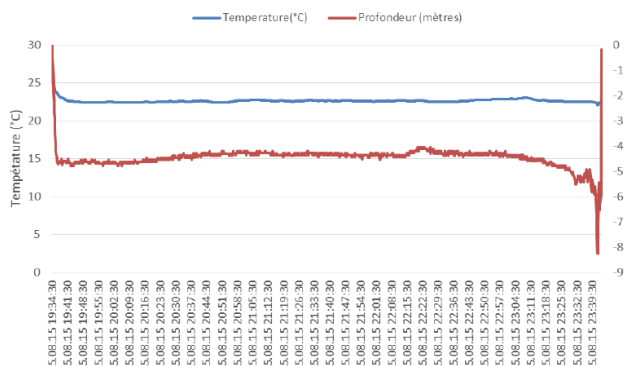


PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				might expect to have been addressed to meet the SG100.		
2.5.3	No (non-material score reduction expected)	Yes	NA	For 2.5.3.d, the consequences for elements would, in my opinion, require more detail. I accept that the evidence can be used to evaluate the impact on broader components, but I don't think this is available for elements. For example, if information was available on the impact of the UoA (and other factors) on the pelagic stingray, why did you have to use an RBF? I also presume the EwE model only covered particular components, perhaps teasing out a few elements? Giving a better indication of how you are interpreting these scoring guideposts might help here.	Here also we reviewed the rationale for this scoring issue and again, owing to the paucity of data and the inability to properly estimate fleet-level impacts on some of the components, we have reduced the scoring to 80.	Accepted (non-material score reduction)
3.1.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
3.1.2	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
3.1.3	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
3.2.1	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
3.2.2	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	
3.2.3	No (scoring implications unknown)	Yes	NA	For 3.2.3.d, I agree with the score and most of the justification, but the justification may conflict with the scoring/justification in 1.2.3.c and overall seems a bit complacent. I	Some words added in the rationale to clarify, thank you.	Accepted (no score change)

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
				think that there has probably been a significant improvement in recording catches and reduction in IUU, but the main problem with IUU is it is not recorded by definition, so it is always difficult to know its extent. It may not be included in the stock assessment by ICCAT for a variety of reasons, and I am not sure I would take that as specifically evidence that it is not significant.		
3.2.4	Yes	Yes	NA	Scoring agreed.	Thank you - no comment required.	

#### RBF comments

PI	RBF Scoring	RBF Information	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
2.2.1 (RBF)	Yes	Yes	For encounterability, the team may wish to consider scoring high risk (3) if the species significantly overlaps the shallow water gear depth range (0-20m). The appropriate comparison might be with bluefin, which the gear targets and is presumably highly encountered, but also moves rapidly between depths. Just because the species can tolerate going to deeper water, like bluefin tuna, it may still predominantly occur at the surface when fishing occurs (at night). Kirkby and Hobday (2007) defined all shallow water tuna gear, including bait boats, as operating 0 to 100m, which would 100% overlap with the typical range	We note that increasing the encounterability score to 3 does not affect the overall MSC score. We are, however, reluctant to apply this more precautionary score as there is no evidence that suggests vertical overlap is higher than 30%. The team consulted with the leading expert on pelagic stingrays in this part of the Mediterranean (F. Poisson) who brought to light the seasonal distribution patterns of this species and therefore increased availability to the fishery; for this reason the scoring was already increased from 1 to 2. In relation to Kiriby & Hobday (2007): 1. the 0-100m depth distribution for pelagic stingray is likely an underestimate of the species' true range, at least in the Mediterranean (see results of tagging study in Poisson et al., 2016 for this). 2. the 0-100m depth range of shallow gear as defined by the authors is simply not applicable to this fishery, which does not go beyond 20m depth (see figure below from Poisson et al. (2016) which shows the depth - and temperature - profile of the deepest point of the main line.	Not accepted (no score change)

PI	RBF Scoring	RBF Information	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
			<p>of pelagic stingray (0-100m according to Fishbase). Kirby, D.S., Hobday, A. 2007. Ecological Risk Assessment for the Effects of Fishing in the Western and Central Pacific Ocean: Productivity-Susceptibility Analysis. Third Regular Session of the Scientific Committee of the WCPFC, 13–24 August 2007.</p>	<p>Taking into account the length of the branchline, hook depth is generally between 5 and 10m). We therefore maintain that the encounterability score of 2 is justified. No changes were made.</p>  <p>Figure 21: Profil de profondeur et température du point le plus profond de la ligne mère durant une opération de pêche</p>	

## Appendix 5 Stakeholder submissions

### Appendix 5.1 Submissions prior to PCDR publication (Pew)

Date of submission: 24 October 2018

Nature of Comment (select all that apply)		Additional Information/Detail Please attach additional pages if necessary.
e.g. <input checked="" type="checkbox"/>	I wish to indicate that I am a stakeholder in this fishery. Please keep me informed about each stage of the assessment process.	Pew has been a stakeholder in Atlantic bluefin tuna conservation and management since 2008, through our work on domestic processes in the USA and EU, as well as our involvement at the international level via ICCAT. We wish to be kept informed of the progress of this assessment, and we intend to provide constructive input to the CAB throughout the process. Attached, we provide several scientific resources that will be valuable for the CAB to review as you begin to produce the draft assessment report. In Section 3 of this document, below, we highlight some specific points to draw to your attention some of the most relevant recent Atlantic bluefin science.
X	I wish to suggest information or documents important for the assessment of this fishery ( <i>you may either attach documents or provide references</i> ).	
<input type="checkbox"/>	I wish to suggest other individuals or organisations who should be considered stakeholders in the MSC assessment of this fishery ( <i>please provide contact information</i> ).	
<input type="checkbox"/>	Other (please specify)	

