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

Fishery Under Assessment	**Thornback ray *Raja clavata* ICES Divisions IV.a-c, VI.a, VII.a, b, d-h, j**
Date	June 2020
Report Code	2020-283
Assessor	**Virginia Polonio**
Stock Pass	**PASS**
Stock Fail	

Application details and summary of the assessment outcome				
Name: Pelagia Killybegs, Grimsby, Aberdeen				
Address:				
Country: UK & Ireland		**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**
Virginia Polonio	Geraldine Criquet	0.5	Re-approval	By-product
Assessment Period	To June 2020			

Scope Details	
Management Authority (Country/State)	EU, Common Fisheries Policy (CFP)
Main Species	Thornback ray *Raja clavata*
Fishery Location	ICES divisions IV.a-c, VI.a, VII.a, b, d-h, j
Gear Type(s)	Bottom trawl and purse seine
Outcome of Assessment	
Peer Review Evaluation	Agree with determination
Recommendation	**APPROVED**

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. *Raja Clavata* does not appear as Endangered or Critically Endangered on IUCN's Red List, nor does it appear in CITES appendices; therefore, product originating from this fishery is eligible for approval for use as IFFO RS by-product raw material.

For assessment and management purposes, Thornback ray are managed within European waters under the Common Fisheries Policy (CFP) and scientific advice on their management provided by ICES. According to genetic studies available there is a low level of genetic differentiation between Thornback ray populations, across the Atlantic area, including Irish and Celtic Seas

Skates and rays, including thornback ray, are managed under a single TAC (by area) for all species (EC, Council Regulation 2019/124).

Scientific advice on Thornback ray is provided by ICES for the following ICES areas:

- Subarea IV and Divisions IIIa, VII.d (North Sea, Skagerrak, Kattegat and Eastern English Channel)
- Subarea VI (West of Scotland)
- Division VIII (Bay of Biscay)
- Divisions VII.a, f-g (Irish Sea, Bristol Channel and Celtic Sea north)

The species is not subject to a species-specific research the comparative lack of scientific information on the status of the population in the assessment area means that a risk-assessment style approach must be taken. No quantitative stock assessment is currently available for any of ray stocks in the FAO 27 fishing area. Therefore, the fishery was assessed using the risk-based Productivity, Susceptibility Analysis (PSA) as per IFFO-RS v 2.0 procedures for Category D species. The species has passed this risk-based assessment (Table D3).

In order to be approved, stock assessed must pass table D4 as the results of the PSA indicate that; therefore, as this is the case here four D4 table has been completed for Divisions VII.a, f-g.

The stock have shown that there are management measures in place to consider the potential impacts on the species and so the fishery achieves a **PASS** in clause D4.1

Further, the stock assessed have presented that there is no substantial evidence that the fishery has a significant negative impact on the species and so the fishery achieves a **PASS** in clause D4.2

Therefore, thornback ray (*R.clavata*) fishery in the FAO major fishing area 27, Divisions VII.a, f-g, by-product covered by this report, is **APPROVED** for the production of fishmeal and fish oil under the current IFFO RS v 2.0 by-product standard.

Peer Review Comments

Agree with determination

Notes for On-site Auditor

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C				
Category D	Thornback ray, *Raja clavata*	Unk.	PASS	

[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	Management	Category
Thornback ray	*Raja clavata*	Div. VIII	No species-specific management regime in place (There is no specific TAC for this stock. Fishing opportunities are managed through an overall TAC by management unit, which includes all species of skates and rays)	D

CATEGORY D SPECIES

In a whole fish assessment, Category D species are those which make up less than 5% of landings and 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. In a by-product assessment, Category D species are those which are not

subject to a species-specific management regime. In both cases, 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.

The process for assessing Category D species involves the use of a Productivity-Susceptibility Analysis (PSA) to further subdivide the species into 'Critical Risk', 'Major Risk' and 'Minor Risk' groups. If there are no Category D species in the fishery under assessment, this section can be deleted.

Productivity and susceptibility ratings are calculated using a process derived from the APFIC document "Regional Guidelines for the Management of Tropical Trawl Fisheries, which in turn was derived from papers by Patrick *et al* (2009) and Hobday *et al* (2007). Table D1 should be completed for each Category D species as follows:

- Firstly, the best available information should be used to fill in values for each productivity and susceptibility attribute.
- Table D2 should be used to convert each attribute value into a score between 1 and 3.
- The average score for productivity attributes and the average for susceptibility attributes should be calculated.
- Table D3 should be used to determine whether the species is required to meet the requirements of Table D4. A species which does not need to meet the requirements of D4 is automatically awarded a pass.
- Table D4 should be used to assess those species indicated by Table D3 to determine a pass/fail rating.
- Any Category D species which has been categorised by the IUCN Red List as Endangered or Critically Endangered, or which appears in the CITES appendices, automatically results in a fail.

