Irish squid trawl fishery

Pre-Assessment Report

Company	FishFix
Fishery client	Marine Stewardship Council
Assessment Type	Pre-assessment
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1 Contents

2 Glossary

AIS	Automatic Identification System
CA	Consequence Analysis
CFP	Common Fisheries Policy
EC	European Commission
EFCA	European Fisheries Control Agency
EMFF	European Maritime and Fisheries Fund
ETP	Endangered, Threatened or Protected species
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
HCR	Harvest Control Rules
ICES	International Council for the Exploration of the Sea
IUU	Illegal, Unreported and Unregulated fishing
MCS	Monitoring, Control and Surveillance
MPA	Marine Protected Areas
MS	EU Member States
MSC	Marine Stewardship Council
NGO	Non-Governmental Organisation
OEL	Onboard Electronic Logbook
PI	Performance Indicator
PO	Producer Organisation
PRI	Point Recruitment is Impaired
PSA	Productivity Susceptibility Analysis
RBF	Risk Based Framework
SI	Scoring Issue
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
UoA	Unit of Assessment
UoC	Unit of Certification
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreement
WWF	World Wide Fund for Nature
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring System

3 Executive summary

The Irish squid trawl fishery pre-assessment was carried out through the Cephs and Chefs (www.cephsandchefs.com/) project funded through the Interreg Atlantic Area Program by the European Regional Development Fund, which aims to develop new markets and products based on cephalopods (squid, octopus, cuttlefish), increase the profitability of the value chain, and help to make fishers more competitive in the Atlantic Area. The pre-assessment was carried out with MSC Fisheries Standard 2.01, with Lisa Borges as expert for P1 and P3 and team leader, and Lucia Revenga as expert for P2. A site visit was conducted in Galway, Oranmore, Castletown port and Dublin, to carry out interviews of the main stakeholders in this fishery, namely industry associations, scientists, environmental NGOs and government authorities.

The main strengths of the Irish squid trawl fishery is the small area where the trawling takes place, so impacts on the seafloor are concentrated. However, the fishery targets a squid stock, considered at ICES division 6b, that available information points to a decreasing population.

The fishery has automatically failed 12 PI (<SG60) in Principle 1 and 2. There are additional 6 PIs that scored between SG60-79 and would therefore require conditions to improve. In addition, considering that are several PIs <SG80, the overall scoring of P1 and P2 will likely be below SG80 which will results in an overall failure of the fishery. In summary, the fishery has several significant weaknesses and is therefore not consistent with the MSC Fisheries Standard.

4 Report details

4.1 Aims and constraints of the pre-assessment

The aim of this pre-assessment is to provide an analysis of the strength and weaknesses of the Irish squid fishery against the MSC Fisheries Standard 2.01. As with any other pre-assessment, there might be new or additional information that may have been missed that may change the scorings attributed at this time for the fishery.

4.2 Version details

Table I – Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	**Version 2.1**
MSC Fisheries Standard	**Version 2.01**
MSC General Certification Requirements	**Version 2.3**
MSC Pre-Assessment Reporting Template	**Version 3.1**

5 Unit(s) of Assessment

5.1 Unit(s) of Assessment

The Unit of Assessment is all Irish fishing boats using demersal trawl fishing for veined squid *Loligo forbesii* in the Rockall bank. The fishery operates exclusively within 0 to 6 nm of the Rockall Bank, corresponding to UK national waters and jurisdiction (without a bilateral agreement), in a very specific narrow track or line over grounds of 100 meters maximum depth. The fishery started in 2015, and there are around 14 freezer vessels with a specific fishing licence for freezing catch, but the majority of the catch is taken by 5 vessels. It is a seasonal fishery, occurring between early summer and beginning of autumn (usually from May till September, but can go until November), when the *Nephrops* Porcupine quota is exhausted and the grounds are closed (information gathered at the site visit).

Vessels use the demersal otter trawl that is commonly used to target *Nephrops* but with a different configuration: 40 mm codend, lighter doors, longer overhang headline, while the groundrope has plastic disks (not bobbines). Tows are only carried out in daylight and last around 1 hour, after which the vessels circle the rock and queue to trawl again if

the catch is not sufficient, and then proceeds to freeze the catch, with freezing ¾ tonnes of squid taking around 14 hours. Trips last between 2 to 3 weeks, taking 18 hours to travel to Rockall (information gathered at the site visit).

Table II – Unit(s) of Assessment (UoA)

UoA 1	Description
Species	Veined squid (*Loligo forbesii*)
Stock	Stock considered at ICES division 6b.
Geographical area	Rockall bank, ICES division 6b.
Harvest method / gear	Demersal otter trawl
Client group	All fishing boats of the Irish Southwest and West Fish Producers Organization licenced for the squid trawl fishery.
Other eligible fishers	
Justification for choosing the Unit of Assessment	

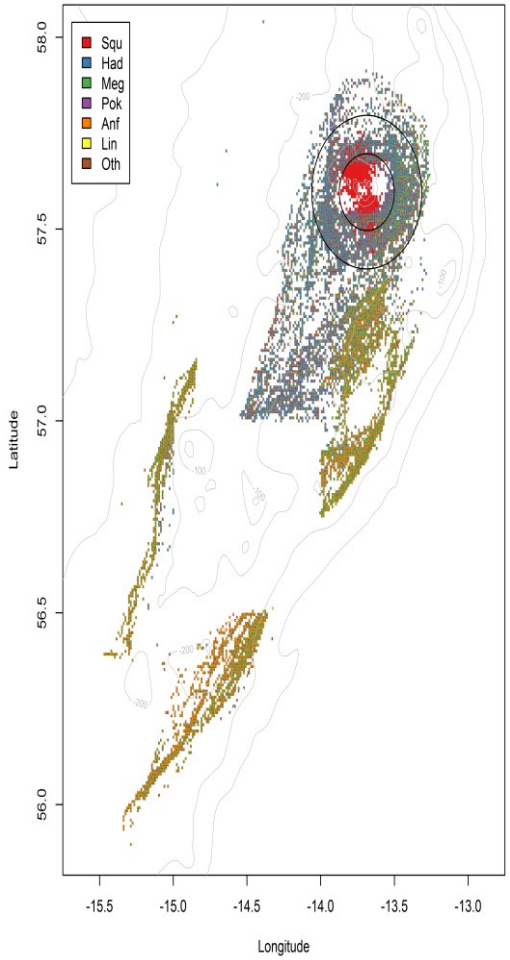


Figure 1 –Retained catch composition for VMS linked logbook data for Irish vessels at Rockall (2006-2019). Squ = *Loligo forbesii* (Marine Institute, 7 January 2020).

6 Traceability

6.1 Traceability within the fishery

Squid caught in this fishery is frozen at sea and landed mainly at Castletownbere landing site, although it can also be landed in Killybegs and transported to Castletownbere. Each box is identified with a barcode that identifies the vessel. There is no auction for frozen products.

Table III – Traceability within the fishery

Factor	Description
Will the fishery use gears that are not part of the Unit of Certification (UoC)? If Yes, please describe: - If this may occur on the same trip, on the same vessels, or during the same season; - How any risks are mitigated.	No, the vessels using trawls are not able to switch fishing gear.
Will vessels in the UoC also fish outside the UoC geographic area? If Yes, please describe: - If this may occur on the same trip; - How any risks are mitigated.	Vessels fishing in the Rockall bank are also technically allowed to fish in other areas, but they do not target squid in other areas, while targeting other species does not occur within the same trip as travelling to and from Rockall takes a substantial amount of time (18 hours each way).

Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities. - Transport - Storage - Processing - Landing - Auction If Yes, please describe how any risks are mitigated.	No, the trawl squid fishery does not fish for other species and/or in other areas on the same trip, as travelling to and from Rockall takes a substantial amount of time (18 hours each way).
Does transhipment occur within the fishery? If Yes, please describe: - If transhipment takes place at-sea, in port, or both; - If the transhipment vessel may handle product from outside the UoC; - How any risks are mitigated.	Transhipment does not occur in this fishery. The catch is frozen at sea and landed at the end of the trip. Catches may be transported by van to a different landing site, but are properly identified with sale notes.
Are there any other risks of mixing or substitution between certified and non-certified fish? If Yes, please describe how any risks are mitigated.	No

7 Pre-assessment results

7.1 Pre-assessment results overview

7.1.1 Overview

The Irish squid trawl fishery targets a stock that available information points to a decreasing population. The fishery is quite selective with no major bycatch species or impacts in the ecosystem. However, a HCR and specific short and long-term management objectives are lacking. There is also lack of information and uncertainty regarding Brexit that condition the scoring of several PIs.

Therefore, when analysing the Irish squid trawl fishery against the MSC Fisheries Standard 2.01, the fishery automatically failed 3 PI (<SG60) in Principle 1 and 9 PI (<SG60) in Principle 2. There are additional 6 PIs that scored between SG60-79 and would therefore require conditions to improve. In addition, considering that there are several PIs <SG80, the overall scoring of P1 and P2 will likely be below SG80 which will result in an overall failure of the fishery.

7.1.2 Recommendations

Based on the results summarised above, the following recommendations are made:

- A harvest strategy needs to be modified to be responsive to the state of the stock.
- Well-defined Harvest Control Rules need to be developed and implemented
- Stock information and assessment needs to be improved
- Fishery specific short and long-term objectives need to be defined, in accordance with the precautionary approach and maximum sustainable yields policy objectives.
- Information should be gathered in relation to the impacts that the UoA has on primary, secondary and ETP species, and to what management measures apply to the different species since UK left the EU.
- A review of alternative measures to minimise mortality of unwanted catch should be established by the UoA.

7.2 Summary of potential conditions by Principle

Table IV – Summary of Performance Indicator level scores

Principle of the Fisheries Standard	Number of PIs with draft scoring ranges <60

Principle 1 – Stock status	**3**
Principle 2 – Minimising environmental impacts	**9**
Principle 3 – Effective management	**0**

7.3 Summary of Performance Indicator level scores

Table V – Summary of Performance Indicator level scores

Performance Indicator	Draft scoring range	Data deficient?
1.1.1 – Stock status	**<60**	**Yes**
Rationale or key points		
RBF used to derive the score considering a high risk CA a priori.		
1.1.2 – Stock rebuilding	**NA**	**NA**
Rationale or key points		
RBF was used to score P1.1.1		
1.2.1 – Harvest Strategy	**<60**	**Yes**
Rationale or key points		
There is a harvest strategy but it is not responsive to the state of the stock. There is only a minimum mesh size to regulate the fishery and some data collection.		
1.2.2 – Harvest control rules and tools	**<60**	**Yes**
Rationale or key points		
There is no generally understood HCR or evidence that exploitation is being limited.		
1.2.3 – Information and monitoring	**60-79**	**Yes**
Rationale or key points		
Although there is one stock abundance indices, regularly monitoring of UoA removals is lacking.		
1.2.4 – Assessment of stock status	**≥80**	**Yes**
Rationale or key points		
Default score as RBF was used to score PI 1.1.1.		

