# Updates on Stock Status of ICCAT Large Pelagic species in the Mediterranean Sea.

Working Group (WG2) Pelagic fishes -ICCAT

**ICCAT Secretariat** 

(17 October 2024)

# ICCAT CICTA CICAA



#### ΙССАТ СІСТА СІСАА

### **Bluefin tuna: Background information**

Managed by International Commission for the Conservation of Atlantic Tunas (ICCAT):

- Stock Assessment in 2022 East Atlantic and Mediterranean BFT.
- **BFT (both East/West stocks)** under a Management Procedure since 2022.
- Management through input control measures (e.g. vessel list, minimum size/weight, fisheries closures, TAC, etc.)



## **Objective**:





• Maintain the stocks at level which will permit maximum sustainable catch for food and other purposes





### **E-BFT Fisheries**

- Production:
  - > Historical maximum catch in 2007 was estimated at 61,001 t (East stock).
  - Catch in 2023\* 39, 247 t (TAC 40,000), of which 28, 250 t (72%) in the Mediterranean Sea.



\* Catch as of September 2024.





### **E-BFT Fisheries**

- Main gears:
  - East-Atlantic -Traps, longlines and baitboats
  - Mediterranean Purse-seine, traps, longlines and Sport fisheries





### **E/W Bluefin MSE (Management Strategy Evaluation)**

- 2022 (Rec. 2022-09)
  - Management Objectives were adopted
    - 1) **Status:** prob >= 60% in green of Kobe Plot,
    - 2) Safety: prob < 15% below  $B_{Lim}$  (40% of SSB<sub>MSY</sub>),
    - 3) Yield: Maximum overall catch levels,
    - 4) **Stability:** TAC change between periods within +20%/-35%
  - Management Procedure (MP) was agreed
    - Pre-agreed method to calculate TAC for the East and West BFT
    - MP uses 10 abundance indices from both stocks
    - TAC 2023-2025: East & Med 40,570 t, West 2,726 t
- 2023 (Rec. 2023-07)
  - Exceptional Circumstances Protocol was adopted
    - "The SCRS shall assess the occurrence of exceptional circumstances annually ..."
- 2024 (Rec. 2023-07)
  - No Exceptional Circumstances exist in 2024



### **E/W BFT MSE: 2024 Exceptional Circumstances**

- **EC Criterion**: stock dynamics; evaluating any changes in abundance and life history or fishery dynamics.
- SCRS 2024 conclusion:

"According to the EC protocol in Rec. 23-07 and noted in section 19.13 no EC exists that would warrant deviating from the TAC calculated under the MP for 2025."







### East Atlantic and Mediterranean Bluefin tuna Exec Sum Table

Current reported yield (2023)	39,247 t*
$F_{2020}/F_{0.1}^{2}$	0.81 (0.48-1.62) <sup>1</sup>
Stock Status (2020) <sup>3</sup>	Overfishing: NO
TAC 2023-2025, Rec. 22-08	40,570 t

1 Mean and approximate 95% confidence interval from integrating across the uncertainty for each model.

2 F<sub>CURRENT</sub> refers to the geometric mean of the estimates (a proxy for recent F levels) for 2017-2020 for VPA, and for 2018-2020 for ASAP and Stock Synthesis. For the VPA and ASAP, F is measured as apical F, for stock synthesis F is exploitation rate in biomass based on the 2022 stock assessment.

3 Biomass reference points to determine stock status were not estimated since the 2017 assessment due to uncertainty in recruitment potential.

\* As of September 29, 2023





### **SCRS 2024 East BFT Management Advice**

- The management plan established in Rec. 22-08 and based on the MP for BFT sets a TAC for BFT-E of 40,570 t for 2023 to 2025.
- According to the EC protocol in Rec. 23-07 and noted in section 19.13 no EC exists that would warrant deviating from the TAC calculated under the MP for 2025.





### **2024 SCRS Recommendations**

#### East and Mediterranean Bluefin tuna

- The Committee recommends, in 2025, to discuss the results of the BFT-W Close-Kin Mark-Recapture (CKMR), to discuss implementation of the BFT-E CKMR, and to evaluate new information that may be consequential for MSE.
- The Committee recommends the modelling tasks, sampling activities and genetic studies in relation to the CKMR study design and eventual implementation
- The Committee recommends that CPC sampling programmes support the BFT-E CKMR programme through their national programmes in collaboration with the GBYP CKMR programme.
- The Committee recommends to conduct the GBYP aerial survey in 2025 in the Balearic region only and moving to an every-other-year survey for the immediate future.