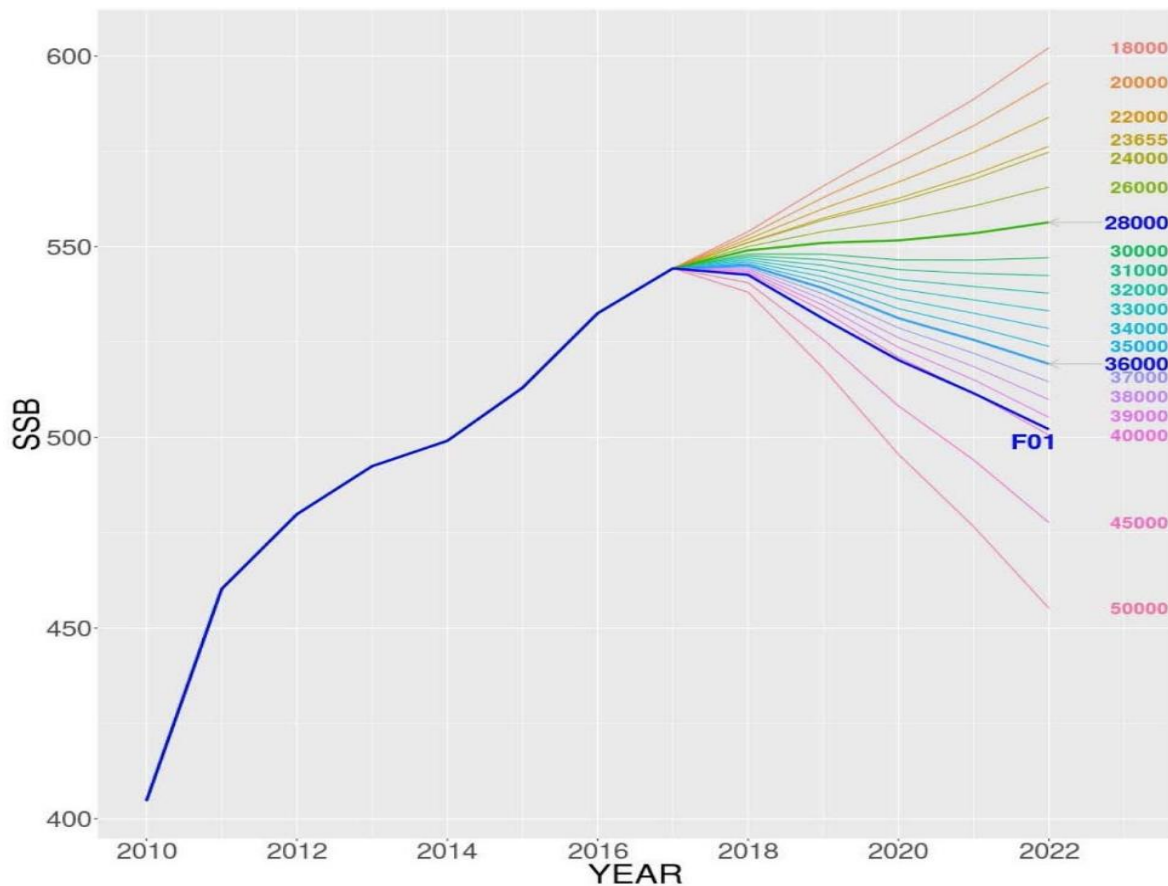
• Section 3 •

Nature of Comment (select all that apply)		Additional Information/Detail Please attach additional pages if necessary.
<input type="checkbox"/>	I wish to request an in-person meeting with the site team during their assessment visit (meetings without the fishery client present may be requested at this phase of the process if desired).	Unfortunately, my colleagues from Pew and I will not be able to attend the site visit, but we appreciate the opportunity to sign on as a stakeholder and to provide the CAB with any information that we have, regarding this fishery and the eastern Atlantic and Mediterranean bluefin tuna stock. In order to inform your preparation of the draft assessment report, we provide comments in the attached document.
e.g. <input checked="" type="checkbox"/>	I wish to submit written information about the fishery and its performance against the default tree and/or RBF to the assessment team ( <i>please provide documents or references</i> ).	
<input type="checkbox"/>	Other (please specify)	

## SATHOAN French Mediterranean bluefin tuna artisanal longline and handline fishery

Want to ensure the team considers the following in the assessment:

- The 2017 assessment did not determine the overfished status of the eastern stock due to failure to agree to a reference point.
  - “Given the uncertainty in estimated biomass, the Group considered it was not advisable to use the biomass-related results to evaluate the current status of the stock and recommended not to include a Kobe plot in the Executive Summary.” ([Assessment report](#), which provides many other statements about the uncertainty about the “rate and amplitude” of the population growth estimated in the assessment.)
  - “However, given the uncertainties about future recruitment, estimates of biomass base reference points were unreliable.” ([2017 SCRS report](#))
  - A letter published in [Science](#) points out some of the uncertainties in the eastern assessment (Collette 2018).
    - “For example, adding just one year of data increased the model’s recommended quotas by 70% (2). Adding data from a single fishery (i.e., one abundance index) increased the estimated sustainable quotas by 126%.” (PDF attached)
  - An effort to validate the 2017 assessment results has uncovered numerous problems, and these findings will be released in the near future (Kell, Kitakado and Sharma, unpublished data).
- When the [assessment](#) used the approach applied by the SCRS since 2010 of three different estimates of  $SSB_{0.1}$  based on high/medium/low recruitment, the stock was still overfished under the high recruitment scenario ( $SSB_{2016}=87\%SSB_{0.1}$ ). As mentioned above, there is considerable uncertainty about future recruitment levels, so the high, medium and recruitment levels have been treated by the SCRS as equally likely.
  - A very similar status ( $89\%SSB_{MSY}$ ) was found using Stock Synthesis, a model that is more advanced and now widely used for tunas globally (including WBFT).
- ICCAT’s current eastern bluefin measure, [Recommendation 17-07](#), sets the eastern quota at 28,200 mt for 2018, 32,240 mt for 2019, and 36,000 mt for 2020. Projections show this management regime will lead to population decline ([2017 SCRS report](#) and following figure):



- Continued IUU fishing in the eastern Atlantic and Mediterranean Sea (10-15K mt per year, according to EU government scientists)
  - A recent high profile bust of an illegal bluefin trafficking ring in five EU member states (including France), Morocco, Tunisia and Japan estimated that this single operation traded 2500 t annually in the Mediterranean Sea, illegally.  
[<https://www.europol.europa.eu/newsroom/news/how-illegal-bluefin-tuna-market-made-over-eur-12-million-year-selling-fish-in-spain>]
  - There are recent allegations that up to 5000 kgs of bluefin are being smuggled into Malta each week. [<http://www.independent.com.mt/articles/2017-12-03/local-news/5-000-kilos-of-tuna-allegedly-smuggled-to-Malta-each-week-and-exported-to-EU-states-6736182205>]
  - Despite this overwhelming evidence of illegal activity in the fishery, and clear advice from ICCAT scientists that existing monitoring and control measures should not be weakened (2018 SCRS report, p. 107), ICCAT is slated to revise Recommendation 17-07 at its annual meeting in November 2018, and some governments are advocating for a rollback of MCS requirements. You can track proposals and revisions as they are released under the Panel 2 tab on <https://www.iccat.int/com2018/>.

Collette 2018 Science attachment:

## ***Bluefin tuna science remains vague***

The International Commission for the Conservation of Atlantic Tunas (ICCAT) spent the past 8 years and more than US\$15 million to improve scientists' understanding of Atlantic bluefin and their management (1). Unfortunately, this year's long-awaited stock assessment produced more questions than answers.

ICCAT's model for the eastern bluefin stock's assessment is unreliable because small tweaks to the input data result in substantial differences in quota advice. For example, adding just one year of data increased the model's recommended quotas by 70% (2). Adding data from a single fishery (i.e., one abundance index) increased the estimated sustainable quotas by 126%. Depending on the assumptions made about future productivity, the model results range from estimates indicating that the stock is recovered to estimates indicating that it is not recovered.

For ICCAT's western stock assessment, the biggest challenge was the inability to determine what constitutes a healthy stock level, due to uncertainty that remains about some biological questions, such as the relation between the number of adults and the number of young fish produced (2). The assessment does, however, conclude that the stock size is as low as 45% of the 1974 level and just 18% of what it was in 1950 (2). The science is also clear that abundance is expected to decline, even without increased fishing (3). Furthermore, westward migration of eastern bluefin has

increased in recent years (4), to the extent that estimated increases in the western stock size could be entirely the result of fishermen catching (and scientists counting) eastern fish in western areas.

Instead of providing precautionary advice in light of this severe uncertainty, ICCAT's scientific body told policy-makers that substantial increases in quotas are sustainable over the short term, even though these quotas are projected to cause declines in both stocks (4). As chair of IUCN's Tuna and Billfish Specialist Group, I would instead recommend that when policy-makers meet in Morocco in November that they set quotas at levels that would allow both stocks—neither of which is considered recovered—to grow.

### **Bruce B. Collette**

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### **REFERENCES**

1. A. Di Natale, S. Tensek, A. P. Garcia, "ICCAT Atlantic-wide Research Programme for Bluefin Tuna (GBYP) activity report for the last part of Phase 6 and the first part of Phase 7 (2017–2018)" (*ICCAT Collective Volume of Scientific Papers SCRS/2017/139*, 2017).
2. "Report of the 2017 ICCAT bluefin stock assessment meeting" (Madrid, Spain, 2017); [http://iccat.int/Documents/Meetings/Docs/2017\\_BFT\\_ASS\\_REP\\_ENG.pdf](http://iccat.int/Documents/Meetings/Docs/2017_BFT_ASS_REP_ENG.pdf).
3. "Report of the Standing Committee on Research and Statistics (SCRS)" (Madrid, Spain, 2017); [http://iccat.int/Documents/Meetings/Docs/2017\\_SCRS\\_REP\\_ENG.pdf](http://iccat.int/Documents/Meetings/Docs/2017_SCRS_REP_ENG.pdf).
4. A. Hanke *et al.*, "Stock mixing rates of bluefin tuna from Canadian landings: 1975–2015" (*ICCAT Collective Volume of Scientific Papers SCRS/2017/021*, 2017).