2.1.1 – Primary Outcome	**≥80**	**No**
Rationale or key points		
According to stakeholder comments main primary species to consider would be mackerel, hake and haddock. All 3 stocks are in a healthy situation (above B_{msy}) in ICES 6b, and in any case impacts by the UoA are expected to be low, since most of the squid hauls are generally very clean.		
2.1.2 – Primary Management	**<60**	**N/A**
Rationale or key points		
To the team's knowledge there is no review of alternative measures to minimise the mortality of main primary species. Besides, there is uncertainty on what management measures apply since Brexit took place.		
2.1.3 – Primary Information	**<60**	**N/A**
Rationale or key points		
No information nor estimates on catch composition where made available to the team, therefore there are high uncertainties in relation to the impacts by the UoA and on the reliability of stakeholder comments for the purpose of this assessment.		
2.2.1 – Secondary Outcome	**<60**	**Yes**
Rationale or key points		
The lack of records on catch composition and on interactions with out of scope species prevent the UoA from meeting the requirements at SG60, since it is not possible to determine if these species are above or below biologically based limits. With the exception of ling (for which there is ICES advice and which achieved a score of 60), other secondary fish species have been scored using the RBF and have obtained a score above 80. However the low score for out of scope species prevents the UoA from meeting the requirements at SG60.		
2.2.2 – Secondary Management	**<60**	**N/A**
Rationale or key points		
To the team's knowledge there is no review of alternative measures to minimise the mortality of main primary species. Besides, there is uncertainty on what management measures apply since Brexit took place.		
2.2.3 – Secondary Information	**<60**	**N/A**
Rationale or key points		
No information nor estimates on catch composition where made available to the team, therefore there are high uncertainties in relation to the impacts by the UoA and on the reliability of stakeholder comments for the purpose of this assessment.		
2.3.1 – ETP Outcome	**<60**	**Yes**
Rationale or key points		
There isn't any qualitative nor quantitative information on the impact that the UoA has on ETP species.		
2.3.2 – ETP Management	**<60**	**N/A**

Rationale or key points		
There is neither qualitative nor quantitative information on the impact that the UoA has on ETP species. Besides, to the team's knowledge there is no review of alternative measures to minimise mortality of catch or of interactions with ETP species, and there is uncertainty on what management measures apply since Brexit.		
2.3.3 – ETP Information	**<60**	**N/A**
Rationale or key points		
There is neither qualitative nor quantitative information on the impact that the UoA has on ETP species.		
2.4.1 – Habitats Outcome	**≥80**	**No**
Rationale or key points		
The UoA takes place in a very small area in the Rockall area, using a bottom trawl gear. Although the bottom trawl gear causes impacts on the seafloor, the small affected area, together with the MPA coverage to protect VMEs allow the UoA to achieve an SG80 score.		
2.4.2 – Habitats Management	**60-79**	**N/A**
Rationale or key points		
There isn't sufficient information on the level of compliance by the fishery on the different management measures, and there is uncertainty in relation to the level of compliance of the UoA with voluntary protection measures afforded for the protection of VMEs adopted by other MSC fisheries in the area.		
2.4.3 – Habitats Information	**≥80**	**N/A**
Rationale or key points		
The area is well mapped by ICES and NEAFC who also monitor the status of VMEs over the years.		
2.5.1 – Ecosystems Outcome	**<60**	**Yes**
Rationale or key points		
The assessment team couldn't have access to information related to catch composition by the UoA and therefore impacts on primary, secondary and ETP species have only been partially assessed. There is also room for overfishing of the targeted stock which is not subject to any harvest control rule. This could lead to overfishing and to cascade impacts in other elements of the ecosystem.		
2.5.2 – Ecosystems Management	**60-79**	**N/A**
Rationale or key points		
Generally speaking the region is managed with the allocation of TACs for several fish species and the establishment of closed areas. However, TACs do not affect to the main catch by the UoA (squid) and there are uncertainties in relation to the effectiveness of management measures in relation to this UoA.		
2.5.3 – Ecosystems Information	**60-79**	**N/A**
Rationale or key points		

There is sufficient information on the region thanks for ICES and NEAFC research, however at a UoA level there are high uncertainties in relation to what impact the UoA has on the different ecosystem elements.		
3.1.1 – Legal and customary framework	**≥80**	**No**
Rationale or key points		
The EU, Irish and UK management system exists within an appropriate legal and/or customary framework which ensures that it delivers fisheries sustainability.		
3.1.2 – Consultation, roles and responsibilities	**≥80**	**No**
Rationale or key points		
Consultation roles and responsibilities are well defined and clear, and there is a regular formal consultation process.		
3.1.3 – Long term objectives	**≥80**	**No**
Rationale or key points		
There are clear long term precautionary and MSY objectives in the CFP, in the Irish and UK fisheries laws.		
3.2.1 – Fishery specific objectives	**60 – 79**	**No**
Rationale or key points		
There are implicit general objectives but no short and long term objectives for the management of the Irish squid trawl fishery.		
3.2.2 – Decision making processes	**≥80**	**No**
Rationale or key points		
There are established decision making processes that take important issues into account.		
3.2.3 – Compliance and enforcement	**≥80**	**Yes**
Rationale or key points		
The MCS mechanisms that are implemented are effective, while there is no evidence of systematic non-compliance with fisheries management measures.		
3.2.4 – Management performance evaluation	**60 – 79**	**No**
Rationale or key points		
There is no information that the fishery-specific management system is subject to regular internal or external review.		

7.4 Principle 1

7.4.1 Principle 1 background

Veined squid *Loligo forbesii* is distributed in the Atlantic and the Mediterranean: from North Sea and British Isles to southwest Africa, Canaries and the Azores, and in the Mediterranean and Red Sea, except Baltic Sea. A neritic and mainly near-bottom species, it lives in coastal waters and continental shelf seas of the northeast Atlantic. Male *L. forbesii* can grow considerably larger and heavier than females and have faster growth rates (Jereb et al., 2015). They exhibit a mating behaviour where males perform various displays to attract potential females for copulation. They are carnivorous predators, feeding on small, juvenile fishes, other cephalopods, crustaceans, polychaetes. Male and female adults usually die shortly after spawning and brooding, respectively (SeaLifeBase, 2019). They present an extended breeding season, from January to May with a peak in February–March, and two pulses of recruitment, in April and in July–September, although recruitment occurs throughout the year (Lum-Kong et al., 1992; Pierce et al., 1994).

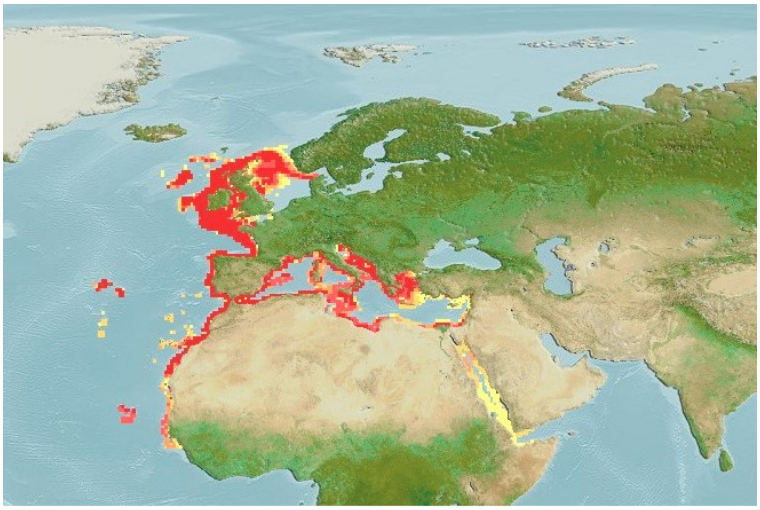


Figure 2 - Global distribution of veined squid (SeaLifeBase, 2019).

Table VI - Species biological attributes for common squid (Source: https://www.sealifebase.ca/summary/Loligo-forbesii.html; Lum-Kong et al., 1992; Pierce et al., 1998, Jereb et al., 2015).

Species biological attributes			
Species	*Loligo forbesii*	**Average age maturity**	1 yr
Reproductive strategy	Batch-spawner	**Average maximum age**	16 months
Length of larvae phase		**Fecundity (No of eggs)**	1 000-16 000
Movement of adults	inshore–offshore	**Average size at maturity**	14-15 cm, males-females, respectively
Sediment type	Rocky bottoms	**Average maximum size**	65 cm
Depth	0-500 m	**Trophic level**	3.3

Stock Identity

Past genetic studies have shown that *L. forbesii* around the UK coast are not composed of different populations but of one single stock. However, there is limited evidence for the existence of a separate offshore population from Scottish waters, breeding earlier than the main coastal population and with wide interannual fluctuations in abundance (Pierce et al., 1994), although perhaps dependent on migration from larger populations in the vicinity (G. Pierce, pers. comm.). Shaw et al. (2003) found significant levels of differentiation between the populations of the North East Atlantic offshore banks (Rockall and Faroes) and the shelf population. Breakdown of extensive gene flow among these populations is indicated, with hydrographic (water depth) and hydrodynamic (isolating current regimes) factors suggested as possible barriers to migration (Shaw et al., 2003).

New information regarding stock identity is likely to emerge from the Cephs&Chefs project that may finally clarify the stock identity, and should certainly be considered in a future full assessment. However, for the purpose of this pre-assessment and since there is some evidence that there is a *Loligo forbesii* population structure consistent with separation by ICES division 6b, that might reflect different local biogeographical zones, the following P1 assessment is carried out at the ICES division 6b considering that there is one *L. forbesii* stock. Nevertheless, stock identity should be considered further in an MSC full assessment.

Stock assessment & status

A Bayesian surplus production model (SPiCT) was used recently as a first attempt to assess the status of the stock of *Loligo forbesii* in ICES division 6b, but the results were deemed unreliable (A. Power, pers. comm.). Therefore no assessment of the stock status is available. Nevertheless, according to ICES, all the different surveys in the Celtic Seas (ICES Subareas 6a,b & 7ac,e-k) indicate an increase in biomass of *L. forbesii* in 2017, in particular in subarea 6a. Recent trends of *L. forbesii* are increasing in subarea 6a and decreasing in the other subareas of the Celtic Seas (Figure 3). Furthermore, and based on landings and survey biomass indices, ICES concluded that *L. forbesii* is increasing biomass in the North Sea and 6a with a decreasing tendency elsewhere ICES, 2019a).

