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

RESPONSIBLE SUPPLY
IFFO RS ASSURED

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

Fishery Under Assessment	Pollack *Pollachius pollachius* ICES divisions 4.a-c, 6.a, 7.a, b, d-h, j
Date	**February 2018**
Assessor	**Conor Donnelly**

Application details and summary of the assessment outcome				
Name: Pelagia UK & Ireland				
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		
Assessor Name	Peer Reviewer	Assessment Days	Initial/Surveillance/Re-approval	Whole fish/ By-product
Conor Donnelly	Sam Dignan	1	Surveillance 1	By-product
Assessment Period	2017-2018			

Scope Details	
Management Authority (Country/State)	EU, Common Fisheries Policy (CFP)
Main Species	Pollack *pollachius pollachius*
Fishery Location	ICES divisions 4.a-c, 6.a, 7.a, b, d-h, j
Gear Type(s)	All
Outcome of Assessment	
Overall Outcome	Pass
Clauses Failed	None
Peer Review Evaluation	Approve
Recommendation	Approve

Assessment Determination
Pollack within ICES divisions 4.a-c, 6.a, 7.a, b, d-h, j fall within the remit of the EU Common Fisheries Policy (CFP). Management includes several species-specific TACs (including for pollack in subareas 6, 12, 14 and division 5.b; and subarea 7 under EU Council Regulation 2018/120). ICES produce catch advice for the stock in subarea 4 and division 3.a (ICES, 2016) but due to a lack of information do not undertake a stock assessment and no reference points are defined. They also produce advice for the stock in subarea 7 (ICES, 2017) for which they do undertake an assessment but this is data limited and the assessment based on commercial landings data only (Depletion-Corrected Average Catch). No reference points are defined. In the absence of key elements of a species specific management regime these stocks have been assessed using Productivity Susceptibility Analysis (PSA) under Clause D. The stock was classed as vulnerable by the PSA but passed upon further analysis in clause D4.

Pollack is listed of least concern on IUCN Red List of Threatened Species and is not listed by CITES (http://www.iucnredlist.org/details/18125103/0; accessed 24 April 2018).

Pollack passed Clause D with a medium compliance rating and is recommended for continued approval as a by-product material under the IFFO RS Standard.

References:
ICES, 2016. ICES Advice on fishing opportunities, catch, and effort Greater North Sea and Celtic Seas Ecoregions Pollack (*Pollachius pollachius*) in Subarea 4 (North Sea) and Division 3.a (North Sea, Skagerrak and Kattegat). Published 30 June 2016.
http://ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/pol-nsea.pdf

ICES, 2017a. ICES Advice on fishing opportunities, catch, and effort Celtic Seas, Greater North Sea, and Oceanic Northeast Atlantic ecoregions Pollack (*Pollachius pollachius*) in subareas 6–7 (Celtic Seas and the English Channel). Published 30 June 2017.
http://ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/pol.27.67.pdf |

Peer Review Comments
The Peer Reviewer agrees with Assessor's recommendation that approval be granted.

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	Pollack *Pollachius pollachius*		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	% of landings	Management	Category
Pollack	*Pollachius pollachius*	Subareas 6-7, Subarea 4 and division 3.a		No species-specific management regime	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:	Pollack *Pollachius pollachius*	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	2.7	2
	Average maximum age (years)	11.5	2
	Fecundity (eggs/spawning)	26,000-600,000	1
	Average maximum size (cm)	130	2
	Average size at maturity (cm)	41.0	2
	Reproductive strategy	Open water / substratum egg scatterers	1
	Mean trophic level	4.3	3
		Average Productivity Score	**1.86**
	Susceptibility Attribute	**Value**	**Score**
	Overlap of adult species range with fishery	>50% of the stock occurs in area fished	3
	Distribution	Not scored if overlap scored	
	Habitat	Benthopelagic in hard bottom / rocky areas	2
	Depth range	40-200m, usually 40-100m	3
	Selectivity	Up to 4m length	3
	Post-capture mortality	Retained	3
		Average Susceptibility Score	**3**
		PSA Risk Rating (From Table D3)	**D4**
		Compliance rating	**Medium**

References

Fecundity

Suquet, M., Normant, Y., Gaignon, J.L., Quemener L. and Fauvel, C. (2005). Effect of water temperature on individual reproductive activity of pollack (*Pollachius pollachius*). Aquaculture; 243 (1-4): 113-120.
http://archimer.ifremer.fr/doc/2005/publication-470.pdf