### **MED Albacore tuna: Background information**

Managed by International Commission for the Conservation of Atlantic Tunas (ICCAT):

- ALB Three stocks (N-ATL and MED mixing occurring but extent unknow)
- MED-ALB Stock Assessment in May 2024 with data until 2022.
- Management through input control measures (e.g. vessel list, temporal fisheries closures)





#### **Objective:**

• Maintain the stocks at level which will permit maximum sustainable catch for food and other purposes





#### **MED-ALB Fisheries**

- Production in the Mediterranean:
  - > Catch peak of 7,898 t in 2003, average of 2,850 t period 2010-2023
  - > 2,295 t in 2022 and **2,286 t** in **2023**.
  - High uncertainty of non-reported catches in the Mediterranean (IUU), and possible underreporting of the catch
  - Historical catch needs to be revised (by gear and country)







#### **MED-ALB Indices of Abundance**

Abundance indices and catch used in the 2024 Assessment of the Med-ALB stock



- Uncertainty in W-Med Larval index
- The index in 2001-2005 used data collected with a different gear from the latter data.
- The data was calibrated, however, there was uncertainty as to whether this calibration was appropriate for ALB.
- It was decided to consider two scenarios: a continuous series and one splitting the index into two time series (2001-2005/2012-2022).





#### **Med-ALB Kobe plot – Stock status**

#### **Uncertainty**:

- Under-reporting catches (IUU)
- Restrictive spatial-temporal coverage of CPUEs
- Lack of historical CPUE series
- Conflicting trend of CPUEs e.g., Spanish LL vs Greek LL.
- Calculation of W-Med larval index ( $\rightarrow$  2 scenarios)

#### **Assessment Method**:

the Bayesian surplus production JABBA model.



Probability of being overfished (B <  $B_{MSY}$ ) : 95% (scenario 1), 21% (scenario 2) Probability of overfishing occurring (F >  $F_{MSY}$ ): 75% (scenario 1), 6% (scenario 2)





#### **Mediterranean Albacore Exec Sum 2024**

MEDITERRANEAN ALBACORE SUMMARY		
Maximum Sustainable Yield	Scenario 1: 3564 t (2584-4663) Scenario 2: 4174 t (2831-7936) <sup>1</sup>	
Current (2023) Yield	2,286 t	
Yield in last year of assessment (2022)	2,295 t	
B <sub>2022</sub> /B <sub>MSY</sub>	Scenario 1: 0.58 (0.31-1.10) Scenario 2: 1.44 (0.59-2.64) <sup>1</sup>	
F <sub>2022</sub> /F <sub>MSY</sub>	Scenario 1: 1.22 (0.66-2.10) Scenario 2: 0.42 (0.13-1.17) <sup>1</sup>	
Stock Status	Overfished: Scenario 1: YES Scenario 2: NO	
	Overfishing: Scenario 1: YES Scenario 2: NO	
Management measures in effect:	Rec. 22-05: 15-year Rebuilding plan (2022-2036); TAC for years 2022, 2023 and 2024: 2,500 t. Limited number of vessels (reference year 2017 or 2018); Census of authorized sport & recreational vessels (maximum three albacore specimens/vessel/day); Time closure: 01/10-30/11 + 1 month between 15/02-31/03; alternatively, 01/01-31/03.	

<sup>1</sup> Median and 95% credibility intervals from the Bayesian surplus production model.





### **Management Advice MED-ALB**

- The Committee reiterates that the substantial uncertainties in the assessment prevent providing specific TAC advice at this time. However, the Committee noted that, in both scenarios, the current TAC (2,500 t) would allow to meet the management objectives to recover the stock above  $B_{MSY}$  with a probability higher than 60%.
- The Committee emphasized that the uncertainty in total catch is of paramount importance in models and was not adequately addressed in the models presented. To the extent that the reported catches are inaccurate or incomplete, the ability of these models to reflect the stock dynamics accurately is undermined.
- The Committee concluded that the previous assessments of 2021 and 2017 (ICCAT, 2017a) were likely affected by the same issues. Therefore, the Committee suggests re-evaluating the stock status only after addressing the main concerns expressed.





#### **2024 SCRS Recommendations**

#### Mediterranean Albacore

- The Group recommends that an ad hoc group focus on the Mediterranean albacore fisheries statistics with the objective of having an overall and comprehensive review of the historical catch Task 1 and catch and effort Task 2 CE series.
- The Group recommends the integration of the Mediterranean stock into the ALBYP. In order to facilitate better management advice, the Mediterranean Research programme should focus on key points identified in the 2024 and other recent stock assessments: improvement of fishery statistics through data recovery, larval survey calibration to allow for a long fisheries independent survey, an integrated growth analysis, improvement of r and K priors, development of a joint longline Catch per unit effort (CPUE), and environmental effects.