10.1126/science.aar3928



### Team response

The team contacted Mr. Galland to organize a follow-up call and discuss this submission in more detail. Due to conflicting schedules (in part caused by the ICCAT plenary), the call was eventually held on the 25<sup>th</sup> January 2019. Attendants were Grantly Galland (Pew), Shana Miller (Ocean Outcomes, fully funded by Pew), and the three auditors Jo Gascoigne, Sophie des Clers and Chrissie Sieben. The points made during the call are as follows:

- Questions were asked regarding the scope of the assessment (including on the type of vessels and to what extent they can be considered 'artisanal'; the role of VALPEM)
- Discussed the site visit outcomes, particularly the information provided by Tristan Rouyer of IFREMER.
- Discussed SS3 model and why this was not used as the basis for advice for the BFT-e stock. Only the VPA model was considered, which is significantly more optimistic.
- Discussed general preference for VPA models in Europe compared to the more sophisticated SS in the United States. The gradual adoption of SS models in Europe is likely just a matter of time.
- Discussed comments submitted above, focusing on uncertainty in the stock assessments, management decision-making and illegal activity in the Mediterranean:
  - Consideration that management based on F0.1 is experimental in its approach and that MSC should not be certifying these types of experimental approaches.
  - The political agenda of CPCs influences how advice is issued. There is concern that MSC certification would validate this flawed process. The assessment process itself is also heavily influenced by managers.
  - There is no precedent for breaking consensus against the advice that is issued.
  - Three different recruitment scenarios, one of which shows the stock to be overfished. In this context, the quotas set in 2017 are projected to result in a decline in SSB which is fine under two of the recruitment scenarios, but not one. Other, independent scientists have raised similar concerns (e.g. Collette – see attachment above).
  - Derogations on minimum sizes are leading to fisheries shifting to smaller sizes of BFT.
  - Vessels that have no BFT authorization can land up to 20% of their catch as BFT when it used to be 5%. However firstly, how do you therefore track quota uptake and secondly, these BFT are not required to be landed with an eBCD for within EU trade, which undermines traceability. This, combined with a proposal to increase fishing capacity, may lead to overcapacity and would shift the burden of management from ICCAT to national governments. The mismatch between capacity and available quota may also lead to an increase in IUU fishing.

## Appendix 5.2 Submissions prior to PCDR publication (WWF)

Assessment Stage	Fishery	Date	Name of Individual/Organisation Providing Comments
<input checked="" type="checkbox"/> Fishery announcement and stakeholder identification <sup>1</sup> Opportunity to indicate that you are a stakeholder and identify other stakeholders.	SATHOAN French Mediterranean Bluefin tuna artisanal longline and handline fishery	October 23 <sup>rd</sup> 2018	World Wide Fund for Nature (WWF)

Nature of Comment (select all that apply)	Additional Information/Detail Please attach additional pages if necessary.
e.g. <input checked="" type="checkbox"/> I wish to indicate that I am a stakeholder in this fishery. Please keep me informed about each stage of the assessment process.	WWF has been active on the Atlantic bluefin tuna conservation for more than 15 years, and closely engaged with relevant stakeholders such as ICCAT, fishery industries and seafood market to end overfishing and drive the eastern Atlantic and Mediterranean stock to recovery. WWF can provide critical comments as well as share relevant information for the MSC full- assessment of the concerned fishery. Strong concerns still exist regarding the Atlantic bluefin tuna eastern stock status as well as its current management system as limit/ target reference points and HCRs are not yet defined in ICCAT. The recent investigations of Spanish police and Interpol on a large trade of illegal bluefin tuna happening in EU countries, put a serious question on the magnitude of illegal fishing, farming and trade. (WWF press release can be found <a href="#">here</a> ). Moreover WWF is engaging with bluefin tuna fisheries in the Mediterranean and North East Atlantic with MSC pre assessments that showed low scores on P1, suggesting the fisheries not to go for full assessment for the time being.
<input checked="" type="checkbox"/> I wish to suggest information or documents important for the assessment of this fishery (you may either attach documents or provide references).	
<input type="checkbox"/> I wish to suggest other individuals or organisations who should be considered stakeholders in the MSC assessment of this fishery (please provide contact information).	

<input type="checkbox"/>	<b>Other (please specify)</b>	<p>EXTRACT OF THE PRE-ASSESSMENT (Report issued in June 2018):</p> <p><b>Evaluation of the fishery</b> The current pre-assessment identified obstacles to be addressed before proceeding to a MSC full assessment.</p> <p><b>Principle 1</b> There are 4 PIs, 1.1.1 Stock status, 1.2.2 HCRs, 1.2.3 Information and monitoring and 1.2.4 Assessment of stock status, where the 80 level is not likely to be met, which may likely lead the overall Principle 1 score to be less than 80, therefore meaning the fishery may fail to meet the MSC Standard. The Eastern Atlantic and Mediterranean bluefin tuna stock is not at or fluctuating around a level consistent with MSY. A multi-annual recovery plan was implemented in 2006 by ICCAT. There is evidence that the rebuilding strategies are rebuilding the stock. The recovery plan has been effective to end overfishing and led to a substantial increase of the SSB. The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives. Measures are in place to minimize the mortality of unwanted catches. Generally understood HCR are available that are expected to reduce exploitation rate and there is some evidence that tools available to implement HCR are appropriate and effective in controlling exploitation. However it cannot be said that well-defined HCR are in place that ensure that the exploitation rate is reduced as the PRI is approached. Sufficient relevant information related to the stock structure, stock productivity, fleet composition, stock abundance and catches are available to support the harvest strategy. There is considerable uncertainty on its level of abundance. It cannot be considered that there is good information on all removals from the stock. Eastern Atlantic bluefin catches have been subject to a high degree of misreporting between the mid-1990s and the recent past, although for the most recent few years, such misreported catch levels are thought to have diminished considerably. Bluefin tuna stock assessments are conducted by the ICCAT, various sources of uncertainties that have not yet been fully quantified. Estimates of biomass base reference points are unreliable given the uncertainties about future recruitment.</p> <p><b>Report of the 2017 ICCAT BFT stock assessment meeting:</b> <a href="https://www.iccat.int/Documents/Meetings/Docs/2017_BFT_ASS_REP_ENG.pdf">https://www.iccat.int/Documents/Meetings/Docs/2017_BFT_ASS_REP_ENG.pdf</a></p>
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### Team response

The team contacted Ms. Jacob and Mr. Buzzi to organize a follow-up call and discuss this submission in more detail. Due to conflicting schedules (in part caused by the ICCAT plenary), the call was eventually held on the 22<sup>nd</sup> January 2019. Attendants were Théa Jacob (WWF), and the three auditors Jo Gascoigne, Sophie des Clers and Chrissie Sieben. The points made during the call are as follows:

- Ms. Jacob expressed WWF's disappointment in the decision to increase BFT-e quota despite the uncertainties regarding stock status. WWF had commissioned several MSC pre-assessments on this stock, which all pointed to Principle 1 failing full assessment. It is considered that the level of uncertainty is too high for MSC certification.
- Perception that the new management plan is weaker vis-à-vis the rebuilding plan (prolonging of fishing season, derogation on minimum sizes, inadequate controls in BFT farms)
- Concerns about IUU fishing, especially in recreational fishery. Inspection rates in longline fishery are also not high enough. This is of importance as this is a high-value fishery that still has an active black market. The list of authorized landing ports has also become bigger which makes 100% quayside coverage difficult. The previous perception that given the high inspection rates on the purse seine fleet, IUU for that fleet at least should be limited, appears to have been wrong (referred to recent findings: <https://www.europol.europa.eu/newsroom/news/how-illegal-bluefin-tuna-market-made-over-eur-12-million-year-selling-fish-in-spain>)
- Concern about Principle 2 and bycatch, particularly blue shark. Suggests there is a lack of data on interactions with sea turtles and seabirds.
- Commended the traceability system put in place by SATHOAN.

## Appendix 5.3 Submissions post PCDR publication

(REQUIRED FOR FR AND PCR)

1. The report shall include all written submissions made by stakeholders about the public comment draft report in full, together with the explicit responses of the team to points raised in comments on the public comment draft report that identify:
  - a. Specifically what (if any) changes to scoring, rationales, or conditions have been made.
  - b. A substantiated justification for not making changes where stakeholders suggest changes but the team makes no change.