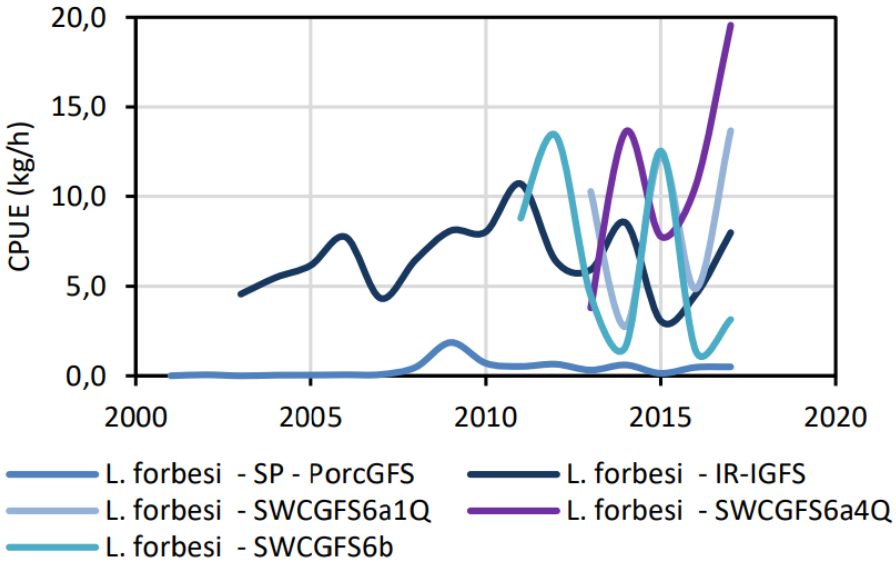


Figure 3 - Trends in loliginid biomass survey indices in the NW coast of Scotland, North Ireland, Rockall, Porcupine Bank and Ireland (ICES Subareas 6a,b & 7ac,e-k; ICES, 2019a).

Since there is no assessment of stock status for squid in the Rockall bank, nor reference points, a Risk Based Assessment was carried out to score PI 1.1.1 assuming a priori a high risk in the Consequence Analysis, and therefore moving directly to the Productivity Susceptibility Analysis. A PSA is designed to show the likely risk posed by the fishery to the population based on the biological characteristics of the stock and the likely susceptibility to capture. However, the results of this pre-assessment are provisional as in an MSC assessment PSA is a participatory analysis achieved by contributions by all stakeholders. When undertaking a PSA in MSC Principle 1, it is important to consider the combined contributions of all fishing gears fishing the target species over the range of the stock. Squid in the Rockall bank is caught solely by otter trawl gear.

Table VII - Common squid PSA Productivity reasoning and scores (Source: https://www.sealifebase.ca/summary/ Loligo-forbesii.html; Lum-Kong et al., 1992; Pierce et al., 1998, Jereb et al., 2015).

Productivity	Rationale	Score
Average age at maturity	1year	1
Average maximum age	1.5-2 years	1
Fecundity	1 000-16 000	2
Reproductive strategy	Broadcast spawner	1
Trophic level	3.3	3
Density dependence	No depensatory or compensatory dynamics demonstrated or likely	2
Total Productivity (average)		1.67

The productivity scores are fixed for the species, regardless of how the species is caught. By contrast the susceptibility scores will be different for each gear type catching the species within the stock area, in this case trawls. In scoring the susceptibility attributes for squid in ICES division 6b the rationale for the area overlap was that fishing occurs in more than 30% of the stock area, since squid is spread over 6b but concentrated where the fishery occurs. As for encounterability and post capture mortality, were evaluated considering the default score for target species. Selectivity was based on information gathered at site visit that catches are composed of mainly immature individuals.

Table VIII - Common Octopus PSA Susceptibility reasoning and scores (information gathered at site visit).

Susceptibility	Rationale	Score
Area Overlap	The trawl fisheries operate in an area corresponding more than 30% of the stock area.	3
Encounterability	High overlap with fishing gear - default score for target species.	3
Selectivity	Individuals < size at maturity are frequently caught and individuals < half the size at maturity are retained by gear.	3
Post capture mortality	Retained species default score.	3

The RBF analysis resulted in an overall score for the PSA of 3.43 respectively, which corresponds to a MSC score of 54.

Harvest strategy & control rules

Both Ireland and the EU have jurisdiction over the Irish fishery targeting squid in ICES division 6b, but the stock is under the sole jurisdiction of the UK as the fishery occurs within 12 nm. Although there is uncertainty if existing or additional management measures are to be in place by the UK due to Brexit beyond 2020, at the moment at EU, Ireland or UK level there is no management of *L. forbesii* except for a minimum mesh size of 40 mm for the fishery established at EU level (Regulation (EU) 2019/1241). There is a specific licencing scheme for Irish freezer trawlers, but is related to the type of vessel and not to the targeted species.

7.4.2 Catch profiles

Landings from the Celtic Seas (6a,b and 7a-c,f-k) increased substantially in 2017, in particular in Rockall (6b) but squid production dropped to 1077 tons in 2018 (Figure 4). Main fleets fishing in this area are from Scotland in the northern part and from France, England and Ireland in the southern part. Discards from area 6 are generally very low (<1 ton annually). The fishery for the squid species *Loligo forbesii* at Rockall is known to be sporadic. This is very consistent with their short life-span and erratic recruitment dynamics (Figure 5; information provided by Marine Institute, 7 January 2020).

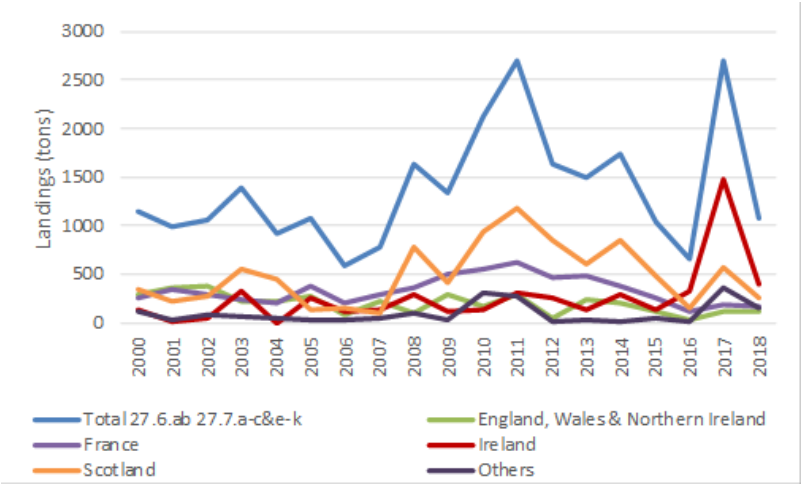


Figure 4 – Trends in Loliginid landings in the Celtic Seas (6a,b & 7a-c,f-k) for the years 2000 to 2018 by national fleet (Source ICES, 2020 WGCEPH draft report; Marine Institute, 7 January 2020).

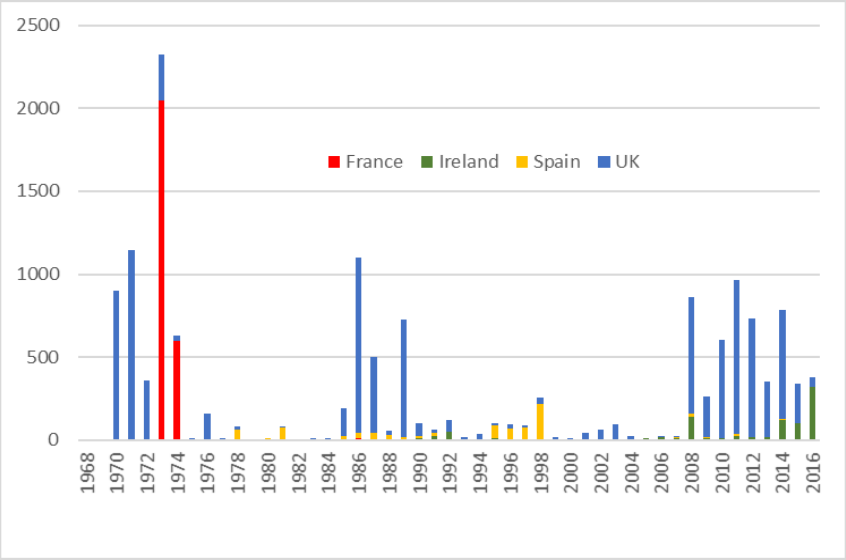


Figure 5 - Official landings data by country and year for squid at Rockall (based on ICES data: www.ices.dk; Marine Institute, 7 January 2020).

Table IX – Catch data for trawl

Total catch	Year	**2019**	Amount	**1100 tonnes**
UoA share of total catch	Year	**2019**	Amount	**1100 tonnes**
Total green weight catch by UoC	Year (most recent)	**2019**	Amount	**1100 tonnes**
Total green weight catch by UoC	Year (second most recent)	**2018**	Amount	**320 tonnes**

7.4.3 Principle 1 Performance Indicator scores and rationales

PI 1.1.1 – Stock status

Risk Based Framework was used to score this PI (section 8.3). Total score was 54.

PI 1.1.2 – Stock rebuilding

Not applicable as RBF was used to score PI1.1.1

PI 1.2.1 – Harvest strategy

PI 1.2.1	**There is a robust and precautionary harvest strategy in place**		
Scoring Issue	SG 60	SG 80	SG 100
a	Harvest strategy design		

	Guide post	The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy **work together** towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	**No**	**No**	**No**
Rationale				

Veined squid in the Rockall bank is managed by Ireland, UK and the EU. There are several general regulations in place at EU level to manage Atlantic fisheries that contain different management measures. There is a national licencing scheme, gear restrictions and data collection. Although, these measures can work to somewhat limit fishing mortality, they are not expected to achieve stock management objectives and thus SG60 is not reached.

b	Harvest strategy evaluation			
	Guide post	The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy may not have been fully **tested** but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been **fully evaluated** and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	**No**	**No**	**No**
Rationale				

A licencing scheme and gear restrictions can limit fishing mortality but only to a certain level, while the licencing scheme is not specific to squid fishery but type of vessel. So SG60 is not reached.

c	Harvest strategy monitoring			
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	**No**		
Rationale				

There is some monitoring in place to collect data on catches and biological data, but the sampling scheme is not regular, and thus the monitoring in place is not expected to determine whether the harvest strategy is working and SG 60 is not reached.

d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			**No**
Rationale				

There is no information if the harvest strategy is review periodically and thus SG100 is not reached.

e	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.

	Met?	**NA**	**NA**	**NA**
Rationale				
Not applicable to this pre-assessment based on catch composition.				
f	Review of alternative measures			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**
Rationale				
There are negligible discards (less than 1%) of squid in the fishery.				

References

- Information gathered at site visit
- ICES. 2019. Interim Report of the Working Group on Cephalopod Fisheries and Life History (WGCEPH), 5–8 June 2018, Pasaia, San Sebastian, Spain. ICES CM 2018/EPDSG:12. 194 pp.

