MarinTrust Standard V2

By-product Fishery Assessment

MAR003 – Sardine in FAO 34, Morocco Zones A + B

MarinTrust Programme
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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Sardine (*Sardina pilchardus*)
	Geographical area:	FAO 34, Eastern Central Atlantic
	Country of origin of the product:	Morocco
	Stock:	Morocco, Zones A + B
Date	August 2024	
Report Code	MAR003	
Assessor	Jose Peiro Crespo	
Country of origin of the product - PASS	Morocco	
Country of origin of the product - FAIL	None	

Application details and summary of the assessment outcome			
Company Name(s): Alpha Atlantique De Sahara Marocaine SA, Sovapec, Laayoune Proteine, Nouvelle Ougala, TANTASAR, CIBEL II, KB Fish , Pescasud SARLAU, Copelit SARL			
Country: Morocco			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:			
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Jose Peiro Crespo	Sam Peacock	0.2	Surveillance 2
Assessment Period	Up to August 2025		

Scope Details	
Main Species	Sardine (*Sardina pilchardus*)
Stock	Zone A + B
Fishery Location	FAO 34, Eastern Central Atlantic
Management Authority (Country/ State)	Fishery Committee for the Eastern Central Atlantic (CECAF), Morocco
Gear Type(s)	Purse seine and pelagic trawl
Outcome of Assessment	
Peer Review Evaluation	Agree with assessor's conclusion
Recommendation	**Approve**

Table 2. Assessment Determination

Assessment Determination
Sardine *(Sardina pilchardus)* meets the eligibility criteria for approval as Marin Trust by-product raw material, as it is not categorized as Endangered or Critically Endangered on the Union for Conservation of Nature's Red List (IUCN) (it is classified as Least Concern at the global level, and as Near Threatened in European waters), and it does not appear in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendices. The species is managed relative to established reference points and it has been assessed under Category C. The latest stock assessment, carried out by the Fishery Committee for the Eastern Central Atlantic (CECAF) in 2023, incorporated catch data up to 2022. As a result, it complies with **Clause C.1.** The assessment concluded that the stock biomass was not fully exploited remaining above both the target and limit reference points, thus satisfying the criteria outlined in **Clause C1.2.** Consequently, Sardine in FAO area 34, Zones A & B has been granted **approval** for the production of fishmeal and fish oil, adhering to the existing MarinTrust v2.3 by-products standard.
Fishery Assessment Peer Review Comments
The peer reviewer agrees that this stock is eligible for MarinTrust approval, and that it should be assessed under Category C. The assessor has demonstrated, with references, that the stock is subject to a regular stock assessment which incorporates fishery removals, and that stock biomass is currently above the limit reference point level. For these reasons, the peer reviewer agrees that this byproduct should remain approved for use as a raw material.
Notes for On-site Auditor

Species Categorisation

NB: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in CITES Appendix 1, it **cannot** be approved for use as an MarinTrust raw material.

IUCN Red list Category

By-product material from a species listed by IUCN (the International Union for Conservation of Nature) under the Red List for the following categories shall immediately fail the assessment;

- EXTINCT (E) AND EXTINCT IN THE WILD (EW)
- CRITICALLY ENDANGERED (CR) facing an extremely high risk of extinction in the wild.
- ENDANGERED (EN) facing a very high risk of extinction in the wild.

By-product material may be used from the following categories provided that all clauses in the MarinTrust standard are passed.

- VULNERABLE (VU) facing a high risk of extinction in the wild.
- NEAR THREATENED (NT) does not qualify for above now, but is close or is likely to qualify for, a threatened category in the near future.
- LEAST CONCERN (LC) Widespread and abundant.
- DATA DEFICIENT (DD) and NOT EVALUATED (NE)

Table 3 Species Categorisation Table

Common name	Latin name	Stock	Management	Category	IUCN Red List Category[1]	CITES Appendix 1[2]
Sardine	*Sardina pilchardus*	FAO area 34, Morocco, Zones A + B	Yes	C	Least Concern	No

[1] https://www.iucnredlist.org/
[2] https://cites.org/eng/app/appendices.php

CATEGORY C SPECIES

In a by-product assessment, Category C species are those which are subject to a species-specific management regime and are usually targeted species in fisheries for human consumption.

Clause C1 should be completed for each Category C species. If there are no Category C species in the fishery under assessment, this section can be deleted. Where a species fails this Clause, it should be assessed as a Category D species instead.