D1	**Species Name:**	**Thornback ray *Raja clavata***	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	6.5	3
	Average maximum age (years)	10	2
	Fecundity (eggs/spawning)	170 max usually 48-74eggs	3
	Average maximum size (cm)	105	2
	Average size at maturity (cm)	76.6 (TL)	2
	Reproductive strategy	Paired eggs are laid and deposited on shallow sand, mud, pebble or gravel bottoms	2
	Mean trophic level	3.8	3
		Average Productivity Score	**2.43**
	Susceptibility Attribute	**Value**	**Score**
	Overlap of adult species range with fishery	>50% of stock occurs in area fished	3
	Distribution	Not scored if overlap attribute scored	
	Habitat	demersal	3
	Depth range	5-1020m	3
	Selectivity	Up to 4m in length	3
	Post-capture mortality	Most dead or retained	3
		Average Susceptibility Score	**3**
		PSA Risk Rating (From Table D3)	**D4**
		Compliance rating	
References **Overlap attribute**:			

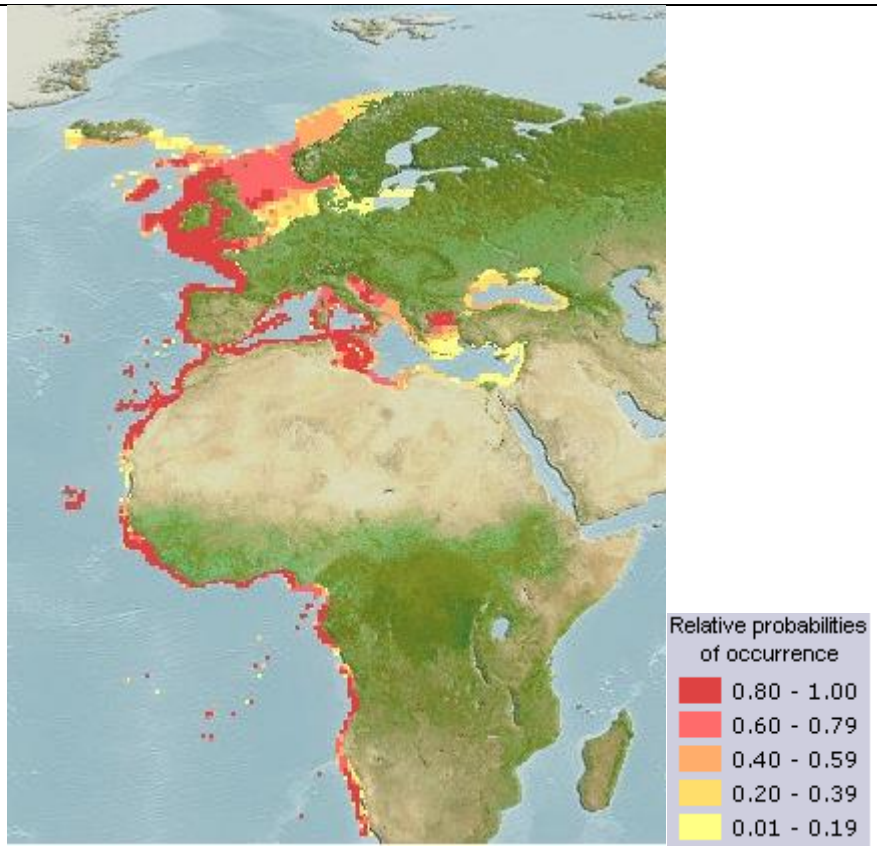

Figure 1. Computer Generated Native Distribution Map for *Raja clavata* (Thornback ray), with modelled year 2050 native range map based on IPCC RCP8.5 emissions scenario.

Other attributes:

R1 Fishbase Thornback Ray: https://www.fishbase.se/summary/2059

R2 Fishsource Thornback Ray https://www.fishsource.org/stock_page/1997

Standard clauses 1.3.2.2

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	Low productivity/ High risk	Medium productivity/ Medium risk	High productivity/ Low risk
	Score 3	Score 2	Score 1
Average age at maturity (years)	>4	2 to 4	<2
Average maximum age (years)	>30	10 to 30	<10
Fecundity (eggs/spawning)	<1 000	1 000 to 10 000	>10 000
Average maximum size (cm)	>150	60 to 150	<60
Average size at maturity (cm)	>150	30 to 150	<30
Reproductive strategy	Live bearer, mouth brooder or significant parental investment	Demersal spawner "berried"	Broadcast spawner
Mean trophic level	>3.25	2.5–3.25	<2.5