(Reference: FCR 7.15.5-7.15.6)

## Appendix 6 Surveillance Frequency

The surveillance level for this fishery is set at the default level (Level 6), requiring 4 annual on-site audits.

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 6	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit & re-certification site visit

## Appendix 7 Objections Process

(REQUIRED FOR THE PCR IN ASSESSMENTS WHERE AN OBJECTION WAS RAISED AND ACCEPTED BY AN INDEPENDENT ADJUDICATOR)

The report shall include all written decisions arising from an objection.

*(Reference: FCR 7.19.1)*



## Appendix 8 Specially Protected Areas of Mediterranean Importance (SPAMIs)



### SPECIALLY PROTECTED AREAS OF MEDITERRANEAN IMPORTANCE (SPAMIs)



#### SPAMIs and their year of inclusion in the SPAMI List: 35 sites (as per last update of the SPAMI List in December 2017)

##### ALBANIA

AL1.Karaburun Sazan National Marine Park (2016)

##### ALGERIA

DZ1.Banc des Kabyles Marine Reserve (2005)

DZ2.Habibas Islands (2005)

##### CYPRUS

CY1. Lara – Toxeftra Turtle Reserve (2013)

##### FRANCE

FR1.Port-Cros National Park (2001)

FR2.Natural Reserve of Bouches de Bonifacio (2009)

FR3.The Blue Coast Marine Park (2012)

FR4.The Embiez Archipelago - Six Fours (2012)

FR5.Calanques National Park - (2017)

##### ITALY

IT1.Plemmirio Protected Area (2008)

IT2.Marine Protected Area of Portofino (2005)

IT3.Miramare Marine Protected Area (2008)

IT4.Tavolara-Punta Coda Cavallo Marine Protected Area (2008)

IT5.Marine Protected Area of Torre Guaceto (2008)

IT6.Marine Protected Area Punta Campanella (2009)

IT7.Marine Protected Area of Capo Caccia-Isola Piana (2009)

IT8.Porto Cesareo Marine Protected Area (2012)

IT9.Capo Carbonara Marine Protected Area (2012)

IT10.Marine Protected Area of Penisola del Sinis (2012)

##### LEBANON

LB1.Palm Islands Nature Reserve (2012)

LB2.Tyre Coast Nature Reserve (2012)

##### MOROCCO

MA1.Al-Hoceima National Park (2009)

##### SPAIN

ES1.Maró-Cerro Gordo Cliffs (2003)

ES2.Archipelago of Cabrera National Park (2003)

ES3.Natural Park of Cabo de Gata-Níjar (2001)

ES4.Natural Park of Cap de Creus (2001)

ES5.Sea Bottom of the Levante of Almería (2001)

ES6.Alboran Island (2001)

ES7.Columbretes Islands (2001)

ES8.Medes Islands (2001)

ES9.Mar Menor (2001)

##### TUNISIA

TN1.La Galite Archipelago (2001)

TN2.Kneiss Islands (2001)

TN3.Zembra and Zembretta National Park (2001)

##### FRANCE, ITALY AND MONACO

Int1.Pelagos Sanctuary for the Conservation of Marine Mammals(2001)



## Appendix 9 ICCAT Bluefin Tuna Catch Document (BCD)

<b>1. ICCAT BLUEFIN TUNA CATCH DOCUMENT (BCD)</b>				<b>No :</b>		<b>1/2</b>	
<b>2. CATCH INFORMATION</b>							
<b>VESSEL / TRAP INFORMATION</b>							
NAME OF THE CATCHING VESSEL / TRAP		FLAG / CPC		ICCAT RECORD NO		INDIVIDUAL QUOTA	
NAME OF THE OTHER FISHING VESSELS		FLAG		ICCAT RECORD NO		INDIVIDUAL QUOTA	
<b>CATCH DESCRIPTION</b>							
DATE (dd/mm/yy)		AREA		GEAR			
No. of FISH		TOTAL WEIGHT(kg)		AVG. WEIGHT(kg)			
ICCAT RECORD No. of Joint Fishing Operation							
TAG Numbers (If applicable)							
<b>GOVERNMENT VALIDATION</b>							
NAME OF AUTHORITY						SEAL	
TITLE							
SIGNATURE							
DATE (dd/mm/yy)							
<b>3. TRADE INFORMATION</b>							
<b>PRODUCT DESCRIPTION</b>							
LIVE WEIGHT (kg)		No. of FISH		ZONE			
<b>EXPORTER/ SELLER</b>							
POINT OF EXPORTATION/DEPARTURE		COMPANY			ADDRESS		
FARM OF DESTINATION		CPC		ICCAT FFB No.			
SIGNATURE							
DATE (dd/mm/yy)							
TRANSPORTATION DESCRIPTION		(Relevant documentation to be attached)					
<b>GOVERNMENT VALIDATION</b>							
NAME OF AUTHORITY						SEAL	
TITLE							
SIGNATURE							
DATE (dd/mm/yy)							
<b>IMPORTER/ BUYER</b>							
COMPANY					PT. of IMPORT/DESTINATION		
					(City, Country, State)		
ADDRESS							
DATE OF SIGNATURE (dd/mm/yy)		SIGNATURE					
ANNEX(ES): YES/NO (circle one)							
<b>4. TRANSFER INFORMATION</b>							
<b>TOWING VESSEL DESCRIPTION</b>							
ICCAT TRANSFER DECLARATION No.							
NAME		FLAG		ICCAT REC. No.			
No. of FISH DEAD DURING TRANSFER		TOTAL WEIGHT OF DEAD FISH (kg)					
TOWING CAGE DESCRIPTION		CAGE No.					
ANNEX(ES): YES/NO (circle one)							
<b>5. TRANSHIPMENT INFORMATION</b>							
<b>CARRIER VESSEL DESCRIPTION</b>							
NAME		FLAG		ICCAT REC. No.			
DATE (dd/mm/yy)		PORT NAME		PORT STATE			
POSITION (Lat./Long.)							
<b>PRODUCT DESCRIPTION (Indicate net weight in kg. for each type of product)</b>							
F RD(kg):	GG(kg):	DR(kg):	FL(kg):	OT(kg):	TOTAL WEIGHT "F" (kg)		
FR RD(kg):	GG(kg):	DR(kg):	FL(kg):	OT(kg):	TOTAL WEIGHT "FR" (kg)		
<b>GOVERNMENT VALIDATION</b>							
NAME OF AUTHORITY						SEAL	
TITLE							
SIGNATURE							
DATE (dd/mm/yy)							
ANNEX(ES): YES/NO (circle one)							

ICCAT BLUEFIN TUNA CATCH DOCUMENT (BCD)				No :		2/2	
<b>6. FARMING INFORMATION</b>							
FARMING FACILITY DESCRIPTION	NAME		CPC		ICCAT FFB NO.		
	NATIONAL SAMPLING PROGRAM? YES or NO(circle one)			LOCATION			
CAGE DESCRIPTION	DATE (dd/mm/yy)			CAGE No.			
FISH DESCRIPTION	NO. of FISH :		TOTAL WT (kg) :		AVG WT (kg) :		
ICCAT REGIONAL OBSERVER INFORMATION	NAME		TITLE		SIGNATURE		
	SIZE COMPOSITION		<8 kg	8-30 kg	>30 kg		
<b>GOVERNMENT VALIDATION</b>							
NAME OF AUTHORITY					SEAL		
TITLE							
SIGNATURE							
DATE (dd/mm/yy)							
ANNEX(ES): YES/NO (circle one)							
<b>7. HARVESTING INFORMATION</b>							
<b>HARVESTING DESCRIPTION</b>							
DATE (dd/mm/yy)		NO. of FISH		TOTAL ROUND WT (kg)			
AVG. WEIGHT (kg)		TAG NOS. (If applicable)					
ICCAT REGIONAL OBSERVER INFORMATION	NAME		TITLE		SIGNATURE		
<b>GOVERNMENT VALIDATION</b>							
NAME OF AUTHORITY					SEAL		
TITLE							
SIGNATURE							
DATE (dd/mm/yy)							
<b>8. TRADE INFORMATION</b>							
<b>PRODUCT DESCRIPTION</b> (Indicate net weight in kg. for each type of product)							
F	RD(kg):	GG(kg):	DR(kg):	FL(kg):	OT(kg):	TOTAL WEIGHT "F" (kg)	
FR	RD(kg):	GG(kg):	DR(kg):	FL(kg):	OT(kg):	TOTAL WEIGHT "FR" (kg)	
<b>EXPORTER/ SELLER</b>							
PT of EXPORT/DEPARTURE		COMPANY			ADDRESS		
STATE of DESTINATION							
SIGNATURE							
DATE (dd/mm/yy)							
TRANSPORTATION DESCRIPTION		(Relevant documentation to be attached)					
<b>GOVERNMENT VALIDATION</b>							
NAME OF AUTHORITY					SEAL		
TITLE							
SIGNATURE							
DATE (dd/mm/yy)							
<b>IMPORTER/ BUYER</b>							
COMPANY					PT. of IMPORT/DESTINATION (City, Country, State)		
ADDRESS							
DATE (dd/mm/yy)					SIGNATURE		
ANNEX(ES): YES/NO (circle one)							