Species Name		**Sardine (*Sardina pilchardus*)**	
C1	**Category C Stock Status - Minimum Requirements**		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	Pass
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	Pass
		Clause outcome:	**Pass**

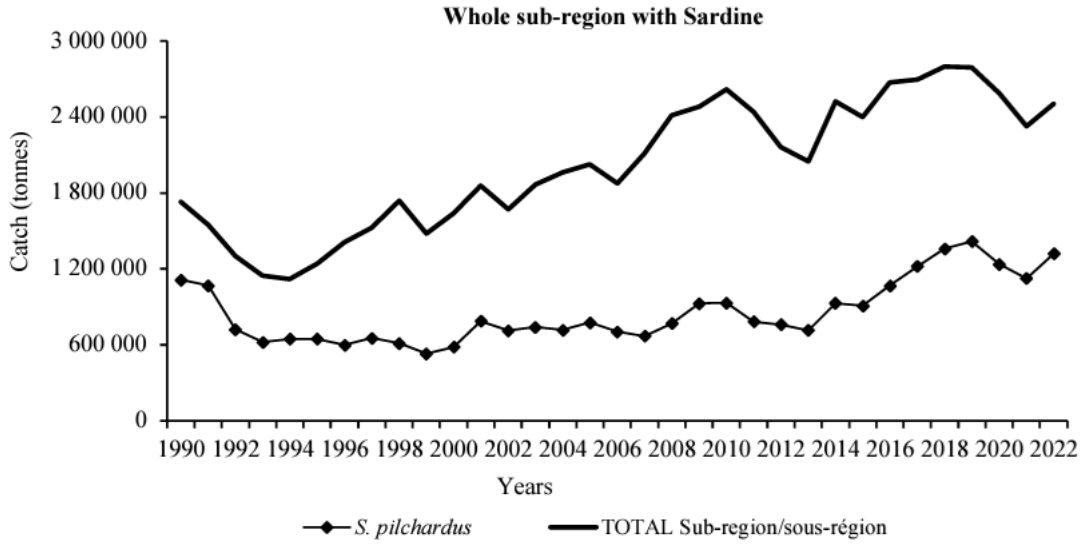
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.

Sardine in FAO area 34 is assessed by the Fishery Committee for the Eastern Central Atlantic (CECAF). Catches of the stock are considered in the stock assessment.

The total catch of small pelagics has been fluctuating since the beginning of the time series in 1990. There was a moderately increasing trend from 2013 to 2019, followed by a sharp decrease that began to reverse in 2022. Sardines make up most of the total catch of small pelagics in the sub-region at 53 percent of the total catch, followed by Chub mackerel (*Scomber colias*) at 17 percent of the total and flat sardinella (*Sardinella maderensis*) at 14 percent of the total.

Sardine catches in the sub-region in 2022 increased by 17 percent compared to 2021, increasing from around 1.1 million tonnes in 2021 to more than 1.3 million tonnes in 2022. Catches in Zone North and Zone A+B increased: they went from 21,023 tonnes in 2021 to 23,230 tonnes in 2022 (an increase of around 10 percent) in Zone North. For Zone A+B, sardine catches increased from 344,261 tonnes in 2021 to 611,463 tonnes in 2022 (an increase of 78 percent) (CECAF 2023).

Fishery removals are included in the assessment process, and **C1.1 is met.**



Whole sub-region with sardine

FIGURE 1 CATCH OF SARDINE IN THE WHOLE FAO 34 AREA (CECAF 2023).

C1.2 The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.

As indicated the stock of sardine in FAO 34 is assessed by the Fishery Committee for the Eastern Central Atlantic (CECAF). The Working group has adopted the following Biological Reference Points (BRPs):

- Target Reference Points: Bcur/B0.1 and Fcur/F0.1
- Limit Reference points: Bcur/BMSY and Fcur/FMSY

And the following assessment categories:

- Not-fully exploited: The stock is in good condition and fishing pressure can be increased without affecting the sustainability. All increases must be seen in the context of the general environmental situation.
- Fully exploited: The Fishery operates within the limits of sustainability. Current fishing pressure seems sustainable and can be maintained.
- Overexploited: The Fishery is in an undesired state in terms of biomass or/and fishing mortality. Fishing pressure should be reduced to allow the stock to grow.

The results of the most recent assessment show that the stock of sardine in Zone A + B is considered **not fully exploited (Bcur/B0.1 = 135%)** (see table below).

TABLE 1 STOCK STATUS. SUMMARY (CECAF 2023).

