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Global Standard for Responsible Supply of Marine Ingredients

Fishery Assessment Methodology and Template Report V2.0

Fishery Under Assessment	**Norwegian lobster *Nephrops norvegicus* ICES Subarea VI**
Date	**April 2019**
Assessor	**Jim Daly**

Application details and summary of the assessment outcome				
Name: Pelagia – Killybegs, Grimsby				
Address:				
Country: UK and Ireland		**Zip:**		
Tel. No.:		**Fax. No.:**		
Email address:		**Applicant Code**		
Key Contact: Geraldine Fox		**Title: Quality Manager**		
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	Vito Romito	0.5	Surveillance 1	By-product
Assessment Period	2018			

Scope Details	
Management Authority (Country/State)	EU
Main Species	Norway lobster *Nephrops norvegicus*
Fishery Location	Northeast Atlantic ICES Subarea VI
Gear Type(s)	Demersal Trawl, creel
Outcome of Assessment	
Overall Outcome	Pass
Clauses Failed	None
Peer Review Evaluation	Pass
Recommendation	Approve

Assessment Determination

Norway lobster in European waters are managed under the EU Common Fisheries Policy. Management includes setting of Total Allowable Catches, Minimum Conservation Reference Sizes (MCRS) and the Landing Obligation. Scientific catch advice is provided by ICES, who identify 34 Functional units (FU) for stock assessment purposes. The FU's considered in this by-product report are as follows:

- **Division VIa, Functional Unit 11 (West of Scotland, North Minch)**
- **Division VIa, Functional Unit 12 (West of Scotland, South Minch)**
- **Division VIa, Functional Unit 13 (West of Scotland, the Firth of Clyde, and the Sound of Jura)**

Norway lobster is subject to a species-specific management regime and is assessed under Clause C. Fishery removals of the stocks in FUs 11-13 are included in the stock assessment process and the stocks are considered, in their most recent assessment, to have a biomass above the limit reference point and so pass clause C.

From 2016 the EU landing obligation was applied to all catches of Norway lobster fisheries in ICES Subarea VI with several exemptions. Observations from the 2016‑2017 fishery indicate that some discarding above the minimum conservation reference size (MCRS) continues and has not changed markedly. Consequently, ICES is providing advice for 2019, assuming average discard rates as observed over the last three years, which is considered to be a more realistic assumption.

A single TAC covers the entire ICES Subarea VI (**Figure 1**). Management should be implemented at the functional unit level to ensure that fishing opportunities are in line with the scale of the resource for each of the stocks and corresponding MSY approach. Two subareas in FU 13 imply that additional controls should be implemented to ensure landings taken in each Subarea are in line with advice.

The European Commission (2018) has proposed a multiannual management plan (MAP) for all important demersal stocks in Western Waters (including Norway lobster) which is not yet finalized. The introduction of this new approach would allow achievement of conservation objectives while, at the same time, permitting elimination of fishing effort limitations meaning that numerous reporting and control obligations would not be required. This will result in a significant reduction of the administrative burden.

Norway lobster is classed as of least concern on the IUCN Red List of Threatened Species and is not listed on CITES appendices (accessed 02.04.19).

Norway lobster in Subarea VI is recommended for approval under the IFFO-RS Standard for the production of fishmeal and fish oil under the IFFO-RS v 2.0 by-products standard.

Peer Review Comments

Norway lobster in European waters are managed under the EU Common Fisheries Policy. Scientific catch advice is provided by ICES, who identify 34 Functional units (FU), three of which are relevant and considered in this assessment.

MSY Btrigger and Fmsy reference points are defined for the FU11 stock. The historical harvest rate has fluctuated and is now just below FMSY. The stock has been above MSY Btrigger since 1998.

The historical harvest rate for FU12 has increased since 2014 but remains below Fmsy. The stock abundance has generally fluctuated above or around MSY Btrigger throughout the time series which dates back to 1995.