Susceptibility attributes		High susceptibility/ High risk	Medium susceptibility/ Medium risk	Low susceptibility/ Low risk
		Score 3	Score 2	Score 1
Availability	1) Overlap of adult species range with fishery	>50% of stock occurs in the area fished	Between 25% and 50% of the stock occurs in the area fished	<25% of stock occurs in the area fished
	2) Distribution	Only in the country/ fishery	Limited range in the region	Throughout region/ global distribution
Encounterability	1) Habitat	Habitat preference of species make it highly likely to encounter trawl gear (e.g. demersal, muddy/sandy bottom)	Habitat preference of species make it moderately likely to encounter trawl gear (e.g. rocky bottom/reefs)	Depth or distribution of species make it unlikely to encounter trawl gear (e.g. epi-pelagic or meso-pelagic)
	2) Depth range	High overlap with trawl fishing gear (20 to 60 m depth)	Medium overlap with trawl fishing gear (10 to 20 m depth)	Low overlap with trawl fishing gear (0 to 10 m, >70 m depth)
Selectivity		Species >2 times mesh size or up to 4 m length	Species 1 to 2 times mesh size or 4 to 5 m length	Species <mesh size or >5 m length
Post capture mortality		Most dead or retained Trawl tow >3 hours	Alive after net hauled Trawl tow 0.5 to 3 hours	Released alive Trawl tow <0.5 hours

Note: Availability 2 is only used when there is no information for Availability 1; the most conservative score between Encounterability 1 and 2 is used.

D3		Average Susceptibility Score		
		1.00 – 1.75	1.76 – 2.24	2.25 – 3.00
Average Productivity Score	1.00 – 1.75	PASS	PASS	PASS
	1.76 – 2.24	PASS	PASS	TABLE D4
	2.25 – 3.00	PASS	TABLE D4	TABLE D4

D4	Species Name	Thornback ray (*Raja clavata*) in divisions 7.a, 7.f–g (Irish Sea, Bristol Channel, Celtic Sea North)	
	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.	Pass
	D4.2	There is no substantial evidence that the fishery has a significant negative impact on the species.	Pass
		Outcome:	**Pass**

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.

For this stock, ICES cannot assess the stock and exploitation status relative to the maximum sustainable yield (MSY) and precautionary approach (PA) reference points because the reference points are undefined therefore the precautionary buffer is in place. ICES advises that when the precautionary approach is applied, landings should be no more than 1663 tonnes in each of the years 2019 and 2020.

The French EVHOE survey indicated fluctuating catch rates at low levels in the Celtic Sea. Nevertheless, it should also be noted that this survey tends to sample offshore grounds, whereas *R. clavata* is a more inshore species. The UK (England and Wales) beam trawl survey in divisions 7.a and 7.f catches reasonable numbers of *R. clavata* and they are observed regularly, although the gear used (4 m beam trawl with chain mat) may have a lower catchability for larger individuals. The survey shows a continuous increasing trend in biomass.

Having said that, there are management measures in place to consider the potential impacts on the species and so the fishery achieves a **PASS** in clause D4.1

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

For this stock, the biomass index is estimated to have increased by 101% between 2011–2015 (Index B) and 2016–2017 (Index A). The precautionary buffer was never applied for this stock. As there has been an increase in the biomass index of more than 50% in recent years, the precautionary buffer was not applied in 2018, that it is an indication that the fishery has no significant impact on the stock. (Figure 2).

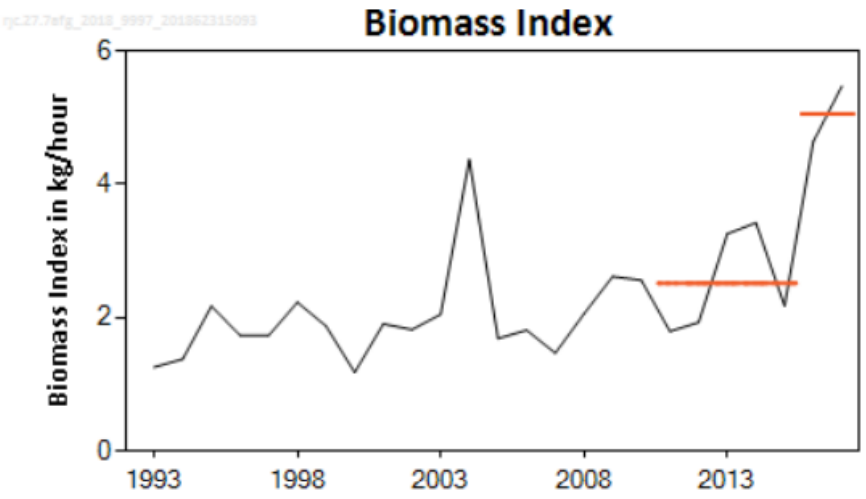

Figure 2. UK (E&W)–BTS–Q3 survey index (kg hr−1, individuals of ≥50 cm total length). The dotted horizontal lines show the mean stock indicators for 2016– 2017 and 2011–2015. (Source: ICES 2018)

Therefore, there is no substantial evidence that the fishery has a significant negative impact on the species and so the fishery achieves a **PASS** in clause D4.2

References

ICES. 2019. Working Group on Elasmobranch Fishes (WGEF). ICES Scientific Reports. 1:25. http://doi.org/10.17895/ices.pub.5594

ICES Advice on fishing opportunities, catch, and effort Celtic Seas Ecoregion Published 5 October 2018 rjc.27.7afg. http://ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/rjc.27.7afg.pdf

Standard clause 1.3.2.2