



RESPONSIBLE
SUPPLY

IFFO RS
Global Standard for Responsible Supply
of Marine Ingredients

IFFO RS Limited

T: +44 (0) 2030 539 195
E: Standards@iffors.com
W: www.iffors.com

Unit C, Printworks | 22 Amelia Street
London, SE17 3BZ | United Kingdom



Global Standard for Responsible Supply of Marine Ingredients Fishery Assessment Methodology and Template Report V2.0



RESPONSIBLE
SUPPLY

IFFO RS
Global Standard for Responsible Supply
of Marine Ingredients



Fishery Under Assessment	Horse Mackerel Chinchard <i>T.trachurus</i> FAO 34
Date	March 2019
Assessor	Jim Daly

Application details and summary of the assessment outcome				
Name: Copelit				
Address:				
Country: Morocco		Zip:		
Tel. No.:		Fax. No.:		
Email address:		Applicant Code		
Key Contact:		Title:		
Certification Body Details				
Name of Certification Body:		SAI Global Ltd		
Assessor Name	Peer Reviewer	Assessment Days	Initial/Surveillance/Re-approval	Whole fish/ By-product
Jim Daly	V.Polonio	0.5	Initial	By-product
Assessment Period	2018			

Scope Details	
Management Authority (Country/State)	Ministre de l'Agriculture et de la Pêche maritime (Maroc); INRH (Maroc); FAO.
Main Species	Horse Mackerel (Chinchard) <i>Trachurus Trachurus</i>
Fishery Location	Saharo –Mauritanian Stock FAO 34
Gear Type(s)	Artisanal, Pelagic Trawl
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
Peer Review Evaluation	APPROVE
Recommendation	PASS

Assessment Determination

The Saharo -Mauritanian stock (*T.trachurus*) is one of four stocks of horse mackerel in the Northwest African Sub-region. The stock is assessed together with other species such as Cunene horse mackerel (*Trachurus trecae*), false scad (*Caranx rhonchus*) and blue jack mackerel (*Trachurus picturatus*) (FAO 2017). In 2015 and 2016, two species of *Trachurus* (*Trachurus trachurus* and *Trachurus trecae*) contributed 96% of the total catch of horse mackerel in the Sub-region compared with false scad and blue jack mackerel (FAO 2017).

The 17th meeting of the FAO Working Group on the Assessment of Small Pelagic Fish off Northwest Africa was held in Mauritania in May 2017 (FAO 2017). The Group assessed the status of the small pelagic resources in Northwest Africa and made projections on the development of the status of the stocks and on future effort and catch levels. Advice for stocks (including horse mackerel) is in general given in relation to agreed reference points ($F_{0.1}$, $B_{0.1}$, Fishing Mortality and Biomass Target Reference Points; F_{MSY} and B_{MSY}) and on the basis of the projections for the next 4-5 years.

Morocco authorizes Russian fishing vessels to operate in zone C; south of 28 N beyond 15 nautical miles from the coast under the Morocco-Russia fishing agreement (**Figure 1**). This fishery involves five groups of pelagic species whose composition and fishing quotas are mutually defined between both parties. With regards to the EU Fleets, fishing permits are issued to purse seiners to operate, also in zone C, mainly north of 34° N, beyond 2 nautical miles and to pelagic trawlers to operate south of 29°N beyond 15 nautical miles and beyond 8 nautical miles for pelagic trawlers and RSW type trawlers respectively (**Figure 1**). Fisheries in zone C are managed under plans which includes TAC's (all pelagic species combined), bycatch limits, species restrictions, spatial zoning and closed areas. Fishery removals of the species in the fishery under assessment are included in the stock assessment process, **the species passes Clause C1.1**.

Catches of *Trachurus spp* saw an increase in 2016, as compared to 2015; fishing effort has also been increased in Mauritanian waters. Both species *T. trecae* and *T. trachurus* are overexploited (FAO 2017). Results indicate that current biomass (*T.trachurus*) is 76% of $B_{0.1}$. (Target biomass corresponding to $F_{0.1}$ target mortality) and current fishing mortality 21% higher than $F_{0.1}$.