The combined harvest rate for FU13 is considered to be more representative for the Firth of Clyde than for the Sound of Jura; it has fluctuated around the Fmsy for the Firth of Clyde. The abundance has been fluctuating above the MSY Btrigger in both the Firth of Clyde and the Sound of Jura since 1995.

Fishery removals of the stocks in FUs 11-13 are included in the stock assessment process and the stocks are considered, in their most recent assessment, to have a biomass above the limit reference point and so pass clause C.

The Peer Reviewer agrees that Norway lobster in Subarea VI should be recommended for approval under the IFFO-RS Standard for the production of fishmeal and fish oil under the IFFO-RS v 2.0 by-products standard.

Notes for On-site Auditor

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C	Norwegian lobster *Nephrops norvegicus*	N/A	Pass (FUs 11-13)	
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
Norway lobster	*Nephrops norvegicus*	FUs 11-13	N/A	EU, CFP	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		**Norwegian lobster *Nephrops norvegicus***	
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**

Evidence:

There is significant disparity between management areas (TACs) and assessment units. The assessment units considered in this by-product report are as follows (**Figure 1**):

- **Division VIa, Functional Unit 11 (West of Scotland, North Minch)**
- **Division VIa, Functional Unit 12 (West of Scotland, South Minch)**
- **Division VIa, Functional Unit 13 (West of Scotland, the Firth of Clyde, and the Sound of Jura)**

