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

Fishery Under Assessment	Horse mackerel *Trachurus trachurus* North East Atlantic
Date	February 2020
Assessor	Jim Daly
Stock Pass	ICES Subarea 8; Divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k
Stock Fail	

Application details and summary of the assessment outcome				
Name: Pelagia AS and others				
Address:				
Country: Norway		**Zip:**		
Tel. No.:		**Fax. No.:**		
Email address:		**Applicant Code:**		
Key Contact:		**Title:**		
Certification Body Details				
Name of Certification Body:		SAI Global Ltd		
Assessor	**Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/ Re-approval**	**Whole fish/ By-product**
Jim Daly	Conor Donnelly	0.5	SURV 1	By-product
Assessment Period	2020			

Scope Details	
Management Authority (Country/State)	EU/Norway
Main Species	Horse mackerel *Trachurus trachurus*
Stock:	ICES 4,6,7a-j
Fishery Location	North East Atlantic
Gear Type(s)	Pelagic trawl
Outcome of Assessment	
Peer Review Evaluation	AGREE
Recommendation	APPROVE

Assessment Determination

If any species is categorised as Endangered or Critically Endangered on IUCN's Red List, or if it appears in the CITES appendices, it cannot be approved for use as IFFO RS raw material. Horse mackerel *Trachurus trachurus* does not appear as Endangered or Critically Endangered on IUCN's Red List, nor does it appear in CITES appendices; therefore, Horse mackerel *Trachurus trachurus* is eligible for approval for use as IFFO RS by-product raw material.
 	
One stock forms part of this assessment:
    1) Subarea 8; divisions 2.a, 4.a, 5.b, 6.a, 7.a‑c, and 7.e‑k Northeast Atlantic.
 	
Fishery removals of the stock are considered in the various stock assessment processes so the stock **PASSES** Clause C1.1.
 	
For Horse mackerel in the assessment area the most recent estimated spawning stock biomass (SSB_{2020} 950,867t) is above Blim (834,480t), removals are not considered to be negligible therefore, the stock **PASSES** Clause C1.2.
 	
In order to be approved, the stock assessed must pass both Clause C1.1 and C1.2; therefore:
 	
    1) Horse mackerel *Trachurus trachurus* is **APPROVED** by SAI Global assessors in the assessment area for the production of fishmeal and fish oil under the current IFFO RS v 2.0 by-products standard.

Notes for On-site Auditor

HOW TO COMPLETE THIS ASSESSMENT REPORT
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	*Trachurus trachurus*	Subarea 8; divisions 2.a, 4.a, 5.b, 6.a, 7.a‑c, and 7.e‑k	N/A	EU/Norway	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	*Trachurus trachurus*	
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:			**See above**

C1.1
Evidence
This assessment covers Horse mackerel from the area outlined in **Figure 1:**
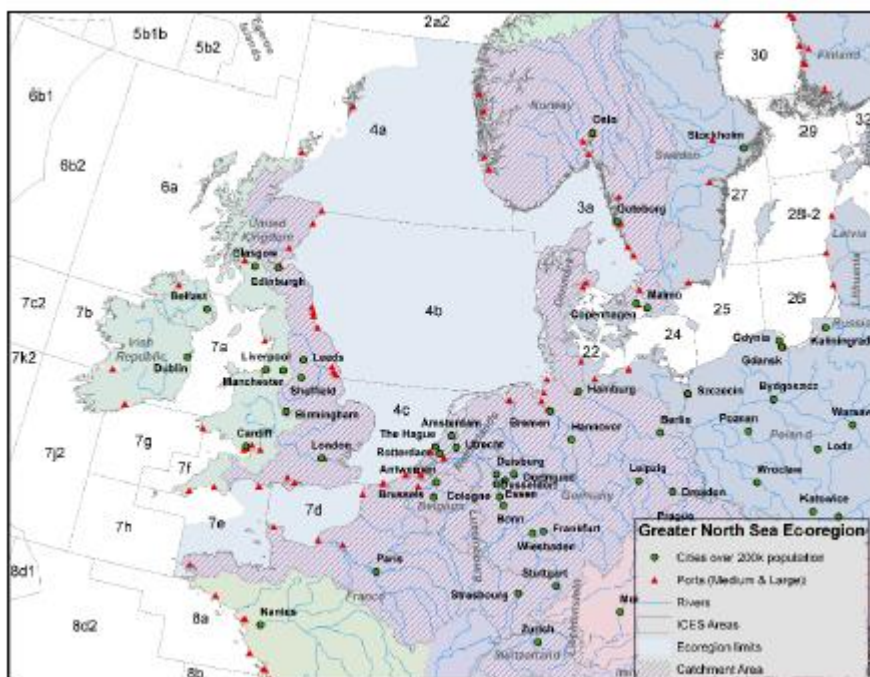

Figure 1: Greater North Sea Ecoregion, including the assessment area **R1**

The stock assessment is a length and age-based analytical assessment (Stock Synthesis 3; NOAA Toolbox). Input data for the assessment was derived from commercial catches: international catches, length and age data from catch sampling and three survey indices: Triennial egg survey index (1992–2016); IBTS recruitment index and the PELACUS acoustic survey.