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	**Generally understood** HCRs are in place **or available** that are **expected** to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	**Well defined** HCRs are **in place** that **ensure** that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock **fluctuating at or above** a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, **most** of the time.
	Met?	**No**	**No**	**No**
Rationale				

There are no generally understood HCR available or in place that may reduce exploitation when the state of the stock approaches its PRI. Therefore, SG60 is not reached.

b	HCRs robustness to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a **wide** range of uncertainties including the ecological role of the stock, and there is **evidence** that the HCRs are robust to the main uncertainties.
	Met?		**No**	**No**
Rationale				

There is no generally understood HCR.

c	HCRs evaluation			
	Guide post	There is **some evidence** that tools used **or available** to implement HCRs are appropriate and effective in controlling exploitation.	**Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	**Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	**No**	**No**	**No**
Rationale				

A licencing scheme and fishing restriction can limit exploitation but only to a certain level, while the licencing scheme is not specific to the squid fishery but type of vessel. There is also no evidence that squid catches are being limited by the trawl fishery. Therefore SG60 is not reached.

References

- Information gathered at site visit

Draft scoring range	**<60**

Information gap indicator	**More information sought**

PI 1.2.3 – Information and monitoring

PI 1.2.3		**Relevant information is collected to support the harvest strategy**		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	**Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	**Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	**Yes**	**No**	**No**
Rationale				

There is information on catch and biological data. However, several aspects of the biology of the stock, for example stock structure, are not known accurately and thus SG80 is not reached.

b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and **at least one indicator** is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest control rule**, and **one or more indicators** are available and monitored with sufficient frequency to support the harvest control rule.	**All information** required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent **uncertainties** in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	**Yes**	**No**	**No**
Rationale				

UoA removals are somewhat monitored and there is one indicator of stock abundance (survey in the Rockall bank), and thus SG60 is reached. However, UoA removals are not regularly monitored and thus SG80 is not reached.

c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		**Yes**	
Rationale				

Trawl fisheries have compulsory EU and national measures to report catches.

References

- Information gathered at site visit.
- ICES. 2019. Interim Report of the Working Group on Cephalopod Fisheries and Life History (WGCEPH), 5–8 June 2018, Pasaia, San Sebastian, Spain. ICES CM 2018/EPDSG:12. 194 pp.

Draft scoring range	**60-79**
Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**Yes**

PI 1.2.4 – Assessment of stock status

Default score of 80 as RBF was used to score PI1.1.1

7.5 Principle 2

7.5.1 Principle 2 background

The following list of plausible scoring elements has been elaborated taking into consideration comments by different stakeholders, but since there is no information available on landing notes, catch composition nor observer trips the team strongly recommends verification on scoring elements to consider at any future MSC Full Assessment stage.

Table X – Scoring elements

Component	Scoring elements	Designation	Data-deficient
Principle 1	Veined squid (*Loligo forbesii*)	N/A	No
Primary	Mackerel *(Scomber scombrus)*	Main	No
Primary	Hake (*Merluccius merluccius*)	Main	No
Primary	Haddock (*Melanogrammus aeglefinus*)	Main	No
Secondary	Blackbelly rosefish (*Helicolenus dactylopterus)*	Main	Yes
Secondary	Ling (*Molva molva*)	Main	No
Secondary	Lemon sole (*Microstomus kitt*)	Main	Yes
Secondary	Pollack (*Pollachius virens*)	Main	Yes
Secondary	Bib (*Trisopterus luscus*)	Main	Yes
Secondary	Dab (*Limanda limanda*)	Main	Yes
Secondary	Grey gurnard (*Eutrigla gurnardus*)	Main	Yes
ETP	Sharks (Unspecified)	N/A	Yes
ETP	Rays (Unspecified)	N/A	Yes
Habitat	Coarse sediments	Common encountered habitat	No
Habitat	Biogenic reefs	VME	No
Habitat	Rocky reefs	VME	No
Habitat	Stony reefs	VME	No

Primary, secondary and ETP species

The Rockall squid fishery targets squid in the alleyway between the rocks, in short tows lasting 1 hour, with bottom trawl standard rockhopper gears and a 40 mm codend, at depths 50-100 m. According to stakeholders, the squid fishery is quite clean, in which discards would be very small squids and other fish in very small proportions. However this information isn't sufficient to determine what species can be found in the catch composition or in what proportion.

According to stakeholders, non-targeted species in the catch might be haddock, grey gurnard, dab, bib, pollack, lemon sole, hake, mackerel, sharks and rays (not identified by species), blackbelly rosefish and ling. It is expected that none of this species would reach the 5% threshold limit to be considered as a main species (or 2% in case of vulnerable stocks) since the amount of total non-targeted species account for a 5-15 % of squid landings. However, due to the uncertainties in the proportion of the different species, all species have been considered as main for the purpose of this pre-assessment.

Primary species to consider are mackerel, hake and haddock. Secondary species to consider are ling, blackbelly rosefish, lemon sole, pollack, dab, grey gurnard. ETP species to consider are rays and sharks (unspecified). Rays and sharks have been considered as ETP species since some of these unidentified species are protected by different regulations. As an example, basking sharks are protected in UK waters under different regulations such as Schedule 5 of the Wildlife and Countryside Act 1981, Countryside Rights of Way Act 2000, Wildlife (Northern Ireland) Order 1985 and Nature Conservation (Scotland) Act 2004. The species is also protected by the EU Common fisheries Policy and the UK Biodiversity Action Plan (https://www.sharktrust.org/basking-shark-conservation). Given that some elasmobranchs are heavily protected and that there is no information on which species are taken by the UoA, on a precautionary approach the team has considered unidentified sharks and rays as ETP species.

Primary species

ICES provides scientific advice for mackerel, hake and haddock.

According to ICES 2019 advice for **mackerel (*Scomber scombrus*)** in subareas 1–8 and 14, and in Division 9.a (the Northeast Atlantic and adjacent waters), the spawning-stock biomass (SSB) is estimated to have increased since 2007, reaching a maximum in 2014, and has been declining since then. It has, however, remained above $MSYB_{trigger}$ since 2008. The fishing mortality (F) has declined since 2003 but is estimated to have remained above F_{MSY}. There has been a succession of large year classes since 2001, with year classes since 2011 estimated to be above average. ICES assesses that fishing pressure on the stock is above F_{MSY} and below F_{pa} and F_{lim}; the spawning-stock size is above $MSYB_{trigger}$, B_{pa}, and B_{lim}.

There is no long-term management strategy for Northeast Atlantic (NEA) mackerel agreed by all parties involved in the mackerel fishery. However, Norway, the EU, and the Faroes have agreed on an arrangement for a long-term management strategy for mackerel (Anon., 2017). ICES advises that when the MSY approach is applied, catches in 2020 should be no more than 922 064 tonnes.

	Fishing pressure				Stock size			
		2016	2017	2018		2017	2018	2019
Maximum sustainable yield	F_{MSY}	✗	✗	✗	Above	MSY $B_{trigger}$	✓	✓	✓	Above trigger
Precautionary approach	F_{pa},F_{lim}	✓	✓	✓	Harvested sustainably	B_{pa},B_{lim}	✓	✓	✓	Full reproductive capacity
Management plan	F_{MGT}	–	–	–	Not applicable	B_{MGT}	–	–	–	Not applicable

Figure 6: Mackerel in subareas 1–8 and 14, and in Division 9.a. State of the stock and fishery relative to reference points.

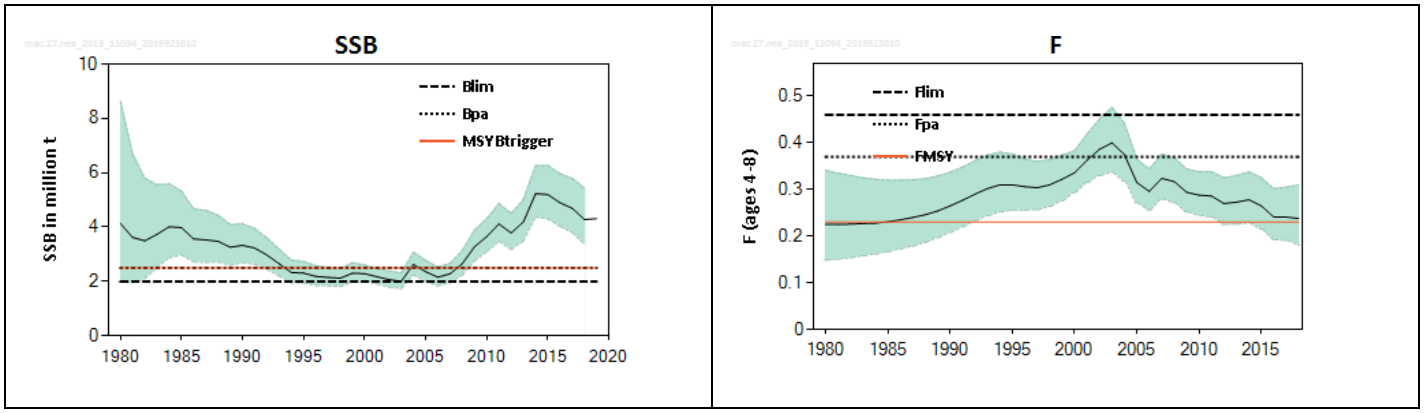


Figure 7: Mackerel in subareas 1–8 and 14, and in Division 9.a. Summary of the stock assessment. Confidence intervals (95%) are included in the fishing mortality, and spawning-stock biomass plots.

As regards hake, ICES 2019 advice for **hake (*Merluccius merluccius*)** in subareas 4, 6, and 7, and in divisions 3.a, 8.a–b, and 8.d, Northern stock (Greater North Sea, Celtic Seas, and the northern Bay of Biscay) states that the spawning-stock biomass (SSB) has increased substantially since 2006. In 2016 it reached the maximum in the time series, and since then it has declined slightly. Fishing mortality (F) decreased markedly between 2005 and 2012 and has been stable below F_{MSY} since then. Recruitment is variable without trend. Recent recruitment is uncertain. ICES assesses that fishing pressure on the stock is below F_{MSY}; spawning-stock size is above $MSYB_{trigger}$, B_{pa}, and B_{lim}.

The EU multiannual plan (MAP) for stocks in the Western Waters and adjacent has been agreed by the EU for this stock (EU, 2019). This plan is not adopted by Norway; thus, it was not used as the basis of the advice for this shared stock. ICES was requested to provide advice based on the MSY approach and to include the MAP as a catch option. ICES advises that when the MSY approach is applied, catches in 2020 should be no more than 104 763 tonnes.

	Fishing pressure				Stock size			
		2016	2017	2018		2017	2018	2019
Maximum sustainable yield	F_{MSY}	✓	✓	✓ Appropriate	MSY $B_{trigger}$	✓	✓	✓ Above trigger
Precautionary approach	F_{pa},F_{lim}	✓	✓	✓ Harvested sustainably	B_{pa},B_{lim}	✓	✓	✓ Full reproductive capacity
Management plan	F_{MGT}	–	–	– Not applicable	B_{MGT}	–	–	– Not applicable

Figure 8: Hake in subareas 4, 6, and 7, and in divisions 3.a, 8.a–b, and 8.d, Northern stock. State of the stock and fishery relative to reference points.