## Appendix 10 List of designated BFT landing ports in France and Spain

Extracted from <https://www.iccat.int/en/ports.asp> on 15 March 2019.

Port	Country	Port Code	Authorized From	Authorized To
Agde	EU.France	FRAGD	01-04-19	01-03-20
Antibes	EU.France	FRANT	01-04-19	01-03-20
Arcachon	EU.France	FRARC	01-04-19	01-03-20
Bastia	EU.France	FRBIA	01-04-19	01-03-20
Bayonne	EU.France	FRBAY	01-04-19	01-03-20
Bonifacio	EU.France	FRBON	01-04-19	01-03-20
Brest	EU.France	FRBES	01-04-19	01-03-20
Cagnes sur mer	EU.France	FRCME	01-04-19	01-03-20
Calvi	EU.France	FRCLY	01-04-19	01-03-20
Carnon	EU.France	FRNPG	01-04-19	01-03-20
Carry-le-Rouet	EU.France	FRRYR	01-04-19	01-03-20
Cherbourg	EU.France	FRCER	01-04-19	01-03-20
Cogolin	EU.France	FRCQK	01-04-19	01-03-20
Concarneau	EU.France	FRCOC	01-04-19	01-03-20
Douarnenez	EU.France	FRDRZ	01-04-19	01-03-20
Frontignan plage	EU.France	FRFRO	01-04-19	01-03-20
Granville	EU.France	FRGFR	01-04-19	01-03-20
Grau-du-Roi	EU.France	FRLGR	01-04-19	01-03-20
Gruissan	EU.France	FRWGE	01-04-19	01-03-20
La Cotinière	EU.France	FRLC5	01-04-19	01-03-20
La Rochelle	EU.France	FRLRH	01-04-19	01-03-20
La Turballe	EU.France	FRTBE	01-04-19	01-03-20
Le Guilvinec	EU.France	FRGVC	01-04-19	01-03-20
Le Lavandou	EU.France	FRVNO	01-04-19	01-03-20
Les Sables d'Olonne	EU.France	FRLSO	01-04-19	01-03-20
Les Saintes-Maries	EU.France	FRMM8	01-04-19	01-03-20
Leucate	EU.France	FRUTE	01-04-19	01-03-20
Lorient	EU.France	FRLRT	01-04-19	01-03-20
Marseille	EU.France	FRMRS	01-04-19	01-03-20

Port	Country	Port Code	Authorized From	Authorized To
Martigues	EU.France	FRMTU	01-04-19	01-03-20
Menton	EU.France	FRETN	01-04-19	01-03-20
Palavas-les-flots	EU.France	FRPAF	01-04-19	01-03-20
Port de Bouc	EU.France	FRPDB	01-04-19	01-03-20
Port de Tizzano	EU.France	FRTIZ	01-04-19	01-03-20
Port-Saint-Louis-du-Rhône	EU.France	FRPSL	01-04-19	01-03-20
Port-Vendres	EU.France	FRPOV	01-04-19	01-03-20
Port-la-Nouvelle	EU.France	FRNOU	01-04-19	01-03-20
Porto-Vecchio	EU.France	FRPVO	01-04-19	01-03-20
Quiberon	EU.France	FRQUI	01-04-19	01-03-20
Royan	EU.France	FRRYN	01-04-19	01-03-20
Saint-Cyprien	EU.France	FRS2C	01-04-19	01-03-20
Saint-Florent	EU.France	FRZFB	01-04-19	01-03-20
Saint-Jean-de-Luz	EU.France	FRZJZ	01-04-19	01-03-20
Saint-quay-portrieux	EU.France	FRSQ2	01-04-19	01-03-20
Sanary	EU.France	FRYNR	01-04-19	01-03-20
Santa Maria Poghju	EU.France		01-04-19	01-03-20
Sari-Solenzara	EU.France	FRSOZ	01-04-19	01-03-20
Sète	EU.France	FRSET	01-04-19	01-03-20
Théoule sur mer	EU.France	FRTS2	01-04-19	01-03-20
Toulon	EU.France	FRTLN	01-04-19	01-03-20
le Barcarès	EU.France	FRBE6	01-04-19	01-03-20
AGAETE	EU.España	ESAGA	01-03-19	15-06-19
ALCUDIA	EU.España	ESALD	01-03-19	01-03-20
ALGECIRAS	EU.España	ESALG	01-03-19	01-03-20
ALICANTE	EU.España	ESALC	01-03-19	01-03-20
AMETLLA DE MAR	EU.España	ESKLL	01-03-19	01-03-20
ARENYS DE MAR	EU.España	ESARN	01-03-19	01-03-20
ARGUINEGUIN	EU.España	ESARI	01-03-19	15-06-19
ARRECIFE DE LANZAROTE	EU.España	ESACE	01-03-19	15-06-19
AZOHIA	EU.España	ESAZH	01-03-19	01-03-20
BARBATE	EU.España	ESBDF	01-03-19	01-03-20

Port	Country	Port Code	Authorized From	Authorized To
BERMEO	EU.España	ESBRM	01-03-19	01-03-20
BLANES	EU.España	ESBLA	01-03-19	01-03-20
CADIZ	EU.España	ESCAD	01-03-19	01-03-20
CALA RATJADA	EU.España	ESCEM	01-03-19	01-03-20
CAMBRILS	EU.España	ESCBL		
CARBONERAS	EU.España	ESCRS	01-03-19	01-03-20
CARTAGENA	EU.España	ESCAR	01-03-19	01-03-20
CASTELLON	EU.España	ESCAS	01-03-19	01-03-20
COLINDRES	EU.España	ESCOD	01-03-19	01-03-20
CONIL	EU.España	ESZEA	01-03-19	01-03-20
GIJON	EU.España	ESGIJ	01-03-19	01-03-20
GRAN TARAJAL	EU.España	ESGTL	01-03-19	15-06-19
GUETARIA	EU.España	ESGET	01-03-19	01-03-20
HONDARRIBIA	EU.España	ESEWE	01-03-19	01-03-20
JAVEA	EU.España	ESJAV	01-03-19	01-03-20
LA RESTINGA	EU.España	ESLAF	01-03-19	15-06-19
LAS PALMAS	EU.España	ESLPX	01-03-19	01-03-20
LLANÇA	EU.España	ESLLC	01-03-19	01-03-20
LOS CRISTIANOS	EU.España	ESLCR	01-03-19	15-06-19
MOGAN	EU.España	ESZIH	01-03-19	15-06-19
MORRO JABLE	EU.España	ESMHR	01-03-19	15-06-19
ONDARROA	EU.España	ESOND	01-03-19	01-03-20
PALMA DE MALLORCA	EU.España	ESPMI	01-03-19	01-03-20
PASAJES	EU.España	ESPAS	01-03-19	01-03-20
PLAYA DE SAN JUAN	EU.España	ESPSJ	01-03-19	15-06-19
PLAYA SANTIAGO	EU.España	ESPPS	01-03-19	15-06-19
PUERTO DEL ROSARIO	EU.España	ESFUE	01-03-19	15-06-19
ROQUETAS DE MAR	EU.España	ESRQM	01-03-19	01-03-20
SAN PEDRO DEL PINATAR	EU.España	ESPPI	01-03-19	01-03-20
SANT CARLES DE LA RAPITA	EU.España	ESSCR	01-03-19	01-03-20
SANT FELIU DE GUIXOLS	EU.España	ESSFU	01-03-19	01-03-20
SANTA CRUZ DE TENERIFE	EU.España	ESSCT	01-03-19	01-03-20