Results of the most recent stock assessment indicated a considerable decline in biomass of horse mackerel; however 2016 data shows signs of good recruitment which could improve the stock situation in the coming years (FAO 2017). Latest assessments show the stock to be fully exploited. The species is approved based on a recommendation that the stock status is closely monitored for evidence of improved recruitment (as seen following the 2016 stock assessment). In addition new measures, initiated in 2016, to ensure sustainability of these resources were put in place in 2017 (FAO 2017).

Horse mackerel (Europe, Mediterranean) *T.trachurus* in the assessment area has been assessed as vulnerable on the current IUCN Red List and is not on the list of CITES endangered species (both websites accessed 08.03.2018).

Horse mackerel *T.trachurus* in the assessment area is approved by the assessment team for the production of fishmeal and fish oil under the IFFO-RS v 2.0 by-products standard.

Peer Review Comments

In 2015 Atlantic horse mackerel was fully exploited. However, the exploitation indicators (significant increase in catches and fishing effort in 2016 compared with 2015) and the results of the model show that the

stock is overexploited. The results of the last acoustic stock assessment survey by the RV Al-Amir Moulay Abdellah in the Moroccan zone indicate a considerable decline in the biomass of Atlantic horse mackerel. On the other hand, the year 2016 shows signs of good recruitment compared with the period 2012-2015, which could improve the stock situation in the coming years.

Projections estimate a decline of the stock in the next five years.

In order for this species to continue to be approved under the IFFO-RS by-product standard evidence must be provided during the next assessment that stock status has improved as indicated by recruitment data from the 2016 fishery. Should the fishery continue to be fully exploited and stock status not improved, the assessment team will re-consider its current decision to approve the fishery.

As per the FAO Recommendations reductions in both fishing effort and catch for both horse mackerel species should be implemented by the Competent Authority.

Notes for On-site Auditor

Note: This table should be completed for whole fish assessments only.

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C	Horse mackerel <i>T.trachurus</i>	N/A	PASS	
Category D				

[List all Category A and B species. List approximate total %age of landings which are Category C and D species; these do not need to be individually named here]

HOW TO COMPLETE THIS ASSESSMENT REPORT

This assessment template uses a modular approach to assessing fisheries against the IFFO RS standard.

Whole Fish

The process for completing the template for a **whole fish** assessment is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table, to determine which categories of species are present in the fishery.
2. ALL ASSESSMENTS: Complete clauses M1, M2, M3: Management.
3. IF THERE ARE CATEGORY A SPECIES IN THE FISHERY: Complete clauses A1, A2, A3, A4 for **each** Category A species.
4. IF THERE ARE CATEGORY B SPECIES IN THE FISHERY: Complete the Section B risk assessment for **each** Category B species.
5. IF THERE ARE CATEGORY C SPECIES IN THE FISHERY: Complete clause C1 for **each** Category C species.
6. IF THERE ARE CATEGORY D SPECIES IN THE FISHERY: Complete Section D.
7. ALL ASSESSMENTS: Complete clauses F1, F2, F3: Further Impacts.

A fishery must score a pass in **all applicable clauses** before approval may be recommended. To achieve a pass in a clause, the fishery/species must meet **all** of the minimum requirements.

By-products

The process for completing the template for **by-product raw material** is as follows:

1. **ALL ASSESSMENTS:** Complete the Species Characterisation table with the names of the by-product species and stocks under assessment. The ‘% landings’ column can be left empty; all by-products are considered as Category C and D.
2. **IF THERE ARE CATEGORY C BYPRODUCTS UNDER ASSESSMENT:** Complete clause C1 for **each** Category C by-product.
3. **IF THERE ARE CATEGORY D BYPRODUCTS UNDER ASSESSMENT:** Complete Section D.
4. **ALL OTHER SECTIONS CAN BE DELETED.** Clauses M1 - M3, F1 - F3, and Sections A and B do not need to be completed for a by-product assessment.