Overlap
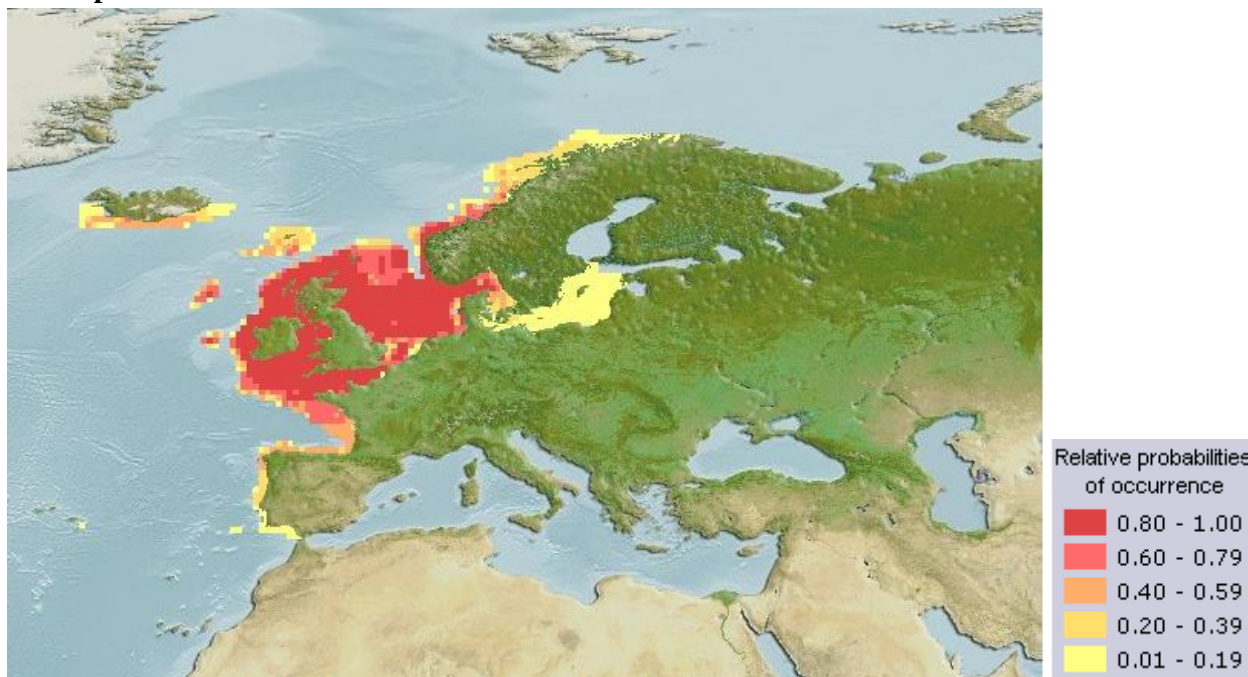
Reviewed distribution maps for *Pollachius pollachius* (Pollack), with modelled year 2100 native range map based on IPCC A2 emissions scenario. www.aquamaps.org, version of Aug. 2016. Web. Accessed 24 Apr. 2018.

All other attributes

http://www.fishbase.org/summary/34

Compliance

Medium compliance reflects current stable status of commercial landings from both stocks, although noting significant uncertainties given both are data limited stocks. Also catches have been higher than scientific advice for the subarea 4 stock in the most recent for which data is available (ICES, 2016). In subarea 6-7 total commercial catch has been less than or approximately equivalent to the advice in the two most recent years in the time series; 2015 and 2016 but recreational catches are not included and ICES consider they could be a large component of the total catch (ICES, 2017)

ICES, 2017. ICES Advice on fishing opportunities, catch, and effort Celtic Seas, Greater North Sea, and Oceanic Northeast Atlantic ecoregions Pollack (*Pollachius pollachius*) in subareas 6–7 (Celtic Seas and the English Channel). Published 30 June 2017.
http://ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/pol.27.67.pdf

ICES, 2016. ICES Advice on fishing opportunities, catch, and effort Greater North Sea and Celtic Seas Ecoregions Pollack (*Pollachius pollachius*) in Subarea 4 (North Sea) and Division 3.a (North Sea, Skagerrak and Kattegat). Published 30 June 2016.
http://ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/pol-nsea.pdf

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	Low productivity/ High risk — Score 3	Medium productivity/ Medium risk — Score 2	High productivity/ Low risk — 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 — Score 3	Medium susceptibility/ Medium risk — Score 2	Low susceptibility/ Low risk — 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		Pollack *Pollachius pollachius*	
	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

Management includes several species-specific TACs (including for pollack in subareas 6, 12, 14 and division 5.b; and subarea 7 under EU Council Regulation 2018/120). ICES produce catch advice for the stock in subarea 4 and division 3.a (ICES, 2016) although, due to a lack of information, are not able to undertake a stock assessment and no reference points are defined. They also produce advice for the stock in subarea 7 (ICES, 2017) for which they do undertake an assessment but this is data limited and the assessment based on commercial landings data only (Depletion-Corrected Average Catch). Management measures in place for Pollack include a closed fishing season on the Porcupine Bank between 1 and 31 May 2018 (EC Council Regulation 2018/120) and the Landings Obligation applies to fisheries in 7.d-e in 2018. Ireland's Marine Institute is currently engaged in a project to improve the assessment of pollack and gain more insight into biological aspects of the species (Marine Institute, 2017).