Port	Country	Port Code	Authorized From	Authorized To
SANTOÑA	EU.España	ESSNN	01-03-19	01-03-20
TALIARTE	EU.España	ESTAN	01-03-19	15-06-19
TARIFA	EU.España	ESTRF	01-03-19	01-03-20
TARRAGONA	EU.España	ESTAR	01-03-19	01-03-20
TAZACORTE	EU.España	ESTAZ	01-03-19	15-06-19
TORREVIEJA	EU.España	ESTOR	01-03-19	01-03-20
VIGO	EU.España	ESVGO	01-03-19	01-03-20
VILANOVA I LA GELTRÚ	EU.España	ESVLG	01-03-19	01-03-20
VINAROS	EU.España	ESVZR	01-03-19	01-03-20

## Appendix 11 Principle 2 Client Action Plan

**Action plan to increase qualitative and quantitative information to manage and assess the impact of the UoA on other species which are not landed (and specially sharks, pelagic stingrays, sea turtles and ETP seabirds)**

Key data sources on interactions with non-target species are logbook for the landed catches, and data collected as part of the French national observer programme (Obsmer) for the unlanded catches.

However :

- 1) The quality and completeness of the logbook data recorded by France Agri Mer are discussed because of the loss of information during data entry and lack of data verification.
- 2) Observer coverage appears to be low for the UoA, corresponding to about 0.5% of the overall effort in terms of trips.

So an action plan is implemented by OP SATHOAN to increase the quality and quantitative information to manage and assess the impact of the UoA on other species.

### Fishing activities and possible interactions:

#### Since 2019:

Transmission to the PO by all UoC vessels of the fishing location of each fishing trips and integration in the database: for vessels less than 12 m manual entry of the GPS point of the set longline in the logbook, for larger vessels direct transmission to the PO of the electronic logbook and VMS information.

### Landed catches:

#### Since 2019

- Recording of every individual swordfish (mandatory since 2018, traceability system and quota monitoring similar to that for the bluefin tuna / SWO specific tags obtained from DPMA)
- Entry by the PO of all data noted on the fishing logsheets (= all catches landed for all species with the weight of each catch and any other information are recorded by the vessel) for all fishing trips in PO's database.
- Produce Annual report on the data available and comparison between PO data and data entered by FranceAgriMer available *via* SIOP, to be discussed at CNPMM meetings.
- Formal request from PO to FranceAgriMer to validate for fishing and logbook returns, through CNPMM.

### Catches that are released and not landed (Blue shark – BSH and juvenile swordfish – SWO, Pelagic stingrays, ETP species):

- 3) Assure implementation of the strategy in place for managing unwanted catches and recording data on impact

#### Since 2019, each year:

At the beginning of the season, all release and information rules are reminded to all vessel skippers in the UoC (release in survival conditions and systematic recording of all catches on Echosea App (paper or electronic).

During the season : On-board verification (1 check per year on each vessel) by a PO-mandated agent

⇒ Verification report and corrective action if necessary

Weekly verification and recording of received data from Echosea and notebooks

⇒ Assessment of the recording and presentation summary report to vessels as a reminder of the rules.

Recording by PO agent of received data

- 4) Improved monitoring and data collection tools and assess the impact of the UoA on other species which are not landed

#### Year 1

Carrying out an inventory of available data to assess the impact of the fishery

Setting up of a steering committee to monitor data collected via Echosea by associating IFREMER, DPMA, CPMR, AFB (Marine Park), LPO-Birdlife, CestMed and Ailerons (Shark protection NGO) with annual meetings;

⇒ Report of available data to evaluate interactions by species (sharks, rays, turtles, birds, ...)

⇒ Action plan

Implementation of the conclusions

Verification and demonstration during on-board checks (1 check per year on each ship)

⇒ Verification reports

Continuation of the collection of information

- ⇒ Updated data base

First annual meeting of the steering committee with review of existing data collection provisions and propose improvements (registration modalities, additional mechanism to be put in place);

- ⇒ Meeting minutes
- ⇒ Action plan

#### **Year 2:**

Implementation of the conclusions

Verification and demonstration during on-board checks (1 check per year on each ship)

- ⇒ Verification reports

Continuation of the collection of information

- ⇒ Updated data base

Preparation of annual data reports by species

Annual meeting of the steering committee: presentation / exchange of data

- ⇒ Updated data report
- ⇒ Updated action plan

#### **Year 3:**

Implementation of the conclusions

- ⇒ Updated Good practices and reports

Verification and demonstration during on-board checks (1 check per year on each ship)

- ⇒ Verification reports

Continuation of the collection of information

- ⇒ Updated data base

Preparation by PO of annual reports

- ⇒ Annual report of controls
- ⇒ Annual data report by species

Direct impacts monitored and evaluated through a scientific research post-graduate project to monitor the fishery's potential direct impacts on marine turtles and seabirds (post graduate student project in collaboration with the Marine Park)

- ⇒ Assessment report of the direct impact of the UoA on sea turtles and seabirds

Annual meeting of the steering committee: presentation / exchange of data

- ⇒ Updated data report organized by species
- ⇒ Updated action plan
- ⇒ Assessment report of the direct impact of the UoA on sea turtles and seabirds showing that it does not hinder their recovery.
- ⇒ Report of Fishery's impacts on ETP species and on the effectiveness of management measures

#### **Year 4:**

Implementation of the conclusions

- ⇒ Updated Good practices and reports

Verification and demonstration during on-board checks (1 check per year on each ship)

- ⇒ Verification reports

Continuation of the collection of information

- ⇒ Updated data base

Scientific research (post-graduate project) to devise a standardized pelagic catch per unit of effort (CPUE) indicator to follow potential impact on pelagic ray mortality.

- ⇒ Data are available to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.

Preparation of annual reports

- ⇒ Annual report of controls
- ⇒ Annual data report to evaluate interactions by species

Annual meeting of the steering committee: presentation / exchange of data

- ⇒ Updated data report organized by species
- ⇒ Updated action plan



- ⇒ Report of Fishery's impacts on ETP species and on the effectiveness of management measures  
Assessment report of the direct impact of the UoA on sea turtles and seabirds showing that it does not hinder their recovery.
- ⇒ Reviewed proposal rules to manage the UoA's impact on stingray and nd takes into account seasonal and spatial catch patterns

Implementation of the conclusions

## Appendix 12 Echosea Steering Committee

Eco-certification « Thon rouge de ligne – pêche artisanale » - Réunion Comité Pilotage

10/03/2020

### Eco-certification de la pêche « Thon rouge de ligne – pêche artisanale » - Comité de Pilotage « Mesurer l'impact de la pêche sur les autres espèces de l'écosystème »

Sète – Salle réunion OP SATHOAN

Le mardi 10 mars 2020

#### **Objet de la réunion :**

Création d'un comité de pilotage (organe de collaboration) associant les différentes parties prenantes, pour réfléchir, coordonner et suivre les actions à mener afin de mesurer et limiter l'impact de la pêche sur les autres espèces de l'écosystème.