Length frequency distributions were derived from the PELACUS survey. Natural mortality was assumed to be 0.15. Partial (prior to 2014) and full (since 2014) discard volumes are included in the assessment. Overall discarding is considered negligible. The stock was benchmarked in 2017 (ICES, 2017) and reference points updated in 2019 (ICES 2019a).

C1.2
After a series of low recruitments, estimates since 2014 are above average (1983–2018). SSB has been declining since 2006 and has been around Blim since 2015: (**Figure 2**):
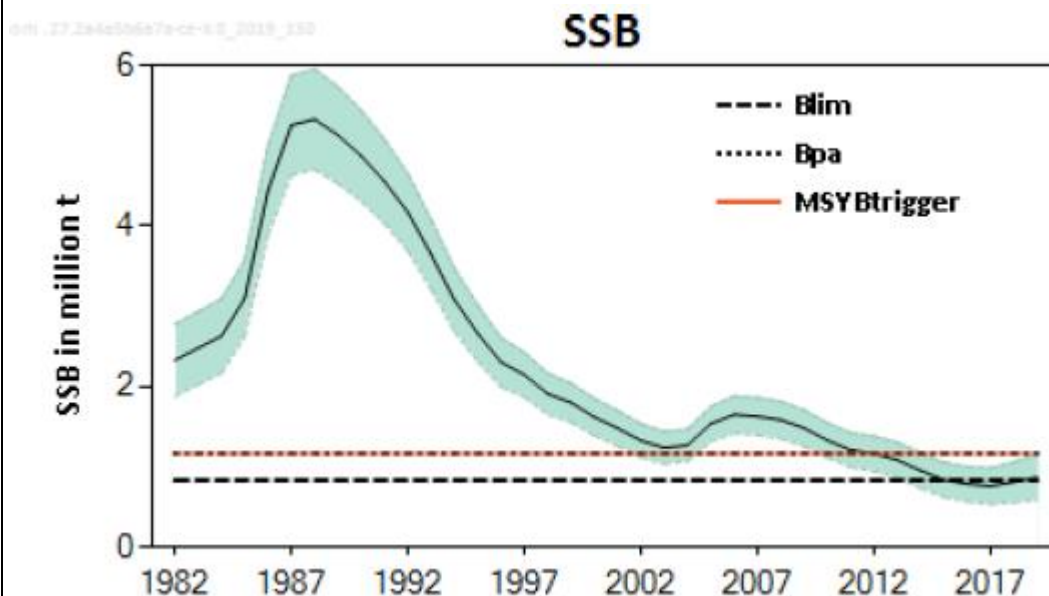

Figure 2: Horse mackerel: Subarea 8; divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k. Summary of the stock assessment. Plots show 95% confidence intervals (shaded area). **R2**

Fishing mortality remains above FMSY. ICES assess that spawning stock size (SSB_{2020} 950,867t) is below MSY Btrigger (1,168, 272t), between Bpa (1,168, 272t) and Blim (834,480t).

The stock is just above its historical low; this year's advice is for a decrease in catches compared to last year. The main reasons for this advice are the downward revision of biomass estimates and the update of reference points in the recent inter-benchmark (ICES, 2019a). Given recent above-average recruitments, the stock is predicted to increase in 2020.

Reference points were revised in August 2019 (ICES, 2019a), from 911 587 to 1 168 272 tonnes for MSY Btrigger and 0.108 to 0.074 for FMSY. Biomass reference points were derived from the lowest biomass estimate (SSB in 2003) from the stable period where there was no indication of reduced recruitment.

References
R1 MAP Greater North Sea Ecoregion: ICES Ecosystem Overviews (37pp Dec 2019): http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/EcosystemOverview_GreaterNorthSea_2019.pdf

R2 ICES Advice 2019 Horse mackerel (*Trachurus trachurus*) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k (the Northeast Atlantic): http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/hom.27.2a4a5b6a7a-ce-k8.pdf

R3 ICES. 2017. Report of the Benchmark Workshop on Widely Distributed Stocks (WKWIDE), 30 January–3 February 2017, ICES HQ, Copenhagen, Denmark. ICES CM 2017/ACOM:36. 196 pp.

R4 ICES 2019a: Report of the Inter-Benchmark Protocol on reference points for Western horse mackerel (Trachurus trachurus) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k (the Northeast Atlantic) (IBPWHM). ICES Scientific Reports. In prep.

Standard clauses 1.3.2.2