

NARRATIVE/RATIONALE

Increase score of the Performance Indicator 1.2.2 Harvest Control Rules for Swordfish South

Currently scored a **SG 60-79**, FIPBLUES scores this PI at **SG 80** given the advances in regulation and the managerial measures adopted lately.

RATIONALE

This PI is closely related to PI 1.2.1 Harvest Strategy (HS) for Swordfish south. There is a HS reflected on a series of ICCAT regulations and recommendations (hyperlinked below), which also include a series of different rules to determine how and how much fish. So, a set of Harvest Control Rules (HCR) to manage the fishery; and also in the last stock assessment in 2022.). The Spanish Fisheries Department also shapes the fleet through regulations (mandatory from [Orden AAA/658/2014](#), de 22 de abril, por la que se regula la pesca con el arte de palangre de superficie para la captura de especies altamente migratorias (modified by Orden APM/1057/2017) the main Spanish normative for Long Line vessels operating in international waters, in compliance with DGMARE mandate, the CPC in ICCAT).

These rules and tools have been developed throughout the last 10 years until the recent Rec. 22-04:

[Resolution 15-13](#) on Criteria for the Allocation of Fishing Possibilities.

[Recommendation 16-04](#) by ICCAT for the conservation of South Atlantic swordfish.

[Recommendation 17-03 by ICCAT](#) amending the Recommendation 16-04 for the conservation of South Atlantic swordfish.

[Recommendation 21-03 supplemental recommendation](#) by ICCAT on recommendation 17-03 amending the recommendation 16-04 for the conservation of South Atlantic swordfish.

[Recommendation 22-04](#) replacing supplemental Recommendation 21-03 extending the terms already adopted in Rec 16-04, amended by Rec 17-03. This is the recommendation currently in place for the management of this stock, which amend the rules and extend the terms already adopted by the previous ones.

[ICCAT Basic Texts](#) (Article IV, page 10, item) establishes that “*in order to carry out the objectives of this Convention the Commission shall be responsible for the study of the populations of tuna and tuna-like fishes (the Scombriformes with the exception of the families Trichiuridae and Gempylidae and the genus Scomber) and such other species of fishes exploited in tuna fishing in the Convention area as are not under investigation by another international fishery organization.*”

This resolution and these recommendations do contain/make explicit the main rules building the HS for South Atlantic swordfish, as, for instance:

Recommendation 22-04:

-Set of the TAC (total allowable catch), which are currently fixed at **10,000 t/year** for 2023, 2024, 2025 and 2026, in order to ensure that $B/B_{MSY} > 1$ to 55% in 2033, in line with the management objectives of ICCAT (“and that catches at levels below 10,000 t would accelerate rebuilding of the stock”).

- Annual catch limits for CPC.

- Mechanism to adjust catches: *it is carried out through prorate reduction of the quota for each Contracting Party and Cooperating non-Contracting Party, Entity and Fishing Entity (CPC). It is a rule in case a CPC exceeds its individual catches limits whereby it shall pay back its overharvest during or before the adjustment year, in the following way for South Atlantic swordfish. The maximum underage to carryover is currently at **15%** of the quota of previous year.*

-Monitoring of catch levels in 2023, 2024, 2025 and 2026 and report to the Commission annually (Item 2 in the Recommendation).

Stock assessment 2022 (see below)

Recommendation 21-03:

-Indicates that the SCRS will carry out a stock assessment of South Atlantic swordfish in 2022 and report the results to the Commission.

-Measures/rule review: on the basis of SCRS advice, the Commission shall review, and amend, if appropriate, the management measures for South Atlantic swordfish at the 2022 meeting of the Commission.

-The interim **limit reference point (LRP) of $0.4 \cdot B_{MSY}$** or any more robust LRP established through further analysis when assessing stock status and providing management recommendations to the Commission in 2021.

Recommendation 17-03:

-Set of a **TAC of 14.000 t**, not to be increased, and rules

-Adjustments of catches Underage to carryover shall not exceed 20% of the quota of previous year.

-Establishment of minimum size (items 6-7, page 2): weigh or length limits.