Commercial landings of both stocks are stable, although noting significant uncertainties since both are data limited stocks. Also catches have been higher than scientific advice for the subarea 4 stock in the most recent for which data is available (ICES, 2016). In subarea 6-7 total commercial catch has been less than or approximately equivalent to the advice in the two most recent years in the time series; 2015 and 2016, but recreational catches are not included and ICES consider they could be a large component of the total catch (ICES, 2017).

In conclusion the potential impacts of the fishery on pollack are considered during the management process and reasonable measures taken to minimise these impacts although further work could be undertaken to improve this. There is no substantial evidence that the fishery has a significant negative impact on the species.

References

References as in Assessment determination box.

Marine Institute, 2017. The Stock Book. Report to the Minister for Agriculture, Food and the Marine. Annual review of fish stocks in 2017 and management advice for 2018. November 2017. Marine Institute, Fisheries Ecosystems Advisory Services, Rinville, Oranmore, Co. Galway, Ireland.

Standard clause 1.3.2.2

SOCIAL CRITERION

In addition to the scored criteria listed above, applicants must commit to ensuring that vessels operating in the fishery adhere to internationally recognised guidance on human rights. They must also commit to ensuring there is no use of enforced or unpaid labour in the fleet(s) operating upon the resource.

Appendix A - Determining Resilience Ratings

The assessment of Category B species described in this assessment report template utilises a resilience rating system suggested by the American Fisheries Society. This approach was chosen because it is also used by FishBase, and so the resilience ratings for many thousands of species are freely available online. As described by FishBase, the following is the process used to arrive at the resilience ratings:

"*The American Fisheries Society (AFS) has suggested values for several biological parameters that allow classification of a fish population or species into categories of high, medium, low and very low resilience or productivity (Musick 1999). If no reliable estimate of r_m (see below) is available, the assignment is to the lowest category for which any of the available parameters fits. For each of these categories, AFS has suggested thresholds for decline over the longer of 10 years or three generations. If an observed decline measured in biomass or numbers of mature individuals exceeds the indicated threshold value, the population or species is considered vulnerable to extinction unless explicitly shown otherwise. If one sex strongly limits the reproductive capacity of the species or population, then only the decline in the limiting sex should be considered. We decided to restrict the automatic assignment of resilience categories in the Key Facts page to values of K, t_m and t_{max} and those records of fecundity estimates that referred to minimum number of eggs or pups per female per year, assuming that these were equivalent to average fecundity at first maturity (Musick 1999). Note that many small fishes may spawn several times per year (we exclude these for the time being) and large live bearers such as the coelacanth may have gestation periods of more than one year (we corrected fecundity estimates for those cases reported in the literature). Also, we excluded resilience estimates based on r_m (see below) as we are not yet confident with the reliability of the current method for estimating rm. If users have independent r_m or fecundity estimates, they can refer to Table 1 for using this information.*"

Parameter	High	Medium	Low	Very low
Threshold	0.99	0.95	0.85	0.70
r_{max} (1/year)	> 0.5	0.16 – 0.50	0.05 – 0.15	< 0.05
K (1/year)	> 0.3	0.16 – 0.30	0.05 – 0.15	< 0.05
Fecundity (1/year)	> 10,000	100 – 1000	10 – 100	< 10
t_m (years)	< 1	2 – 4	5 – 10	> 10
t_{max} (years)	1 - 3	4 – 10	11 – 30	> 30

Taken from the FishBase manual, "Estimation of Life-History Key Facts":
http://www.fishbase.us/manual/English/key%20facts.htm#resilience]

Appendix B – Background on the 5% catch rule

The proposed fishery assessment methodology uses a species categorisation approach to divide the catch in the assessment fishery into groups. These groups are:

- **Category A:** "Target" species with a species-specific management regime in place.
- **Category B:** "Target" species with no species-specific management regime in place.
- **Category C:** "Non-target" species with a species-specific management regime in place.
- **Category D:** "Non-target" species with no species-specific management regime in place

The distinction between 'target' and 'non-target' species is made to enable the assessment to consider the impact of the fishery on all the species caught regularly, without requiring a full assessment be conducted for each. Thus 'target' species are subjected to a more detailed assessment, while 'non-target' species are considered more briefly. For the purposes of the IFFO RS fishery assessment, 'target' and 'non-target' species are defined by their prevalence in the catch, by weight. Applicants must declare which species are considered 'target' species in the fishery, and the combined weight of these must be at least 95% of the annual catch. The remaining 5% can be made up of 'non-target' species. Note also that ETP species are considered separately, irrespective of their frequency of occurrence in the catch.

The proposed use of 5% as a limit for 'non-target' species is one area in which feedback is being sought via the public consultation. The decision to propose a value of 5% ensures consistency with other fishery assessment programmes, such as the MSC which uses 5% to distinguish between 'main' and 'minor' species (see MSC Standard, SA3.4 and GSA3.4.2); and Seafood Watch, which uses 5% when defining the 'main' species for the assessment (see Seafood Watch Standard, Criterion 2). The value is also consistent with the approached used in Version 1 of the IFFO RS Standard, in which up to 5% of the raw material could be comprised of 'unassessed' species.