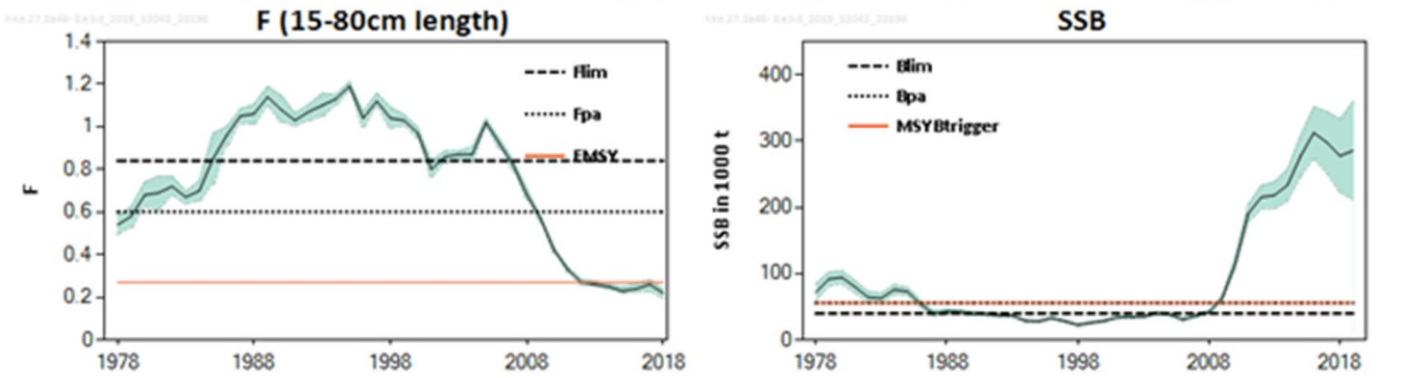


Figure 9: Hake in subareas 4, 6, and 7, and in divisions 3.a, 8.a–b, and 8.d, Northern stock. Summary of the stock assessment. Plots show 95% confidence intervals (shaded area). F confidence intervals derived from standard deviations calculated internally by the model for F at- age values.

As regards **haddock (*Melanogrammus aeglefinus*)** in Division 6.b (Rockall), the spawning–stock biomass (SSB) has increased from the lowest estimated values in 2014 and is currently estimated to be well above $MSYB_{trigger}$. Fishing mortality (F) has been declining and is below F_{MSY} in 2018. Recruitment during 2008–2012 is estimated to have been extremely weak but has improved since then. Recruitment in 2018 and 2019 is estimated to be below average. ICES assesses that fishing pressure on the stock is below F_{MSY}, F_{pa}, and F_{lim}, and that the spawning stock size is above $MSYB_{trigger}$, B_{pa}, and B_{lim}.

There is no agreed management plan for haddock in this area. Two management strategies (NEAFC and EU MAP) have been assessed to be precautionary. NEAFC has requested ICES to evaluate the harvest control rules using F_{MSY} as target. ICES concluded that the NEAFC harvest control rules in the long-term management strategy for Rockall haddock were consistent with the precautionary approach (ICES, 2019b).

The EU multiannual plan (MAP) for stocks in the Western Waters and adjacent waters applies to this stock. The plan specifies conditions for setting fishing opportunities depending on stock status and making use of the FMSY range for the stock. In accordance with the MAP, catches higher than those corresponding to F_{MSY} can only be taken providing SSB is greater than $MSYB_{trigger}$, and one of the following conditions is met:

- if it is necessary for the achievement of objectives of mixed fisheries;
- if is necessary to avoid serious harm to a stock caused by intra- or inter-species stock dynamics;

- in order to limit variations in fishing opportunities between consecutive years to not more than 20%.

ICES considers that the F_{MSY} range for this stock used in the MAP is precautionary. ICES advises that when the MSY approach is applied, catches in 2020 should be no more than 10 472 tonnes.

		Fishing pressure				Stock size			
		2016	2017	2018		2017	2018	2019	
Maximum sustainable yield	F_{MSY}	✓	✗	✓	Below	MSY $B_{trigger}$	✓	✓	✓ Above trigger
Precautionary approach	F_{pa},F_{lim}	✓	✓	✓	Harvested sustainably	B_{pa},B_{lim}	✓	✓	✓ Full reproductive capacity
Management plan	F_{MGT}	–	–	–		B_{MGT}	–	–	–

Figure 10: Haddock in Division 6.b. State of the stock and fishery relative to reference points.

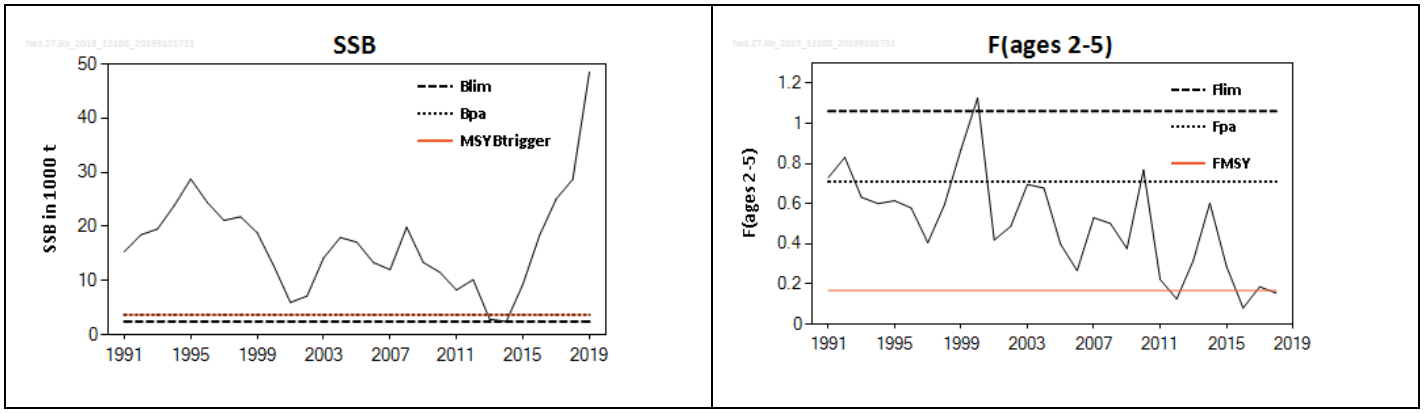


Figure 11: Haddock in Division 6.b. Summary of the stock assessment.

Secondary species

According to stakeholder comments, secondary species to consider are blackbelly rosefish, ling, lemon sole, pollack, dab and grey gurnard.

Of those species, ICES only provides advice for ling (*Molva molva*) in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a (Northeast Atlantic and Arctic Ocean). ICES assesses that fishing pressure on the stock is below F_{MSY} proxy; no reference points for stock size have been defined for this stock. ICES is not aware of any agreed precautionary management plan for ling in this area. ICES advises that when the precautionary approach is applied, catches should be no more than 18 516 tonnes in each of the years 2020 and 2021.

		Fishing pressure				Stock size			
		2016	2017	2018		2016	2017	2018	
Maximum sustainable yield	F_{MSY} proxy	✓	✓	✓	Below	MSY $B_{trigger}$	?	?	? Undefined
Precautionary approach	F_{pa},F_{lim}	✓	✓	✓	Below possible reference points	B_{pa},B_{lim}	?	?	? Undefined
Management plan	F_{MGT}	–	–	–	Not applicable	B_{MGT}	–	–	– Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-	↗	→	↘ Decreasing

Figure 12: Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. State of the stock and fishery relative to reference points. The status evaluation is based on the reference point proxy for F_{MSY} using the length-based indicator method (ICES, 2019c).

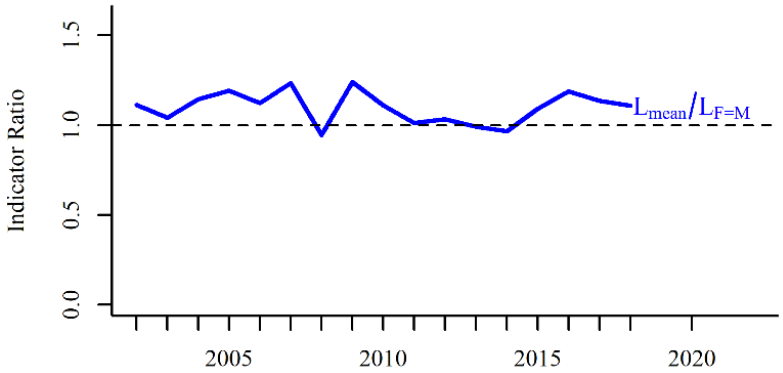


Figure 13: Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Index ratio of the average length relative to the expected length when fishing mortality equals natural mortality (L_{mean}/LF=M) from the length-based indicator method used for the evaluation of the exploitation status (ICES, 2019c). The exploitation status is below the F_{MSY} proxy when the index ratio value is higher than 1.

ICES does not provide advice on lemon sole, blackbelly rosefish, pollack, dab and grey gurnard, which shall be assessed against the MSC standard using the RBF. See Annex 8.

Most information in the following sections on ETP, Habitats and Ecosystem in Rockall has been taken from Jones, H., Cook, R., Gascoine, J., and Hønneland, G. 2018. MSC Public Certification Report for Scottish Fisheries Sustainable Accreditation Group (SFSAG) Rockall haddock, prepared by ME Certification Ltd. in July 2018.

ETP species

ETP species should be protected by national law or binding international treaty. Fish species (such as elasmobranchs) may be classified as ETP species if protected by EU fisheries regulations (Council Regulation 2017/127 of 20 January 2017, (EU, 2017)). The following ETP species are present in ICES Division 6b (Rockall):

- Common skate complex (*Dipturus batis* (blue skate)*, D. intermedia* (flapper skate)).
- Smooth lanternshark (*Etmopterus pusillus*)
- Tope (*Galeorhinus galeus*)
- Porbeagle (*Lamna nasus*)
- Norwegian skate (*Dipturus nidarosiensis*)
- White skate (*Rostroraja alba*)
- Undulate ray (*Raja undulata*)
- Spurdog (*Squalus acanthias*)
- Grey seal (*Halichoerus grypus*) (protected by Marine (Scotland) Act 2010, (UK, 2010)).
- Whales (unspecified)
- Dolphins (unspecified)

According to stakeholders met at the site visit, interactions with ETP species are unlikely but there is no recording of these. Certain information can be obtained from the Marine Scotland observer program in the area directed to measure interactions by other fisheries in the Rockall area.

Habitats

According to Howell et al. (2009), the seabed on the Rockall Bank includes some rocky outcrops around Rockall island itself and includes rock ridges and boulder fields interspersed with coarse carbonate sand further from the rock and fine carbonate sand around the edges of the bank. They also note a variety of geological sources for the sand on top of the bank other than carbonate in some areas, including sand derived from basalt and metamorphic rocks (Howell et al., 2009). Surveys of the East of Rockall bank have also been conducted but the depth of water here is beyond the limits of the squid fishery (50-100 m) (Stewart et al., 2009).

Commonly encountered habitats are found in the Central and Eastern summit areas of Rockall and are defined as follows:

- Mixed sand / pebble / cobble / boulder / rubble with and without iceberg plough marks
- Bedrock / rock outcrops;
- Coarse rippled sand from various geological sources
- Fine carbonate sand.