By-product approval is awarded on a species-by-species basis. Each by-product species scoring a pass under the appropriate section may be approved against the IFFO RS Standard.

SPECIES CATEGORISATION

The following table should be completed as fully as the available information permits. Any species representing more than 0.1% of the annual catch should be listed, along with an estimate of the proportion of the catch each species represents. The species should then be divided into Type 1 and Type 2 as follows:

- **Type 1 Species** can be considered the ‘target’ or ‘main’ species in the fishery. They make up the bulk of annual landings and are subjected to a detailed assessment.
- **Type 2 Species** can be considered the ‘bycatch’ or ‘minor’ species in the fishery. They make up a small proportion of the annual landings and are subjected to relatively high-level assessment.

Type 1 Species must represent 95% of the total annual catch. Type 2 Species may represent a maximum of 5% of the annual catch (see Appendix B).

Species which make up less than 0.1% of landings do not need to be listed (NOTE: ETP species are considered separately). The table should be extended if more space is needed. Discarded species should be included when known.

The ‘stock’ column should be used to differentiate when there are multiple biological or management stocks of one species captured by the fishery. The ‘management’ column should be used to indicate whether there is an adequate management regime specifically aimed at the individual species/stock. In some cases it will be immediately clear whether there is a species-specific management regime in place (for example, if there is an annual TAC). In less clear circumstances, the rule of thumb should be that if the species meets the minimum requirements of clauses A1-A4, an adequate species-specific management regime is in place.

NOTE: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in the CITES appendices, it **cannot** be approved for use as an IFFO RS raw material. This applied to whole fish as well as by-products.

TYPE 1 SPECIES (Representing 95% of the catch or more)

Category A: Species-specific management regime in place.

Category B: No species-specific management regime in place.

TYPE 2 SPECIES (Representing 5% OF THE CATCH OR LESS)

Category C: Species-specific management regime in place.

Category D: No species-specific management regime in place.

Common name	Latin name	Stock	% of landings	Management	Category
Horse mackerel	<i>T.trachurus</i>	FAO 34	N/A	IMROP/INRH/FAO	C

CATEGORY C SPECIES

In a whole fish assessment, Category C species are those which make up less than 5% of landings, but which are subject to a species-specific management regime. In most cases this will be because they are a commercial target in a fishery other than the one under assessment. 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. A Category C species does not meet the minimum requirements of clause C1 should be re-assessed as a Category D species.

Species Name		Horse mackerel	<i>Trachurus trachurus</i>
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.	
	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.	
			Clause outcome: PASS
Evidence			
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.			
Licensed vessels are required to submit logbooks and landings declarations, and there appear on this basis to be good statistics on catch and effort. There is no evidence of significant problems of fishing by unlicensed vessels. One issue may be the under-declaration of catch by the artisanal fleet, which is usually very difficult to monitor (small vessels landing mixed catches at many small landing sites). There is also regular sampling of length composition in the catch.			
Considering that the fishery statistics provided by different fleets do not split the species of horse mackerel, the Working Group (FAO 2017) agreed to apply a separation key-based on data provided by observers from the Mauritanian Institute of Oceanographic Research and Fisheries (IMROP) and data from Russian observers operating in Zone C (Figure 1):			