Ordre du jour :

- Présentation du contexte : projet d'éco-certification en cours et questions posées
- Echanges d'informations sur les dispositifs de recueil, informations disponibles et projets en cours
- Propositions / Suites à donner

#### **Participants :**

A Sète :

Jérôme Bourjea (IFREMER / UMR MARBEC ), Jean-Luc Desforges (DIRM), Caroline Chiera, Nolwenn Cosnard (Chargées de mission - OP SATHOAN), Bertrand Wendling (Directeur général - OP SATHOAN)

En visio-conférence :

Alexandra Caron-Strehlow (LPO – responsable de Projet politique de la pêche et Environnement) et Thierry Micol (LPO - Chef du Service Etudes, Développement durable, International et outre-mer), Caroline Mangalo (CNPMM – Coordinatrice du pôle pêche et aquaculture)

Excusés : Lauriane Vasseur (Parc marin du Golfe du Lion) qui n'a pas pu venir, mais souhaite être associée à la démarche et participer aux prochains échanges

Benjamine Vandeputte, (Coord. Projet Eco-certification pour l'OP SATHOAN).

#### **Présentation :**

##### **1) Contexte : Présentation du projet d'éco-certification de l'OP SATHOAN**

Suite au redéploiement de la pêche au thon rouge s'inscrivant dans le plan de reconstitution puis de gestion, l'objectif est de garantir le caractère durable et éco-responsable de la pêche méditerranéenne de petits métiers disposant d'une AEP Thon rouge (palangre et/ou canne/ligne) en Méditerranée française.

Pour cela, l'OP SATHOAN est engagée dans un projet de certification selon deux référentiels : MSC et Pêche durable (écolabel de la pêche maritime), en s'appuyant sur la marque collective « thon rouge de ligne – pêche artisanale » (TRL-PA) [www.thonrougedeligne.com](http://www.thonrougedeligne.com), comme outil opérationnel au niveau des navires (engagements de bonnes pratiques qualité et de bonnes pratiques vis-à-vis des captures accessoires).

La flottille concernée est constituée des navires de 9 à moins de 18 mètres disposant d'une AEP thon rouge (canne/ligne ou palangre) adhérents à l'OP SATHOAN et engagés dans la marque collective.

OP SATHOAN – Rédaction : B. VANDEPUTTE

- 1/5 -

Début 2020, 25 navires sont engagés dans la marque collective (TRL-PA), et à terme, l'objectif est que toute la flottille de petits métiers de l'OP rentre dans le dispositif (47 navires avec AEP début 2020)

Etat d'avancement :

- La certification selon le référentiel « Pêche durable » a été obtenue en juin 2019 avec 16 navires. Une extension de la certification est prévue dans le cadre de l'audit de suivi qui aura lieu en mai (25 navires fin 2020).
- Le processus de certification MSC est officiellement engagé depuis septembre 2018, après une pré-évaluation réalisée en 2017. La visite d'évaluation a eu lieu fin 2018 et le rapport produit en 2019 a fait l'objet des relectures. Il sera publié, pour consultation publique de 30 jours, dans les jours à venir.

Ce rapport met en évidence le niveau satisfaisant de respect des principes du référentiel pour 20 critères sur 28 (note supérieure à 80 sur 100).

Mais pour 8 critères, ce niveau est insuffisant (note entre 60 et 80). Et il est demandé de mettre en place un plan d'actions d'amélioration. Deux critères concernent la gestion du stock cible (contrôle des captures illégales et modèle d'évaluation du stock utilisé par l'ICCAT) sur lesquels l'OP n'a pas de contrôle direct (pas l'objet du comité). Et six sont directement liées à l'insuffisance de données disponibles pour préciser l'impact de la pêche sur les autres espèces de l'écosystème et définir, évaluer et faire vivre des stratégies de gestion vis-à-vis de ces espèces.

## 2) Conclusion de l'évaluation et problème posé

Les exigences du référentiel MSC vis-à-vis des captures accessoires sont :

- identifier les espèces potentiellement impactées par la pêche et de qualifier le risque que représente la pêche pour chacune,
- définir une stratégie de gestion permettant de maîtriser ce risque,
- évaluer l'efficacité de cette stratégie et la revoir si nécessaire.

Pour identifier les espèces potentiellement impactées et qualifier le risque, l'équipe d'évaluation a utilisé les données des logbooks (captures débarquées), les rapports de projet SELPAL et REPAST, les données Obsmer, les cartographies des zones de pêche et les données des embarquements scientifiques.

Ces informations ont permis d'établir la liste des espèces accessoires à prendre en compte :

- Espèces Menacées et/ou Protégées (ETP Endangered, Threatened and Protected species MSC), pour lesquelles il existe un risque même très faible d'interaction, avec la pêche : les tortues et les oiseaux marins (puffins)
- Autres espèces accessoires :
  - o espèce principale (espèce vulnérable avec prises > 2 % en poids ou autres espèces dont prises > 5%) : Requin peau bleu (2% en poids du total de captures), et Espadon (au niveau global : de l'ordre de 15% du poids par les mêmes navires mais souvent pas les mêmes marées / problème : suivi des juvéniles)
  - o espèce secondaire (prise significative mais < 2% en poids si espèce vulnérable, < 5% en poids sinon) : Raie pastenague, espèce non vulnérable, qui représente 4,5 % des prises en poids (10% en nombre).

Ces données ont également permis de valider la pertinence a priori des mesures de gestion proposées.

**Cependant elles sont insuffisantes pour évaluer correctement le risque pour les espèces MDP, et pour mesurer l'efficacité des mesures de gestion vis-à-vis des espèces accessoires et de fait construire et faire vivre des stratégies de gestion de l'impact de la pêche.**

En effet la couverture des données Obsmer pour les petits métiers ciblant le thon rouge à l'hameçon est de l'ordre de 0,5 % des marées (jusqu'en 2017, pas d'embarquement en 2018 et 2019). Et le dispositif manque de représentativité puisqu'il ne concerne que les palangriers de plus de 15 mètres.

Cette faible couverture n'est pas due aux navires qui acceptent toutes les demandes d'embarquement (com.pers. BW).

Ce n'est pas non plus le fait de l'IFREMER qui est en charge de la gestion pour la DPMA des sous-traitants employant les observateurs. L'institut répartit les moyens selon la demande du Ministère qui était jusqu'à maintenant de garantir l'équité entre toutes les pêcheries (métier, façade, zone de pêche), sans privilégier les petits métiers qui pêchent le thon rouge. (com.pers. JB)

J.L. Desforges ne peut répondre pour la DPMA. Mais précise que d'autres moyens auraient pu être mobilisés au niveau du Ministère de l'environnement, mais qu'il n'y a pas eu de demande formelle de la profession pour cela.

Pour 2020, J. Bourjea propose de :

- 1) Regarder comment est faite la répartition des observateurs en 2020 et, le cas échéant, proposer des aménagements ;
- 2) Relancer la discussion sur la question des prises accessoires des palangriers en Méditerranée avec l'IRD (également membre de MARBEC, des compétences mais non mobilisées aujourd'hui sur le sujet).

### **3) Dispositifs de recueil d'informations existant, échanges, proposition**

BW précise que l'OP SATHOAN a la volonté forte de mieux connaître et réduire l'impact de la pêche sur les autres espèces de l'écosystème.

Ainsi des initiatives ont été lancées par l'AMOP et l'OP SATHOAN pour contribuer à une meilleure connaissance des interactions entre la pêche et les autres espèces de l'écosystème.

Mais ces initiatives ne peuvent et ne doivent pas se substituer aux dispositions mises en place par l'Etat pour répondre aux obligations nationales d'amélioration des connaissances sur les espèces et leurs interactions avec la pêche. Elles peuvent toutefois les compléter utilement.

JLD rappelle qu'il existe plusieurs programmes de recherche en Méditerranée espagnole sur l'impact de la flottille palangrière notamment sur les tortues et les oiseaux. Cependant l'écosystème est différent et de ce fait les données ne sont pas extrapolables (Cf. rapport projet SELPAL et bilans comparés).