The mixed nature and lack of distinct boundaries of these habitats mean sub-characterization would be an artificial embellishment. On the basis of the mixed nature of the sediments and the lack of distinct boundaries of these habitats the assessment team used Howell et al. (2009) descriptions and treated them as a single scoring element. This approach is harmonised with the approach taken by Jones et al, 2018 in the MSC Public Certification Report for the SFSAG Rockall haddock.

VME habitats identified in the Rockall area include:

- Biogenic reefs: stony corals (mainly *Lophelia pertusa* and *Madrepora occulata* in European waters) can occur as encrusting fauna, in single colonies or clumps or patches or larger areas, or otherwise in some highly favourable environments can form large mounds several 100 metres high and across ('carbonate mounds'). These mounds occur on the Porcupine, Hatton and Rockall banks, and have probably existed for several million years in the same place. Around Rockall are the Logachev mounds to the south and the West Rockall mounds to the west; these are protected from fishing and in any case below the maximum depth of this fishery (starting at ~500 m). In relation to this fishery, therefore, the habitat of potential concern is encrusting coral communities rather than mounds.
  Howell et al. (2009) note that a submersible survey in 1979 found coral communities scattered across the bank from ~150 m - 400 m, with larger reef-type structures starting below 500 m on the eastern flank. These shallower communities were made up of *Lophelia* and *Madrepora*, along with coral debris and associated fauna. The 2006 survey did not observe anything that would be considered 'biogenic reef' according to Habitat Directive definitions but did observe patchy clumps and scattered colonies of corals, particularly around the north and NW summit and down the eastern flank of the bank. It seems likely that coral cover has been lost between the 1979 survey and the 2006 survey, but the extent of loss is not clear.
- Rocky reef: As noted above, rocky areas are mainly found in the central shallowest area of the bank, as well as off the eastern flank (>390 m i.e. below the depth of this fishery). Rocky areas are defined as 'reefs' (VMEs) where they have a high density of encrusting fauna; in this case encrusting and cup sponges, encrusting and cyclostome bryozoans, cup corals and anemones. They note that in the shallowest areas surveyed (140 m -190 m), the fauna was somewhat similar to rocky habitat at similar depths on the Scottish continental shelf, e.g. west of the Hebrides; this includes a diverse community of erect, branching and cup sponges as well as encrusting sponges and bryozoans, tunicates, anemones and encrusting keel worms. The cyclostome bryozoans, as well as *Reteporella sp*. (another species of leaf-like bryozoan) were, however, characteristic of Rockall.
- Stony reef: this habitat is more widely distributed across and around the bank, including associated with iceberg plough marks. The fauna is essentially the same as for rocky reefs (described above), but generally lacking a dense encrusting fauna; important species are encrusting sponges and bryozoans, keel worm and barnacles, but corals and anemones do not appear to be present. Squat lobsters (*Munida* sp.) were also characteristic of this habitat type.

ICES WGDEC also collect and map records of VMEs from surveys (visual surveys of various kinds and trawl survey bycatch), including at Rockall – these records are updated annually and are available online at http://vme.ices.dk/map.aspx. These maps show records of individual VME indicator taxa (anemones, black corals, chemosynths, cup corals, gorgonians, sea pens, soft corals, sponges, stony corals, stylasterid corals) and for a 'VME index'. Data can be filtered by year (1958-2015) and by confidence (high, medium, low); according to the number and type of records. The different VME indicator species are scored (by expert judgement) according to the FAO criteria for VMEs (rarity, function, fragility, life history and structural complexity) to give an overall score (output of the VME weighting algorithm) in the range 1 (low) to 5 (high) (the range runs from anemones at 1.4 to stony corals at 4.4). They then apply this scoring to records of VMEs in each c-square and categorise each square as low vs. medium vs. high for VMEs (VME index). Figure 14 shows the online map output (all types; selecting individual taxa does not alter the look of the map). Figure 15 shows the map as generated by WGDEC for their 2017 report.

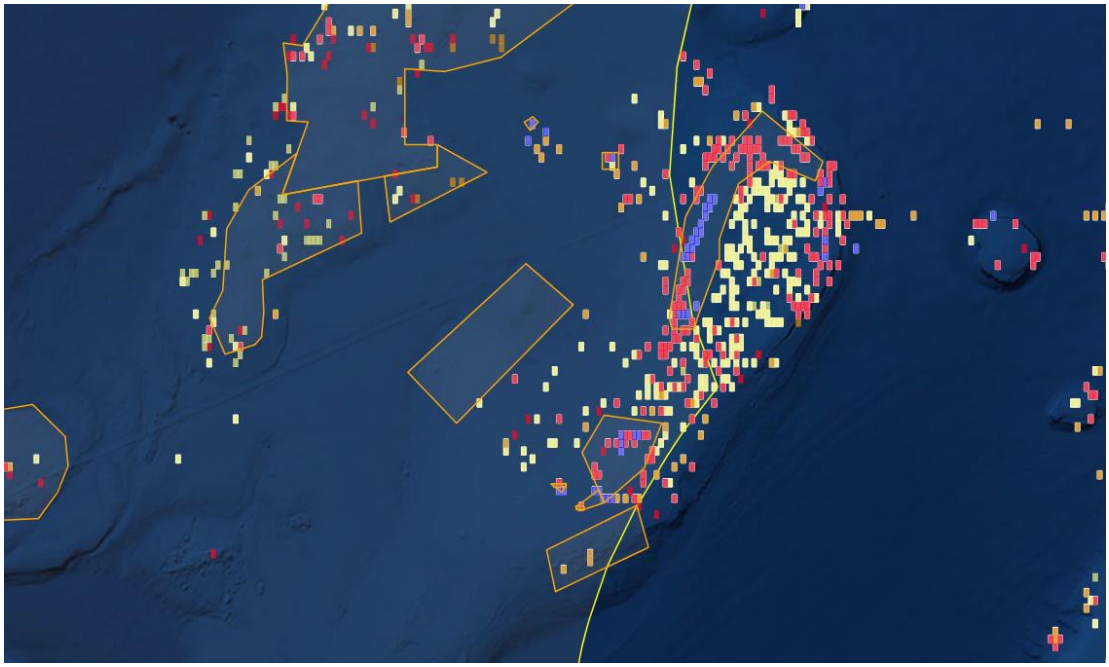


Figure 14: Online map of VME index by c-square for Rockall – all VME indicator taxa and habitat types are checked, year from 2006 onwards, other layers are NEAFC closed areas (orange) and the NEAFC limit (yellow). See http://vme.ices.dk/map.aspx.

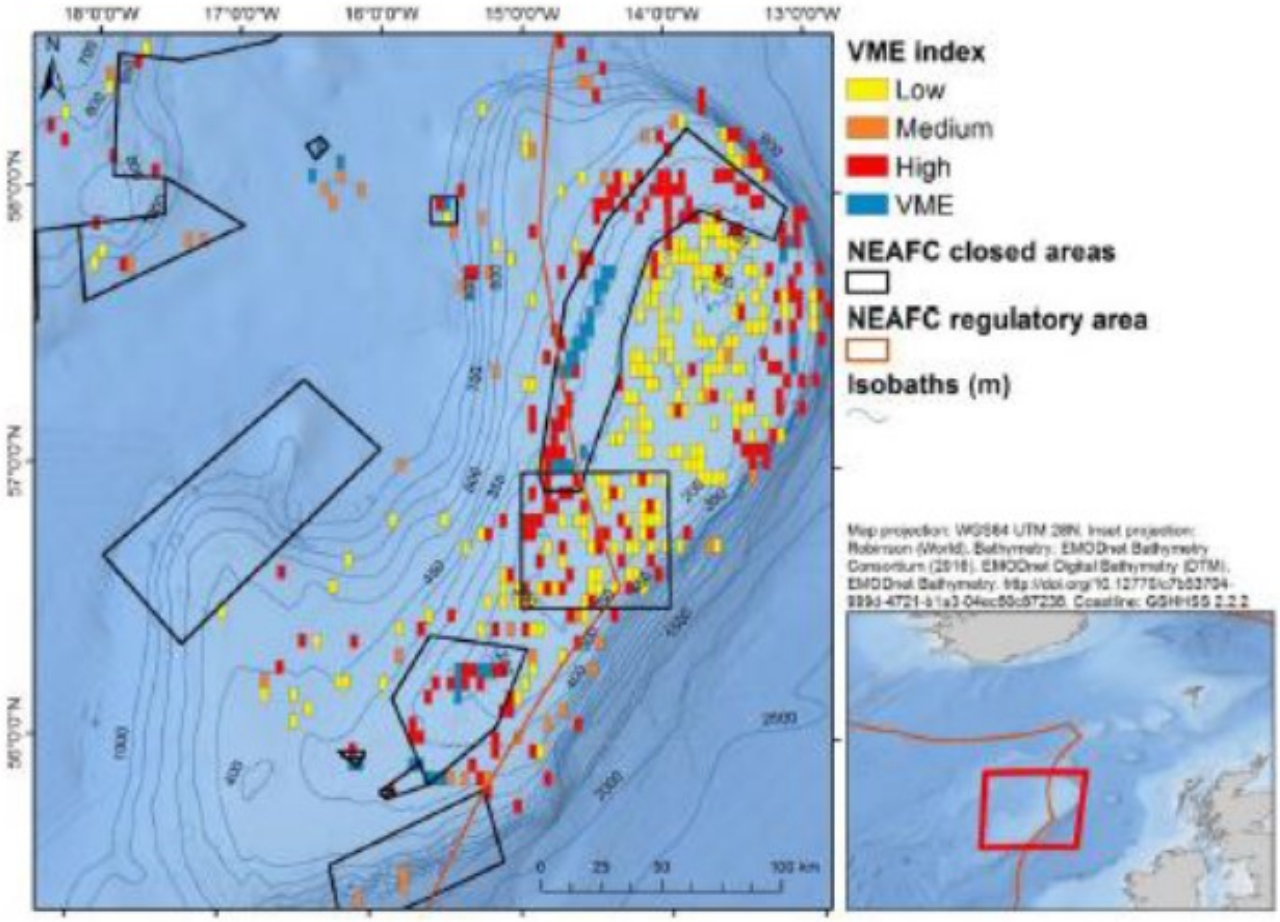


Figure 15: Output of the VME weighting algorithm as displayed in ICES (2017). Note that this includes all records from the start of the time series. Yellow=low VME index, orange=medium, red=high; closed areas also shown.