-Establishment of a **Record of vessels** authorized to fish South Atlantic swordfish (item 8, page 3) in accordance with the basis in the [Recommendation 13-13](#) (Establishment of an ICCAT record of vessels 20 metres in length overall or greater authorized to operate in the convention area).

-Availability of data to SCRS (items 10, 11, 12) for ICCAT Task I and Task II (data collection) in order to provide annually the best available data to the SCRS, including catch, catch at size, location and month of capture on the smallest scale possible, as determined by the SCRS.

-The interim **limit reference point (LRP) of $0.4 \cdot B_{MSY}$** or any more robust LRP established through further analysis when assessing stock status and providing management recommendations to the Commission in 2021.

Recommendation 16-04:

-Provisions reflecting the thrust of the Resolution 15-13.

-**TAC of 15.000 t** and decision of not to be increased.

-To establish an ICCAT register of vessels authorized to fish South Atlantic swordfish (item 8).

-Adjustment mechanism. The maximum underage **to carryover shall not exceed 30%** of the quota of previous year.

-Minimum size rule. (Item 6-7, page 2).

- Interim limit **reference (LRP) of $0.4 \cdot B_{MSY}$** or any more robust LRP established through further analysis when assessing stock status and providing management recommendations.

Resolution 15-13: it establishes the Criteria for the Allocation of Fishing Possibilities according to administrative, historical and technical determination for the CPCs to be authorised to fish SWO South. A key rule (III B) is related to the Status of the Stock in relation to **MSY**, or in the absence of MSY an agreed **biological reference point (RP, which is the PRI for B/B_{MSY} ratio ≥ 0.5)**, and the existing level of fishing effort in the fishery taking into account the contributions to conservation made by qualifying participants necessary to conserve, manage, restore or rebuild fish stocks in accordance with the objective of the Convention. It is worth to mention that EU-Spain is the CPC with higher fishing possibilities.

The Stock assessment 2022 (https://www.iccat.int/Documents/SCRS/DetRep/SWO_SA_ENG.pdf)

itself is the **key scientific tool** (modelling, projections and scientific advice) to determine the state of the stock and, according to the results and SRCC advice, set management recommendations, with the adopted rules (Recommendations) upon which controlling the harvest of the species for a multiannual plan (Page 21. Item "8.2 Management Recommendations": *To rebuild the stock, catches of 9,500 t or less are required to reach the green quadrant of the Kobe plot by 2033, with at least 60% probability. Given the uncertainty of long-term projections, it is recommended the stock be closely monitored in the upcoming years to confirm rebuilding by reviewing available fishery indicators regularly.*

The Kobe plot of the production model reference case (JABBA) indicates that the stock is overfished ($B/B_{MSY} = 0.77$, with a 95% confidence interval between 0.53-1.1) and experiencing overfishing ($F/F_{MSY} = 1.03$, with a 95% confidence interval between 0.67 and 1.51) (Table 22). There is a 56% chance that the stock is currently in the red quadrant of the Kobe diagram, a 36% chance that it is in the yellow, and only a 9% chance that it is in the green. However, the stock is highly likely above the PRI since $B_{2020}/B_{MSY} = 0.77$ with more than 95% of the lower limit of the B/B_{MSY} ratio (0.53-1.11) being above 0.5. But, as the stock status assessment (2022) resulted in overfished and that overfishing was occurring and the stock is fluctuating around a level consistent with MSY (11,481 t), and current

annual catches are actually lower than MSY (around 9,454 t).

**South Atlantic swordfish
Stock assessment 2022**

Maximum Sustainable Yield	11,481 (9,793-13,265) t ²
Current (2022) TAC	14,000 t
Current (2021) Yield ³	9,454 t
Yield in last year used in assessment (2020) ⁴	9,020 t
B _{MSY} (CI)	74,641 (60,179-92,946) t ²
F _{MSY}	0.15 (0.12-0.19) ²
Relative Biomass (B ₂₀₂₀ /B _{MSY})	0.77 (0.53-1.11) ²
Relative Fishing Mortality (F ₂₀₂₀ /F _{MSY})	1.03 (0.67-1.51) ²
Stock Status (2020)	Overfished: YES
	Overfishing: YES
Management Measures in Effect	Country-specific TACs [Rec. 21-03]; *Minimum size 125/119 cm LJFL ⁷