**Ainsi le problème est l'absence de projet scientifique sur la problématique des prises accessoires en Méditerranée française.**

#### Outils d'enregistrement déclaratifs pour les navires

- 1) Appli Echosea : outil développé à partir des résultats de SELPAL, avec possibilité pour le navire d'enregistrer les captures sur le lieu de pêche, avec enregistrement automatique de la position GPS, et transmission automatique des données appareillées dès que le navire retrouve du réseau GSM. Développement encouragé par l'OP SATHOAN auprès de ses navires dans le cadre de la marque collective « Thon rouge de ligne – pêche artisanale ». En cours d'amélioration :
  - Version 3 d'Echosea disponible en avril 2020, améliorée pour faciliter l'identification des espèces (notamment distinction des différentes espèces de puffins) + ajout d'informations utiles aux pêcheurs (météo, ..) pour les intéresser à l'utilisation de l'outil.
  - Note d'information aux adhérents pour utilisation systématique d'Echosea par les adhérents (TRL-PA) et mise en place de vérifications mensuelles des saisies avec relance systématique et retrait de la liste des navires habilités (et éco-certifiés)

T. Micol propose d'ajouter dans l'appli un champ de saisie pour préciser les mesures d'évitement mises en œuvre ou non lors des actions de pêche avec capture d'oiseaux. Cela permettrait de relier les captures aux dispositions d'évitement utilisées et de proposer des modifications de ces dispositions si besoin.

BW précise que les mesures d'évitement proposées ont été définies et testées dans le cadre de projets scientifiques et stages d'étudiants (SELPAL/REPAST). Et par ailleurs que le nombre de captures est très



faible, insuffisant pour mesurer/tester l'effet des dispositions d'évitement. Mais l'idée est retenue et sera mise en œuvre.

T. Micol précise également que la FAO et la Commission générale des pêches pour la Méditerranée ont sorti en 2019 une étude très complète permettant d'uniformiser les suivis de type (Monitoring incidental catch of vulnerable species in the Mediterranean and the Black Sea: methodology for data collection <http://www.fao.org/publications/card/fr/c/CA4991EN/>)

- 2) Echosea version papier (carnet à poinçonner) : outil développé par l'OP SATHOAN pour les pêcheurs qui ne veulent pas utiliser leur smartphone à bord => informations dégradées (pas d'info appareillées sur la position de capture mais lien possible statistiquement avec les cartes) mais moyen d'entraîner tous les pêcheurs vers l'utilisation de l'appli à moyen terme. Et la LPO propose d'aider l'OP à définir les paramètres à renseigner.

- 3) Enregistrement des zones de pêche / spatialisation des captures accessoires : balises VMS pour les > 12m, et saisie sur le logbook du point de virage de la palangre, pour les navires < 12 m.

La distance entre le filage et le point de virage est, selon le nombre d'hameçons et l'écartement des hameçons, de 5 à 10 milles nautiques – la dérive est de 0 à 3 milles). Ainsi les informations transmises par les navires permettent d'établir des cartes d'activité des navires relativement précises

BW précise que celles-ci sont consultables sur le site [www.opquota.com](http://www.opquota.com) (login « acheteur » et mot de passe « acheteur »). Il informe également que les données saisies sur les logbooks sont reprises par FranceAgriMer qui en assure une saisie manuelle (données utilisables par les chercheurs).

Autres projets en cours : à approcher pour récupérer des informations :

Le tour de table permet de partager trois programmes en cours ou à venir, qui permettraient d'apporter des données complémentaires

- 1) Plan National d'Action Puffins des Baléares

Dans le cadre du PNA Puffins des Baléares, un projet visant à caractériser les interactions entre l'oiseau et les activités en mer et trouver des solutions permettant de limiter la mortalité a été déposé pour financement dans le cadre du FEAMP (Mesure 40 – porteur de projet AGLIA, et 4 CRPMEM partenaires dont le CRPMEM Occitanie).

L'OP SATHOAN en tant que membre du CRPM Occitanie participe à ce projet, et gèrera s'il est financé, la partie opérationnelle de gestion des observateurs, avec un taux de couverture de 5%. Une proposition serait de profiter de ce programme d'observation pour recueillir non seulement des informations sur les interactions Pêche/ Puffins, mais plus largement sur toutes les espèces susceptibles d'être impactées par la pêche. En effet le coût marginal est très faible, correspondant à l'utilisation d'une grille descriptive étendue à toutes les espèces sensibles.

(Pas encore de réponse sur le financement, projet en concurrence avec deux autres sur la thématique Protection et restauration de la biodiversité)

- 2) Programme PACHA : Prises Accidentelles, Captures et HABITATS essentiels d'espèces d'intérêt halieutique sur le territoire de l'Observatoire du Parc national de Port-Cros

J.L. Desforges propose de se rapprocher du GIS posidonies qui porte le programme, soutenu dans le cadre de la mesure 40 du FEAMP. Embarquement d'observateurs à bord de navires de pêche ayant une activité sur le territoire du Parc de Port-Cros (2019 : 36 jours au total, + à venir en 2020, avec volonté d'embarquer à bord de palangrier => à voir si des informations pertinentes, même si le contexte est différent (en particulier sur le territoire du parc il n'y a de navire pêchant à la palangre dérivante.)

- 3) Programme DACOR : Données halieutiques Corse, porté par l'Office environnemental de Corse, le CNRS Corte et la Stareso comme partenaire opérationnel

JL Desforges invite à prendre contact avec les partenaires du projet. Il s'agit d'un programme d'étude sur 3 ans avec un protocole d'observation à bord des navires (échantillonnage minimal annuel de 30% de la flotte) pour caractériser les captures, prises et rejets.

#### 4) Conclusion / Suites à donner

En conclusion B. Wendling insiste sur la volonté de l'OP SATHOAN de travailler en bonne intelligence avec les autres parties prenantes y compris les ONG, et notamment la LPO.

Thierry Micol explique que la LPO est intéressée pour accompagner la pêche.

**Tous les participants s'accordent pour valider le principe de création de ce comité de pilotage, premier organe de collaboration et échanges entre les parties prenantes (scientifiques, professionnels, Pouvoirs publics et ONG) pour échanger des informations, réfléchir sur les actions à mener pour limiter l'impact de la pêche au thon rouge à l'hameçon en Méditerranée sur les espèces accessoires et coordonner les actions en ce sens.**

**Une réunion sera programmée en fin d'année pour faire un premier bilan.**

D'ici là le plan d'actions ci-dessous est retenu :

- 1) Si le projet PNA Puffins est financé,
  - Etendre les demandes de recueil de données des observateurs (en particulier tortues, requins et autres oiseaux) => OP SATHOAN (B. Wendling)
  - Adapter la grille de recueil de données pour qu'elle permette d'enregistrer toutes les captures accessoires non débarquées => IFREMER (J. Bourjea)
- 2) Contacter les responsables des projets PACHA et DACOR pour préciser quels échanges et collaborations sont possibles => OP SATHOAN (B. Vandeputte)
- 3) Invitation formelle de B. Wendling à T. Micol et A. Caron à venir à Sète rencontrer l'OP SATHOAN et découvrir le contexte de la pêche.
- 4) (re) Mobiliser au sein de l'UMR MARBEC l'IRD sur les problématiques de prises accessoires des palangriers en Méditerranée => IFREMER, J. Bourjea

Fait à Sète le 10 mars 2020,

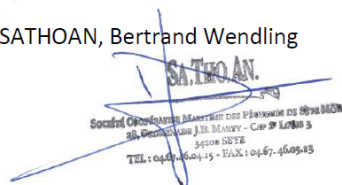
CNPMEM / Caroline Mangalo -



LPO / Thierry Micol

DIRM / Jean-Luc Desforges

OP SATHOAN, Bertrand Wendling



IFREMER-MARBEC / Jérôme Bourjea

OFB – Parc marin du Golfe du Lion,






Jérôme Bourjea 

Note: signatures from the other parties will be included in the next version of the report (Final Report). Please see below for evidence of their participation in the meeting.

OP SATHOAN

Sete 10/03/2020

Reunion CORE

Nom	Structure	Signature
COSNARD Notturno	Sathoan	
CHIERA Caroline	SATHOAN	
BOURDOA Jérôme	INTERIOR	
DESFORGES J-Luc	DIRM	
WENDLING Burkhard	OP. SATHOAN	
VANDERPUTTE Benjamin	OP SATHOAN	