Regardless the different shared jurisdictions at Rockall Bank, responsibility for habitat protection appears to have been passed to NEAFC, who have established shared closed areas which are also enforced on the EU side of the line. The NEAFC approach to protecting VMEs is set out in Recommendation 19/2014 (NEAFC, 2014) as amended by Recommendation 9/2015 (EU, 2014). Essentially, the Recommendation defines a series of closed areas for VMEs. It also defines existing bottom fishing areas based on fishing activity 1987-2007; outside these areas fishing is defined as 'exploratory' and a scientific and regulatory framework is defined for such exploratory fishing. It also provides for move-on rules for VME encounters (defined as 30 kg live coral or 400 kg live sponge), requires vessels to quantify catch of VME indicators and provides for periodic review of the location and coordinates of the closed areas by ICES. On the EU side there are no statutory move-on rules for encounters with VMEs in EU waters. ICES reviewed these closed areas in 2017 (ICES, 2017); and recommended maintaining all of them, and adjusting the NW Rockall closure to expand its boundaries.

The management of vulnerable habitat is delegated to NEAFC across the whole bank. There are multiple closed areas on and around the Rockall Bank, including the NW Rockall Bank area and the SW Rockall area which are closed for protection of VMEs. Other area closures are established to protect juvenile fish. Figure 16 below shows closed areas in the fishing grounds.

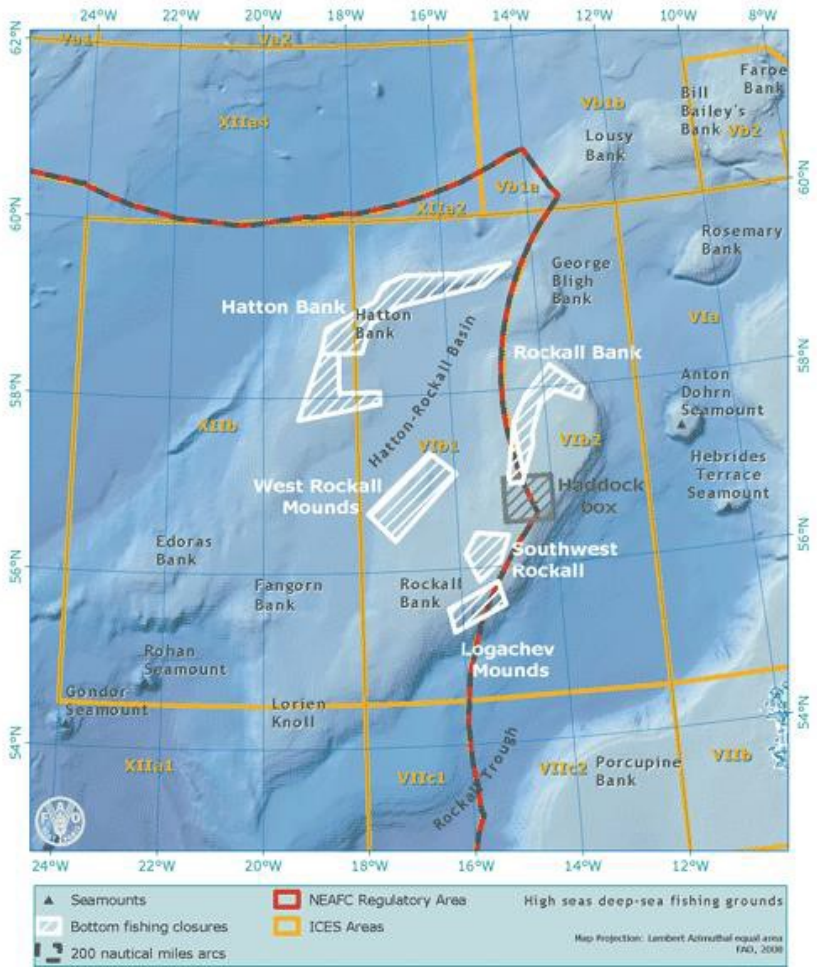


Figure 16: Closed areas at Rockall for VMEs (white hatched), the haddock box (grey hatched), the delineation of EEZ (grey/red line) and ICES Divisions (yellow).

Ecosystem

Rockall is relatively far north (57.6ºN) but is situated in the path of the warm North Atlantic Current derived from the Gulf Stream, and the mean annual SST in the Rockall Trough is ~10 °C (Figure 17). Generally surface current flow is in a northerly direction, but at depths below ~400 m - 600 m, cold water formed in the Arctic flows south through the Faroes-Shetland Channel and this can spill over into the deeper parts of the Rockall Trough (between Rockall and Scotland). A full summary is provided at Gov.Scot (2017). There can also be cyclonic flow around the Rockall Bank, as well as upwelling (see references in Neat and Campbell, 2011).

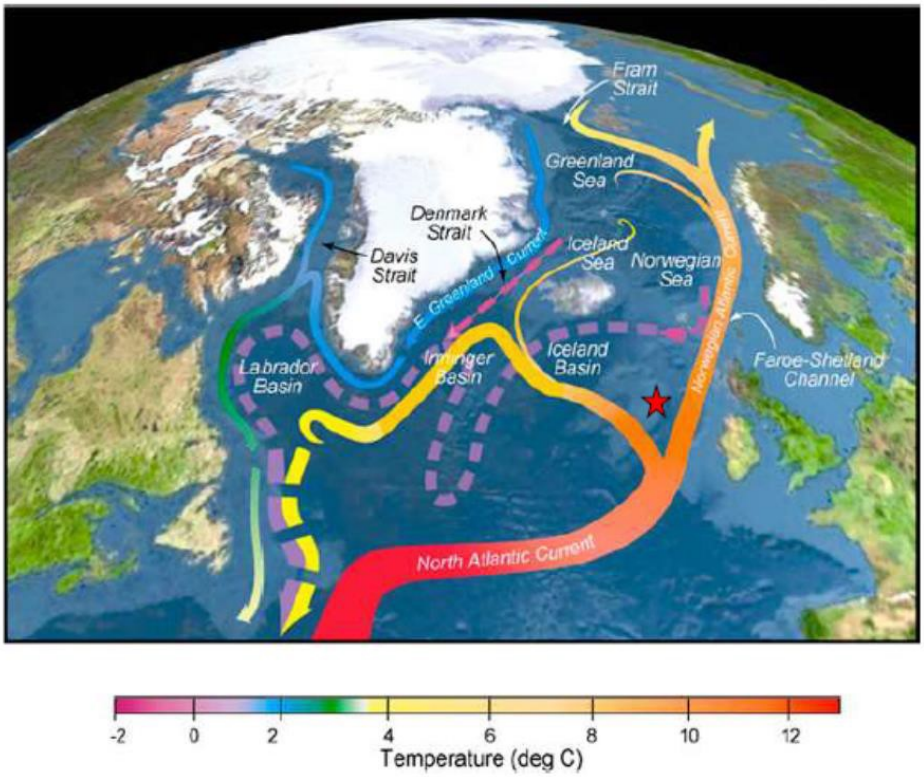


Figure 17: Surface currents in the North Atlantic; red star indicates Rockall; from Neat (2016).

ICES provide an annual summary of ecosystem changes in the Celtic Sea ecosystem (ICES, 2016), which they divide into the Malin Shelf (NW Scotland including Rockall), the Celtic Sea/W. Ireland and the Irish Sea. According to ICES, long-term monitoring suggests the following general changes to this ecosystem:

- Mean annual SST of the Rockall Trough has increased from ~9.3°C in 2001 to a peak of 10.1°C in 2006, with a cooling trend since then. Salinity in the upper 800 m of the Rockall Trough has also shown an increase from the early nineties until 2010, with a decrease since. Temperature impacts are visible in the migration, distribution and spawning of key pelagic fish species such as blue whiting, mackerel, horse mackerel and boarfish, as well as the recruitment of some gadoids. ICES notes that the region is at the edge of the geographical range of several important species, potentially making these species more susceptible to environmental variation/change.
- Phytoplankton abundance and the abundance of diatom and dinoflagellate species in shelf and oceanic waters show long-term declines since 1958. There has also been a decline in overall copepod abundance; the cold-water species *Calanus finmarchicus* and *Pseudocalanus* spp. have decreased, but the warm-water copepod *C. helgolandicus* has increased in abundance and has spread northwards.
- The abundance of breeding seabirds has shown a broad downward trend since the early 2000s. Populations of grey seals have, however, increased over at least the past thirty years, though they now appear to be stabilising.
- Fishing pressure on commercial stocks has decreased since its peak in 1998; average F/FMSY is now close to one. Overall biomass of commercial stocks has also increased; the average SSB/Btrigger is >1 (i.e. on average B>Btrigger).
- Fishing effort by bottom mobile gears has decreased by ~35 % from 2003 to 2014, reducing the fishing footprint and the average number of times the seabed is trawled per year.

According to Neat and Campbell (2011) the fish assemblage at Rockall is a subset of the assemblage characterising the West coast of Scotland; a comparison of surveys at the two areas show a suite of species present on the Scottish shelf but not at Rockall, but none present only at Rockall. Estimates of species curve asymptotes suggest that Rockall has overall about two thirds of the fish species in the west coast assemblage. They conclude that the depauperate nature of the community may relate to several factors:

- lack of inshore habitat (particularly nursery habitat); species with juvenile habitat preference for inshore/coastal areas such as pollack, Norway pout, dab and plaice were absent or rare and saithe was present only as adults.
- relative isolation resulting in fewer recruitment events
- small size of the bank resulting in possible competitive exclusion (they surmise that this might be the case with whiting which is intermittently present but rare). Certain species were particularly abundant at Rockall compared to the west coast; e.g. haddock, poor cod (*Trisopterus minutus*), golden redfish, black-bellied

rosefish and grey gurnard; all of these are predominately benthic invertebrate feeders, although it is not clear if this is the reason for their abundance.

The Malin shelf ecosystem has not been as intensively studied as other areas. In recent years, there have been attempts to develop and fit ecosystem models for the purposes of informing fisheries management (Alexander et al. (2015) and Bailey et al. (2011)). The models have had some difficulty in fitting historical data and in explaining recent trends.For example, EcoPath assumes that the system is initially at equilibrium, however for the Malin shelf various gadoid species (notably cod and whiting) were already in the process of decline at the start of the time series. According to Bailey et al (2011) this makes it difficult to model within the EcoPath/Sim framework. The scenario modelling also has difficulty in explaining why gadoid populations in Subarea 6a have not seen the same recovery as in other areas such as the North Sea, despite the same management framework being applied (the Cod Recovery Plan). Alexander et al. (2015) conclude that neither seals nor bycatch of juveniles in the *Nephrops* fishery can explain this phenomenon. Overall, they note that fishing is the key driver of the ecosystem, and fishing stocks at FMSY would benefit cod stocks particularly, whiting less so, according to the model. They note, however, that there remains a lack of understanding of predator-prey and recruitment dynamics in the west of Scotland system relative to elsewhere in NW Europe, and the massive gadoid decline still cannot be easily explained by existing models, even when fishing is incorporated. How might this apply to Rockall? Based on the analysis of Neat and Campbell (2011) the assessment team can surmise that the food web at Rockall, as it relates to commercially-exploited species, is a simplified version of the west coast shelf food web (Figure 18); presumably groups that are rarer/absent at Rockall such as Norway pout, pollack, whiting and immature cod play less/no role, while species that are more abundant such as poor cod, redfish and rosefish play a more significant role. Based on Neat and Campbell (2011), however, we can infer that the food web is likely to be qualitatively like that of the Scottish west coast.