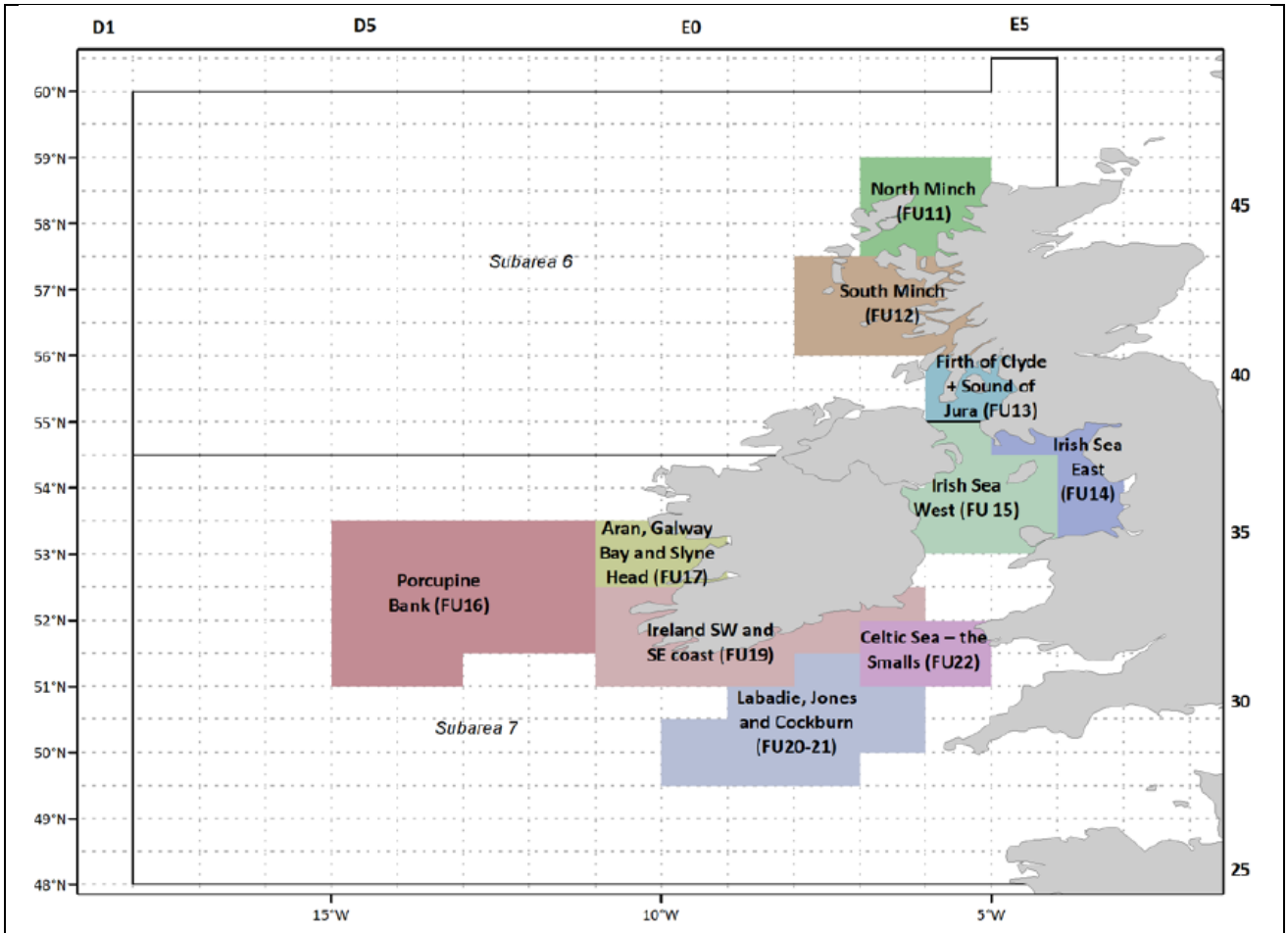

Figure 1. Norway lobster functional units Subareas VI and VII **R1**

Division VIa, Functional Unit 11 (West of Scotland, North Minch)

ICES defined as a Category 1 stock for which analytical assessment is possible. Assessment is an underwater TV survey (number of burrows). Input data comprise one survey index (UWTV-FU11); commercial catches (international landings, length frequencies from Scottish catch sampling); fixed maturity parameters from survey data; fixed natural mortalities and discard survival rate data.

MSY Btrigger and Fmsy reference points are defined for this stock. The historical harvest rate has fluctuated and is now just below FMSY. The stock has been above MSY Btrigger since 1998 (ICES 2018) (**Figure 1**):