¹ Median from base case JABBA and SS models; range corresponding to the lowest and highest 95% CIs from the two models.
² Median and 95% CIs from base case JABBA model.
³ Provisional and subject to revision.
⁴ Based on catch data available in July 2021 for the stock assessment session.
⁵ Median and 95% quantiles from base case SS and JABBA models.
⁶ Associated alternatives listed in Rec. 17-02.
⁷ Associated alternatives listed in Rec. 17-03.

Using this three-year average (9,826 t) assumed in the 2022 stock assessment, the projections for South Atlantic swordfish stock has a 55% probability of being in the green quadrant of the Kobe plot by 2033 (page 21,item 8.4 of the stock assessment report https://www.iccat.int/Documents/SCRS/DetRep/SWO_SA_ENG.pdf)

TAC (t)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
0	21%	48%	74%	90%	96%	99%	99%	100%	100%	100%	100%
6000	21%	33%	46%	59%	70%	77%	83%	88%	92%	94%	95%
6500	21%	32%	44%	56%	66%	74%	80%	85%	88%	91%	93%
7000	21%	31%	41%	52%	62%	70%	75%	80%	85%	88%	90%
7500	21%	30%	39%	48%	57%	65%	70%	76%	80%	83%	86%
8000	21%	29%	37%	45%	53%	60%	65%	70%	74%	78%	81%
8500	21%	28%	34%	41%	48%	54%	59%	64%	68%	72%	75%
9000	21%	27%	32%	38%	44%	49%	53%	58%	61%	65%	68%
9500	21%	26%	31%	35%	39%	44%	48%	51%	55%	58%	60%
9826	21%	25%	29%	33%	36%	40%	43%	47%	50%	52%	55%
10000	21%	25%	29%	32%	35%	39%	41%	45%	47%	49%	52%
10500	21%	24%	27%	29%	31%	34%	36%	38%	40%	41%	43%
11000	21%	23%	25%	26%	28%	29%	30%	32%	33%	34%	35%
11500	21%	22%	23%	24%	24%	25%	25%	26%	26%	27%	27%
12000	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
12500	21%	20%	19%	19%	18%	18%	17%	17%	16%	16%	16%
13000	21%	19%	18%	17%	16%	15%	14%	13%	13%	12%	12%
13500	21%	18%	17%	15%	14%	12%	11%	10%	10%	9%	9%
14000	21%	18%	15%	13%	12%	10%	9%	8%	7%	7%	6%
14500	21%	17%	14%	12%	10%	8%	7%	6%	6%	5%	4%
15000	21%	16%	13%	10%	8%	7%	6%	5%	4%	3%	3%

Therefore, despite the last assessment indicated the stocks was overfished and overfishing was occurring, if we take into consideration the recommendations-related rules explained before, it can be said that:

➔ Well-defined HCRs are in place that ensure the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock fluctuating around a target level consistent with (or above) MSY. Those rules are responsive to the state of the stock and define the TAC and catch limits for CPC to keep the population Biomass **above the PRI** (safe limits to keep $B_{\text{given year}}/B_{\text{MSY}}$ above 0.5, since it is between 0.53-1.11) and fluctuating around a level consistent with MSY.

That is, the HCR are based on stock status results and projections to medium-term, and are robust enough to response to uncertainties (see Rec. 2204, defining a mechanism to adjust catches based on those results) avoiding to fall at lower levels.

At this stage, although overfished, those HCR are making possible to presently maintain the Stock with a PRI for B/B_{MSY} ratio ≥ 0.5 (0.53-1.11), and it is expected to reach the MSY in nine years from now. Current levels of exploitation are around 9,400 t and the TAC has been set at 10,000 t/year until 2026, lower than the MSY 11,481. Thus, within a medium-term time horizon the stock is expected to reach the ratio $B/B_{\text{MSY}} > 1$ to 55% in 2033. Therefore, this PI would meet the conditions for a SG80.