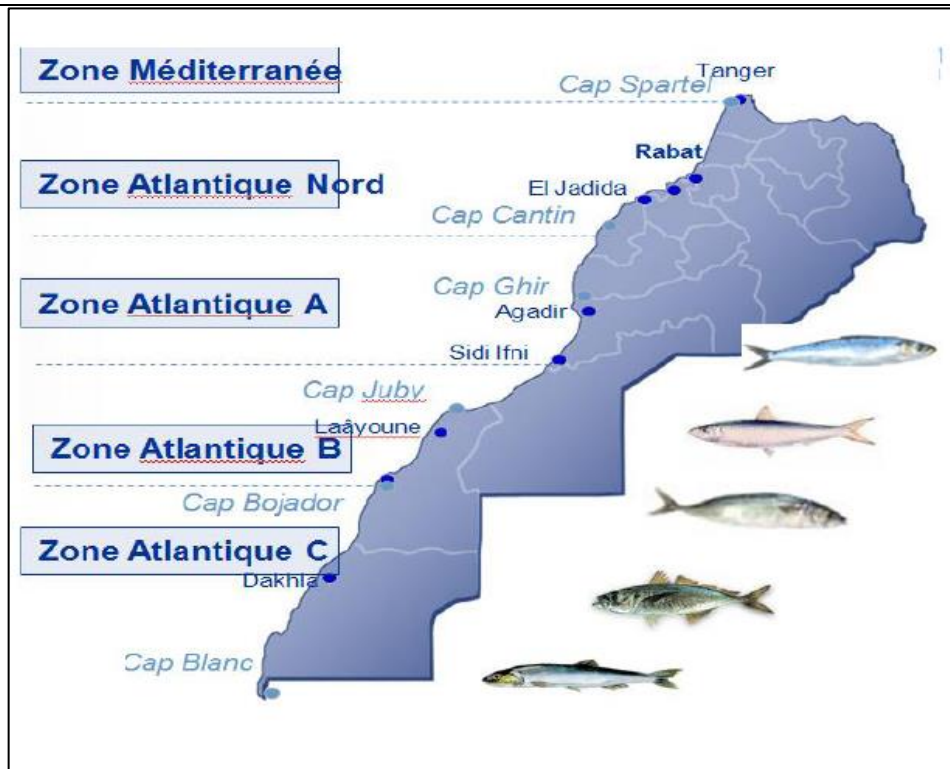


Figure 1. Fishing zones for management purposes off the Moroccan Coast. **R2**

Acoustic surveys are conducted by the Moroccan research vessel N/V Al Amir Moulay Abdellah. There have also been international research surveys carrying out other biological work such as estimates of recruitment. Russian scientists have worked on size-age relationships in this stock, via analysis of otoliths.

The Committee for Eastern Central African Fisheries (CECAF) and the Institut National de Recherche Halieutique (INRH) use a Schaefer dynamic production model to evaluate stocks, but have also experimented with other models and may expand to use more up-to-date Bayesian analysis techniques in the future.

Morocco authorizes Russian fishing vessels to operate in the zone south of the 28°N beyond 15 nautical miles from the coast under the Morocco-Russia fishing agreement. The fishery involves five groups of pelagic species (including horse mackerel) whose composition and fishing quotas are mutually defined between the two parties. Concerning the Europeans, fishing permits are issued to purse seiners to operate mainly north of 34°N, beyond 2 nautical miles and to pelagic trawlers to operate south of 29°N beyond 15 nautical miles and beyond 8 nautical miles for pelagic trawlers and RSW type trawlers respectively (Zone C **Figure 1**).

The annual trends in catches of three species of horse mackerel are shown (**Figure 2**):