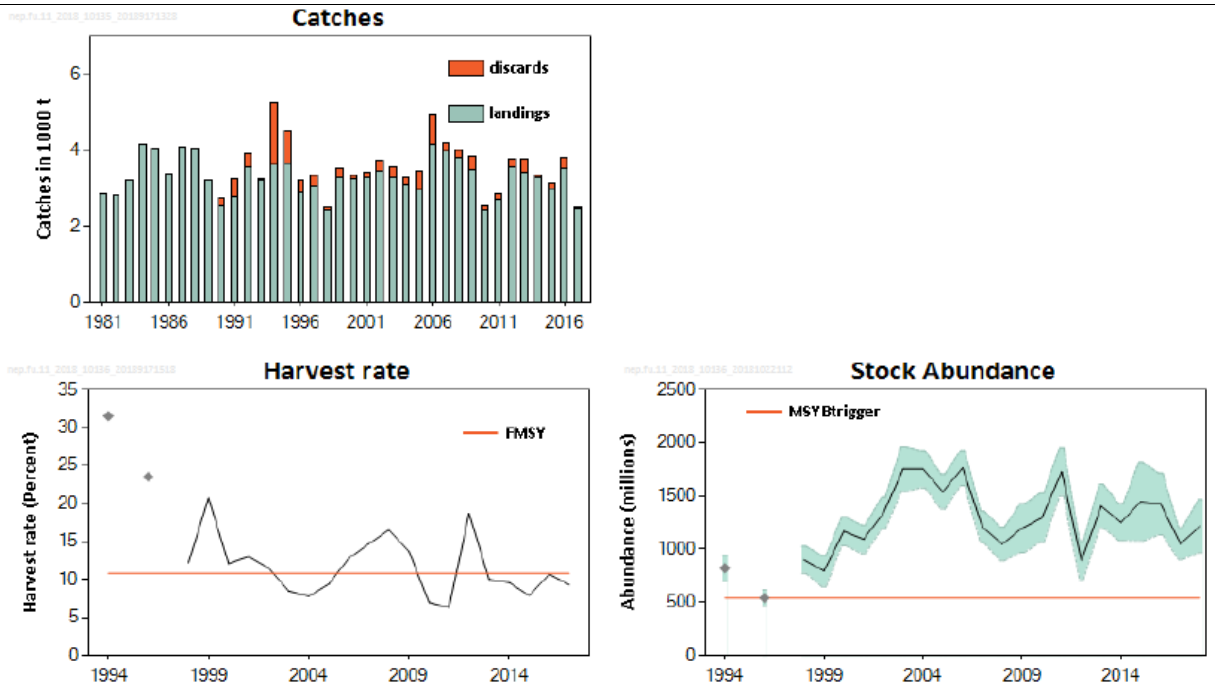

Figure 2: Norway lobster in Division 6.a, Functional Unit 11. Summary of the stock assessment. Catches (discard data only available from 1990), harvest rate (sum of landings and dead discards in numbers, divided by total abundance), survey abundance (Underwater TV, millions; SSB proxy; approximate 95% confidence intervals). Harvest rates before 2006 may be unreliable due to underreporting of landings. Orange lines represent MSY Btrigger and the FMSY harvest rate proxy. **R1**

The UWTV survey for FU 11 does not cover *Nephrops* grounds in the inshore waters and sea lochs, waters that are typically fished by smaller vessels. The total area of these grounds is estimated to be less than 5% of the total stock areas and therefore the exclusion of these inshore areas from the survey is not considered to impact the quality of the assessment.

The European Commission has proposed a multiannual management plan (MAP) for all important demersal stocks in Western Waters (including Norway lobster) which is not yet finalized. It is proposed (EU 2018) to replace five existing single-species based MAP adopted by separate regulations by bringing all MAPs into one Regulation. The introduction of this new approach would allow achievement of conservation objectives while, at the same time, permitting elimination of fishing effort limitations meaning that numerous reporting and control obligations would not be required. This will result in a significant reduction of the administrative burden.

Fishery removals of this stock are included in the stock assessment process and the stock is considered, in its most recent assessment, to have a biomass above the limit reference point. FU11 passes clause C.

Division VIa, Functional Unit 12 (West of Scotland, South Minch):
One survey index (UWTV-FU12) has been undertaken (Category 1 stock has been defined). Data input in support of this assessment includes commercial catches (international landings, length frequencies from Scottish catch sampling); fixed maturity parameters (from survey data) and natural mortality indices. MSY Btrigger and Fmsy reference points are defined.

The historical harvest rate has increased since 2014 but remains below Fmsy. The stock abundance has generally fluctuated above or around MSY Btrigger throughout the time series which dates back to 1995 (**Figure 3**):