Stock	2022 catch in 1 000 tonnes (2018–2022) avg.)	$B_{cur}/B_{0.1}$	$F_{cur}/F_{0.1}$	Assessment	Management recommendations
Sardine *S. pilchardus* Zone A+B	611 (444)	135%	71%	Not fully exploited	The stock is considered **not fully exploited** in 2022. However, significant catches were recorded in 2022 (an increase of 78% compared to 2021) with stable biomass levels. Furthermore, a general downward trend in the average size of sardines caught in the central zone has been recorded in recent years and calls for vigilance regarding the exploitation of this stock whose biomass and recruitment levels fluctuate. Projections show that the stock could sustain a slight increase in catches. However, the variability of the resource vis-à-vis hydroclimatic changes requires the adoption of a precautionary approach. The working group maintains the recommendation not to exceed a level of 550 000 tonnes, as in previous years.
Sardine *S. pilchardus* Zone C	685 (824)	140%	47%	Not fully exploited	The stock is considered **not fully exploited** in 2022. However, the acoustic biomass (of the Moroccan R/V) decreased in 2022 (29% compared to the year 2021). This decrease coincided with a drop in catches especially for vessels operating offshore. In addition, catches have continued to decline since 2019, a period that coincided with the implementation of several management measures at the regional level. It should be recalled that in recent years, the emergence of coastal fleets in Mauritania has contributed to significant sardine catches south of Cap Blanc. In this latter area, the abundance indices are not regularly assessed. The average size of the sardine caught showed an overall downward trend, hence the need to be vigilant in the exploitation of this stock. In addition, this stock is strongly influenced by environmental factors and exhibits fluctuations in biomass independent of fishing. For this reason, the total authorized catch must be adapted to variations in the stock. Stock structure and abundance should also be closely monitored through fishery-independent methods, such as coordinated acoustic surveys throughout the species' range.

Stock biomass is estimated to be above both the limit reference point, and **C1.2 is met.**

References

CECAF (2023). FAO WORKING GROUP ON THE ASSESSMENT OF SMALL PELAGIC FISH OFF NORTHWEST AFRICA 2023. SUMMARY REPORT. https://www.fao.org/cecaf/publications/en/

Links	
MarinTrust Standard clause	1.3.2.2
FAO CCRF	7.5.3
GSSI	D.3.04, D5.01

CATEGORY D SPECIES

Category D species are those which are not subject to a species-specific management regime. In the case of mixed trawl fisheries, Category D species may make up the majority of landings. The comparative lack of scientific information on the status of the population of the species means that a risk-assessment style approach must be taken.

D1	Species Name		
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)		
	Average maximum age (years)		
	Fecundity (eggs/spawning)		
	Average maximum size (cm)		
	Average size at maturity (cm)		
	Reproductive strategy		
	Mean trophic level		
		Average Productivity Score	
	Susceptibility Attribute	**Value**	**Score**
	Availability (area overlap)		
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)		
	Selectivity of gear type		
	Post-capture mortality		
		Average Susceptibility Score	
		PSA Risk Rating (From Table D3)	
		Compliance rating	
	Further justification for susceptibility scoring (where relevant) *For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision*		
References			
Standard clauses 1.3.2.2			

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	High productivity (Low risk, score = 1)	Medium productivity (medium risk, score = 2)	Low productivity (high risk, score = 3)
Average age at maturity	<5 years	5-15 years	>15 years
Average maximum age	<10 years	10-25 years	>25 years
Fecundity	>20,000 eggs per year	100-20,000 eggs per year	<100 eggs per year
Average maximum size	<100 cm	100-300 cm	>300 cm
Average size at maturity	<40 cm	40-200 cm	>200 cm
Reproductive strategy	Broadcast spawner	Demersal egg layer	Live bearer
Mean Trophic Level	<2.75	2.75-3.25	>3.25

Susceptibility attributes	Low susceptibility (Low risk, score = 1)	Medium susceptibility (medium risk, score = 2)	High susceptibility (high risk, score = 3)
Areal overlap (availability) Overlap of the fishing effort with the species range	<10% overlap	10-30% overlap	>30% overlap
Encounterability The position of the stock/species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Low overlap with fishing gear (low encounterability).	Medium overlap with fishing gear.	High overlap with fishing gear (high encounterability). Default score for target species
Selectivity of gear type Potential of the gear to retain species	a Individuals < size at maturity are rarely caught	a Individuals < size at maturity are regularly caught.	a Individuals < size at maturity are frequently caught
	b Individuals < size at maturity can escape or avoid gear.	b Individuals < half the size at maturity can escape or avoid gear.	b Individuals < half the size at maturity are retained by gear.
Post-capture mortality (PCM) The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Evidence of majority released post-capture and survival.	Evidence of some released post-capture and survival.	Retained species or majority dead when released.

D3		Average Susceptibility Score		
		1 - 1.75	1.76 - 2.24	2.25 - 3
Average Productivity Score	1 - 1.75	PASS	PASS	PASS
	1.76 - 2.24	PASS	PASS	TABLE D4
	2.25 - 3	PASS	TABLE D4	TABLE D4

D4	Species Name		
	Impacts On Species Categorised as Vulnerable by D1-D3 - Minimum Requirements		
	D4.1	The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.	
	D4.2	There is no substantial evidence that the fishery has a significant negative impact on the species.	
		Outcome:	

Evidence

D4.1: The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.

D4.2 There is no substantial evidence that the fishery has a significant negative impact on the species.

References

Links	
MarinTrust Standard clause	1.3.2.2, 4.1.4
FAO CCRF	7.5.1
GSSI	D.5.01