#### Please visit also the ICCAT 2024 meeting webpage

#### (2024 SCRS Advice to the Commission)\*

https://www.iccat.int/en/Meetings.html

**Thanks for your attention** 

# Updates on Stock Status of ICCAT Large Pelagic species Mediterranean Swordfish.

Working Group (WG2) Pelagic fishes -ICCAT

**ICCAT SCRS G. Tserpes** 

17 October 2024

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#### **MED Swordfish: Background information** Managed by ICCAT

- Single stock unit with limited mixing with **N-ATL stock** •
- Last Assessment June 2020
- Management through input and output control measures (e.g. TAC, vessel list, min. size/weight, fisheries

#### **Objective:**

closures)

• Maintain the stocks at level which will permit maximum sustainable catch for food and other purposes









### **MED-SWO Fisheries**

- Main gears: Longlines (surface, mesopelagic) and Gillnets (prohibited since 2012)
- Production declining in the recent years from 12,300 t (2016) to 7,314 t (2023).
- Catch in 2023 7,314 t a 11% decrease compared to average catch 2018-2020 and below the 2022 TAC of 9,017 t.



Estimates of Task 1 swordfish catches (t) in the Mediterranean by major gear types, for the period 1950-2023. Non- reporting may happen in the earlier period (up to the middle 1980s).



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SWO-MED-Figure 3. Trends in biomass and fishing mortality (upper panels) and biomass relative to  $B_{MSY}$  (B/ $B_{MSY}$ ) and fishing mortality relative to  $F_{MSY}$  (F/ $F_{MSY}$ ) (bottom panels) for each scenario from the Bayesian state-space surplus production model fits to Mediterranean swordfish.



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**SWO-MED-Figure** 4. Kobe phase plot showing the combined posteriors of  $B_{2018}/B_{MSY}$  and  $F_{2018}/F_{MSY}$  presented in the form of joint MCMC posteriors of JABBA model runs for Mediterranean swordfish. The probability of posterior points falling within each quadrant is indicated in the pie chart.



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#### **Mediterranean Swordfish Exec Sum 2024**

Maximum Sustainable Yield	13,325 (10,899 – 17,346 t) <sup>1</sup>
2023 Yields	7,314 t
B <sub>MSY</sub>	71,319 (42,562 – 113,758) t <sup>1</sup>
<b>F</b> <sub>MSY</sub>	0.19 (0.12 – 0.34) <sup>1</sup>
Relative Spawning Biomass	0.72 (0.38 – 1.29) <sup>1</sup>
B <sub>2018</sub> /B <sub>MSY</sub>	
Relative Fishing Mortality	
F <sub>2018</sub> /F <sub>MSY</sub>	0.93 (0.42 – 1.68) <sup>1</sup>
Stock Status (2018)	Overfished: Yes <sup>1</sup>
	Overfishing: No
Management Measures in Effect:	Driftnet ban [Rec. 03-04]
	Three-month fishery closure, gear specifications (number and size of hooks and length of gear), minimum catching size regulations, list of authorized vessels, fishing capacity restrictions, domestic observers onboard on longlines.
	TAC [ <b>Rec. 16-05</b> ]: 10,500 t in 2017, 10,185 t in 2018, 9,879 in 2019, 9,583 in 2020, 9,296 in 2021 and <b>9,017</b> in <b>2022 and 2023</b> .

<sup>1</sup>95% credibility intervals of 30,000 MCMC iterations from Bayesian surplus production models.



### **MED-SWO Management recommendations**

- Stock biomass 2018 was about 30% lower than that corresponding to MSY, while 2018 fishing mortality was around F<sub>MSY</sub>.
- Analysis indicated that the probability of stock rebuilding by the end of the projection period (2028) is at least 60% if a TAC equal to or less than 10,000 t is implemented.
- There are **uncertainties on stock productivity**, therefore these estimates may be optimistic and should be interpreted with caution.



#### Mediterranean Swordfish Recovery Plan Rec. 16-05

#### Rec. [16-05] Multi annual **Recovery plan 2017 – 2031** TAC in 2017 of 10,500 t.

- Reduction of TAC 2018-2022 by 3% each year
- Fishing capacity reduction and limitation
  - Limit to the average number of vessels 2013-2016
- Fishing countries to submit **Fishing Plans** to ICCAT yearly.
- Closed fishing season(s) Jan 1<sup>st</sup> Mar 31<sup>st</sup> / Oct 1<sup>st</sup> Nov 30<sup>th</sup>
- Gear restrictions hook size/length LL 100 cm LJFL/11.4 kg.
- Sport recreational fisheries restrictions.





### **SCRS Recommendations**

The next assessment should be completed in **2026** for Mediterranean swordfish but, in order to monitor stock trends, essential fisheries indicators (e.g., catch, indices of abundance), should be reviewed and developed by a Sub-group in advance of the next stock assessment.

Given the above needs and considering the questions raised during the latest assessment the workplan will include:

- Review relevant fisheries and biological data.
- Update estimates of standardized CPUE indexes for the most important fisheries, taking into account the new trap-line gear.
- Obtain estimates of discard misreporting.
- Estimates of undersized catch.

Additionally, the Committee encourages national scientists to identify the effects of the environment on swordfish biology, ecology and fisheries. Future CPUE analyses should evaluate the effects of important climate and oceanographic changes that have occurred recently in the Mediterranean Sea (e.g., eastern Mediterranean transient) and how may impact the availability of the stock to some fisheries, and/or the recruitment of the population.