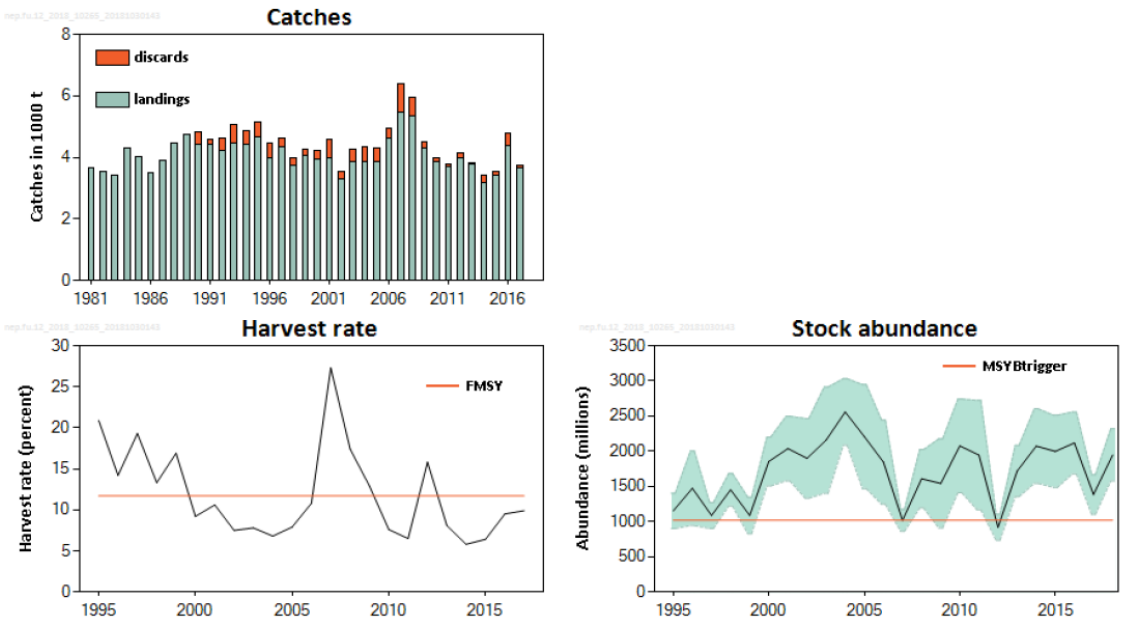

Figure 3 Norway lobster in Division VIa, Functional Unit 12. Summary of the stock assessment. Catches (discard data only available from 1990), harvest rate (sum of landings and dead discards in numbers, divided by total abundance), survey abundance (Underwater TV, millions; SSB proxy; 95% confidence intervals). Harvest rates before 2006 may be unreliable because of underreporting of landings. Orange lines represent MSY Btrigger and the FMSY harvest rate **R1**

ICES assesses that fishing pressure on the stock is below FMSY; and spawning stock size is above MSY Btrigger (**Figure 3**). Some patches of muddy sediment supporting *Nephrops* populations in the inshore areas and sea lochs of FU 12 are not routinely surveyed and not included in the estimate of abundance. The current estimate of abundance is therefore likely to be a slight underestimate of actual abundance.

Fishery removals of this stock are included in the stock assessment process and the stock is considered, in its most recent assessment, to have a biomass above the limit reference point. FU12 passes clause C.

Division VIa, Functional Unit 13 (West of Scotland, the Firth of Clyde, and the Sound of Jura):
Annual UWTV surveys are carried out for both subareas. The time-series for the Firth of Clyde has been continuous since 1995 and for the Sound of Jura since 2009. The surveys have good coverage of the muddy sediment in each area and provide abundance estimates of each subarea with acceptable precision. MSY Btrigger and Fmsy reference points are defined. The catches and harvest rate presented in the ICES advice are for the whole functional unit (Firth of Clyde and Sound of Jura combined), owing to the uncertainties in the data by subarea:

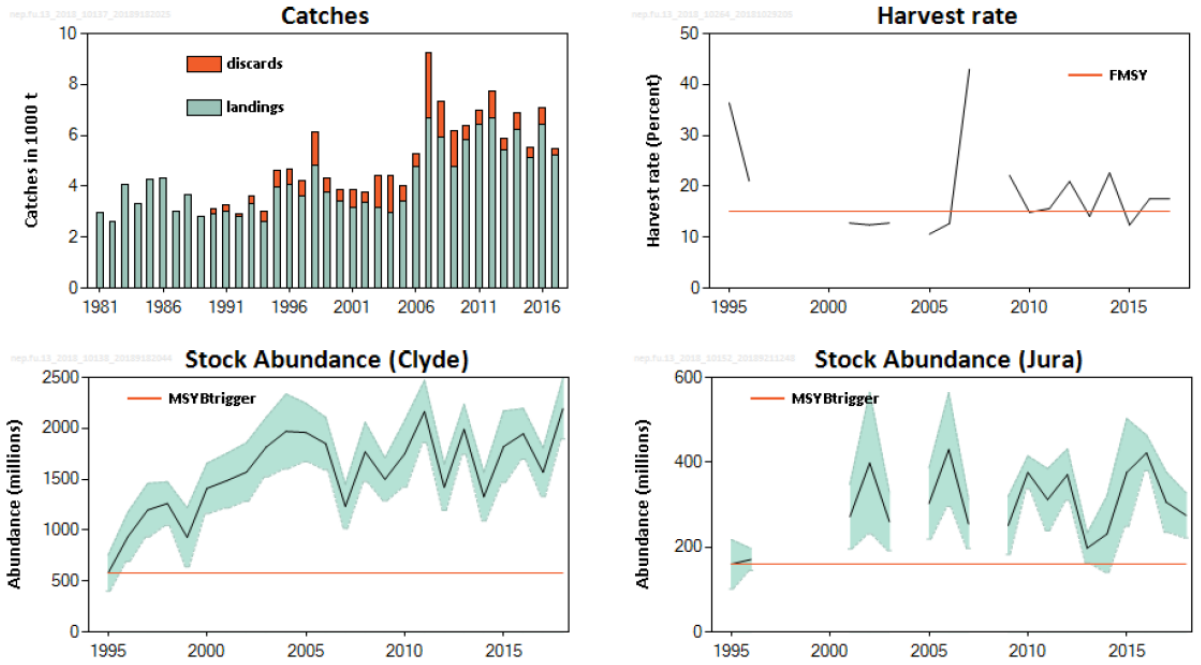

Figure 4 Norway lobster in Division 6.a, Functional Unit 13. Summary of the stock assessment. Catches (discard are data only available from 1990), harvest rate (sum of landings and dead discards in numbers, divided by total abundance), survey abundance (Underwater TV, millions; SSB proxy; 95% confidence intervals). Harvest rates before 2006 may be unreliable because of underreporting of landings. Historical harvest rates were calculated using the total catch divided by the total abundance for the two subareas combined. The orange lines represent the MSY Btrigger and the FMSY harvest rate proxy for the Firth of Clyde. The abundance is presented separately for the Firth of Clyde and for the Sound of Jura. **R1**

The combined harvest rate is considered to be more representative for the Firth of Clyde than for the Sound of Jura; it has fluctuated around the Fmsy for the Firth of Clyde. The abundance has been fluctuating above the MSY Btrigger in both the Firth of Clyde and the Sound of Jura since 1995.

ICES assesses that fishing pressure on the stock is above FMSY, while spawning stock size is above MSY Btrigger. **Fishery removals of this stock are included in the stock assessment process and the stock is considered, in its most recent assessment, to have a biomass above the limit reference point. FU13 passes clause C.**

References :

R1 ICES Advice :

- Division VIa, Functional Unit 11 (West of Scotland, North Minch) http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/nep.fu.11.pdf
- Division VIa, Functional Unit 12 (West of Scotland, South Minch) http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/nep.fu.12.pdf
- Division VIa, Functional Unit 13 (West of Scotland, the Firth of Clyde, and the Sound of Jura) http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/nep.fu.13.pdf

R2 EU 2016: Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on establishing a multi-annual plan for demersal stocks in the North Sea and the fisheries exploiting those stocks and repealing Council Regulation (EC) 676/2007 and Council Regulation (EC)

1342/2008. COM(2016) 493 final. 23 pp. https://eur-lex.europa.eu/resource.html?uri=cellar:9aa2aaae-5956-11e6-89bd-01aa75ed71a1.0008.02/DOC_1&format=PDF.

R3 Nephrops IUCN Redlist: https://www.iucnredlist.org/search?taxonomies=107878&searchType=species

R4 ICES. 2012. ICES Implementation of Advice for Data-limited Stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM 68. 42 pp.

Standard clauses 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.