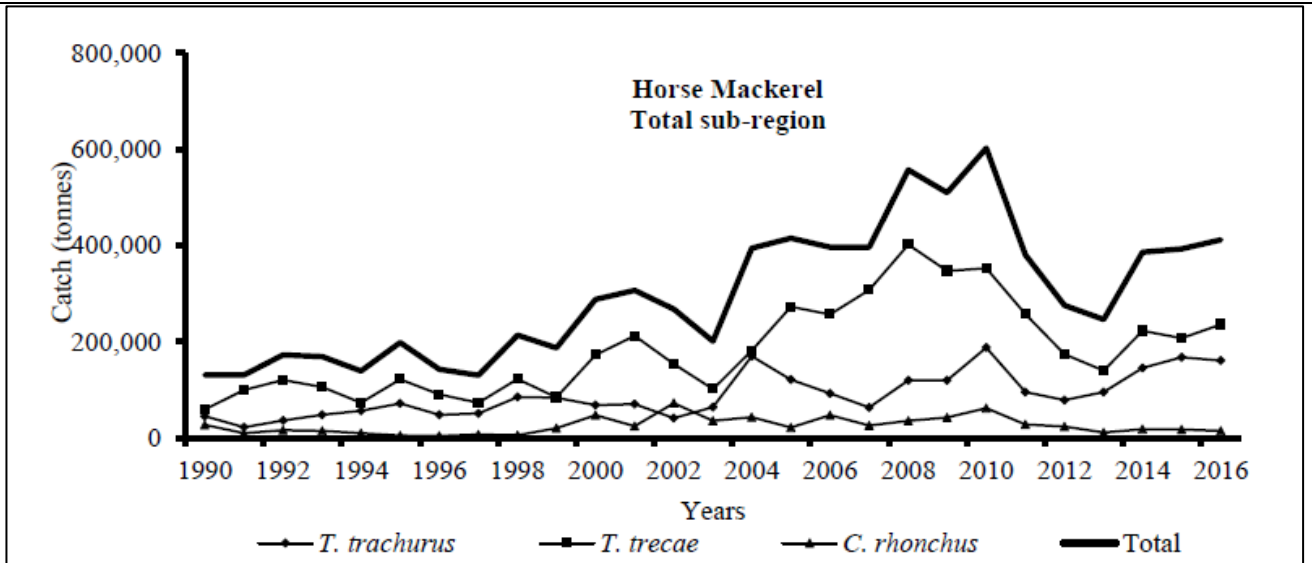


Figure 2. Total catches (tonnes) of horse mackerel in the subregion by species and year **R3**

In Morocco, the research vessel RV Al-Amir Moulay Abdallah (INRH) conducted two acoustic assessment surveys in autumn within the Atlantic coastal area in the central zone (Cape Cantin-Cape Bojador) and the southern zone (Cape Bojador-Cape Blanc), between November 2016 and January 2017 (**Figure 1**). Acoustic biomass indices, updated for 2016, were available to the FAO Working Group (FAO 2017).

Landings data are collected such that the fishery-wide removals are known. **The species passes Clause 1.1.**

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.

The Schaefer dynamic production model, implemented on an Excel spreadsheet, was used to assess stocks of the two *Trachurus* species in the sub-region. This model was used to estimate trends in biomass and fishing mortality during the period 1991-2016. The FAO Working Group then made a projection of abundance and catches over the next five years using different management scenarios and the same model implemented on a second spreadsheet.

Results indicate that the current biomass is 76% of $B_{0.1}$. (Target biomass corresponding to $F_{0.1}$ target mortality). Current fishing mortality is 21% higher than $F_{0.1}$. The biomass level is not at the optimum level and fishing effort is at an unsustainable level ($F_{cur}/F_{MSY}=187\%$ where F_{cur} = observed fishing mortality coefficient for last year of the series). These results show that the stock is overexploited.

Results of the last acoustic stock assessment indicate a considerable decline in the biomass of Atlantic horse mackerel. 2016 shows signs of good recruitment compared with the period 2012-2015, which could improve the stock situation in the coming years (FAO 2017).

Given the multi specific nature of these fisheries and the projection results, the FAO Working Group recommends to reduce both fishing effort and catches for both horse mackerel species.

References

R1 Fishsource: Horse Mackerel: NW Africa Stock: https://www.fishsource.org/stock_page/2363

R2 Jo Gascoigne Moroccan Sardine FIP Assessment in relation to the MSC Standard (2016) 28pp pdf

R3 FAO Working Group (2017) on the assessment of small pelagic fish off Northwest Africa Horse Mackerel pp 26-35 <http://www.fao.org/3/i8896b/I8896B.pdf>
R4 IUCN Red List <http://www.iucn.org>
R5 CITES www.cites.org

Standard clauses 1.3.2.2