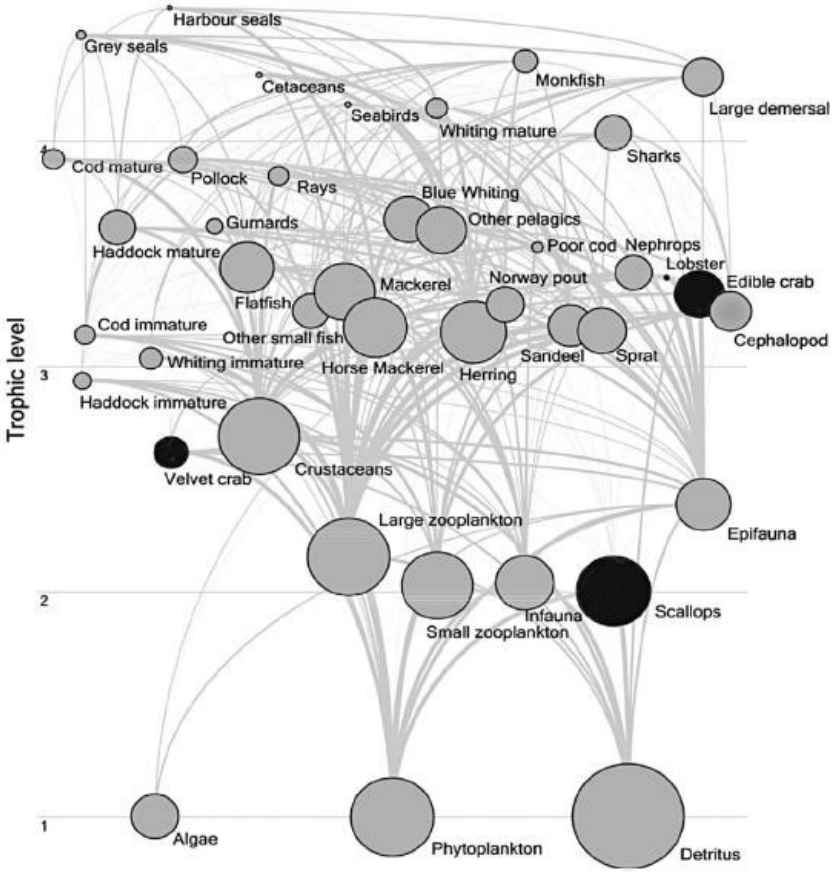


Figure 18: Biomass and energy flow for the West coast of Scotland ecosystem, as modelled by EcoPath (Alexander et al., 2015). Note that squids are grouped with other cephalopods.

Since the fishery is not managed and there are no limitations, the quantity of squid caught every year varies depending on availability and price of squid and other species, which could cause unwanted predator-prey impacts in years of high catches.

7.5.1 Principle 2 Performance Indicator scores and rationales

PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are **likely** to be above the PRI. OR If the species is below the PRI, the UoA has measures in place that are **expected** to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are **highly likely** to be above the PRI. OR If the species is below the PRI, there is either **evidence of recovery** or a demonstrably effective strategy in place **between all MSC UoAs which categorise this species as main**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main primary species are above the PRI **and are** fluctuating around a level consistent with MSY.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

On a preliminary approach to catch composition, main primary species have been considered to be mackerel, hake and haddock. According to most recent ICES advice (2019) for these species, SSB for them all is above B_{MSY}, and therefore at levels consistent with SG100. In any case, at a future full assessment, catch composition shall be reviewed and analysed according to most recent ICES advice. Specifically, for mackerel, ICES assesses that fishing pressure on the stock is above F_{MSY} and below F_{pa} and F_{lim}; the spawning-stock size is above $MSYB_{trigger}$, B_{pa}, and B_{lim}. For hake, ICES assesses that fishing pressure on the stock is below F_{MSY}; spawning-stock size is above $MSYB_{trigger}$, B_{pa}, and B_{lim}. And for haddock ICES assesses that fishing pressure on the stock is below F_{MSY}, F_{pa} and F_{lim}, and that the spawning stock size is above $MSYB_{trigger}$, B_{pa}, and B_{lim}.

b	Minor primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI. OR If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.
	Met?			**N/A**
Rationale				

Due to uncertainties in the catch composition, the assessment team has considered all primary species in the catch to be main.

References

- Stakeholders meetings.
- ICES 2019 advice for hake, haddock and mackerel.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**>80**
Information gap indicator	**Information sufficient to score PI**
Data-deficient? (Risk-Based Framework needed)	**No**

PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a **partial strategy** in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a **strategy** in place for the UoA for managing main and minor primary species.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Main primary species are mackerel, hake and haddock. All of them are at present at levels consistent with B_{MSY}. The team has considered all primary species to be main, however is uncertain about the reliability of the information used, since information on catch composition comes from stakeholder meetings and the team had no access to any records on catch composition.

Haddock: There is no agreed management plan for haddock in this area. Two management strategies (NEAFC and EU MAP) have been assessed to be precautionary. NEAFC has requested ICES to evaluate the harvest control rules using F_{MSY} as target. ICES concluded that the NEAFC harvest control rules in the long-term management strategy for Rockall haddock were consistent with the precautionary approach. The EU multiannual plan (MAP) for stocks in the Western Waters and adjacent waters applies to this stock. The plan specifies conditions for setting fishing opportunities depending on stock status and making use of the F_{MSY} range for the stock. In accordance with the MAP, catches higher than those corresponding to F_{MSY} can only be taken providing SSB is greater than $MSYB_{trigger}$, and one of the following conditions is met:

- if it is necessary for the achievement of objectives of mixed fisheries;
- if is necessary to avoid serious harm to a stock caused by intra- or inter-species stock dynamics;
- in order to limit variations in fishing opportunities between consecutive years to not more than 20%.

ICES considers that the F_{MSY} range for this stock used in the MAP is precautionary.

Hake: The EU multiannual plan (MAP) for stocks in the Western Waters and adjacent has been agreed by the EU for this stock (EU, 2019). This plan is not adopted by Norway; thus, it was not used as the basis of the advice for this shared stock. ICES was requested to provide advice based on the MSY approach and to include the MAP as a catch option.

Mackerel: There is no long-term management strategy for Northeast Atlantic (NEA) mackerel agreed by all parties involved in the mackerel fishery. However, Norway, the EU, and the Faroes have agreed on an arrangement for a long-term management strategy for mackerel (Anon., 2017).

In any case, UK is no longer part of the EU and there is uncertainty in relation to what management will fish species be subject to. The management measures that have been in place so far are considered as a partial strategy (if necessary) that allows the fishery to meet the requirements at SG80.

b	Management strategy evaluation			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the fishery and/or species	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.

			involved.	
	Met?	**Yes**	**Yes**	**No**
Rationale				

Given the healthy status of the 3 stocks there is some objective basis for confidence that the partial strategy will work in the future as it is already working. ICES monitor the stocks to identify possible failures of the stock and recommend management measures if necessary. The requirements at SG80 are met. Given the lack of direct information on catch composition the requirements at SG100 are not met.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its overall objective as set out in scoring issue (a).**
	Met?		**No**	**No**
Rationale				

While the EU management plan for western waters has been in place for a few years now, there is uncertainty in relation to what management measures will apply now to these stocks, since UK is not part of the EU anymore. The requirements at SG80 are not met.

d	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**Yes**	**Yes**	**No**
Rationale				

According to stakeholder comments there are sharks in the catch composition but these are discarded immediately after capture, and are not subject to finning. Shark finning is also forbidden by Council Regulation (EC) No 1185/2003 of 26 June 2003 on the removal of fins of sharks on board vessels.

e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	**No**	**No**	**No**
Rationale				

There is market for main primary species and it could be considered that there is no unwanted catch of primary species, unless quotas are exhausted or these individuals do not meet catch size requirements. In any case, to the team's knowledge, there is no review of the potential effectiveness and practicality of alternative measures to minimise UoA related mortality of primary species. SG60 is not met.

References

- ICES 2019 advice for mackerel, hake and haddock.
- Council Regulation (EC) No 1185/2003 of 26 June 2003 on the removal of fins of sharks on board vessels

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**<60**
Information gap indicator	**More information sought**

PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is **adequate to assess** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is **adequate to assess with a high degree of certainty** the impact of the UoA on main primary species with respect to status.
	Met?	**Yes**	**No**	**No**
Rationale				

The team had no access to any quantitative information in relation to the impact of the UoA to primary species, regardless of this information probably been available for management authorities or fishermen associations. The requirements at SG80 at present are not met. As regards SG60, according to stakeholder comments, primary species to consider are mackerel, hake and haddock. Apparently, it is expected that these species do not reach the 5% threshold level to be considered as main (although there is no evidence of this) since squid catches seem to be very clean. Given the healthy status of the 3 stocks and the small catch expected to be taken by the UoA it is expected that the requirements at SG60 will be met, since it is possible to qualitatively estimate the UoA impact on these stocks as low.

b	Information adequacy for assessment of impact on minor primary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			**No**
Rationale				

The lack of any quantitative information on the amount of primary species taken by the UoA prevents the fishery from meeting the requirements at SG100.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** primary species.	Information is adequate to support a **partial strategy** to manage **main** primary species.	Information is adequate to support a **strategy** to manage **all** primary species and evaluate with a **high degree of certainty** whether the strategy is achieving its objective.

	Met?	**No**	**No**	**No**

Rationale

The lack of information on catch composition and estimates prevents the UoA from meeting the requirements at SG60, since there isn't sufficient information to quantitatively estimate the impact of the UoA on the different primary species stocks. SG60 is not met.

References

- ICES 2019 advice for hake, mackerel and haddock.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**<60**
Information gap indicator	**More information sought**

PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guide post	Main secondary species are **likely** to be above biologically based limits. OR If below biologically based limits, there are **measures** in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are **highly likely** to be above biologically based limits. OR If below biologically based limits, there is either **evidence of recovery** or a **demonstrably effective partial strategy** in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are **considerable**, there is either **evidence of recovery** or a, **demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main secondary species are above biologically based limits.
	Met?	**No**	**No**	**No**
Rationale				

According to stakeholder comments, secondary species to consider are ling, blackbelly rosefish, lemon sole, pollack, bib, dab and grey gurnard. They have all been considered as main secondary species given the uncertainties in relation to catch composition and catch proportions. As regards ling, fishing mortality is at levels below Fmsy, and it is therefore expected that the UoA is not hindering its recovery. SG60 is met for ling. The lack of management measures directed to this stock prevents ling from meeting the requirements at SG80.

As regards other secondary species expected in the catch (this is, blackbelly rosefish, lemon sole, pollack, bib, dab, and grey gurnard) they have been assessed using the RBF and have obtained a score of 80 (see Annex 8). However there are other main secondary species which should be taken into consideration, such as seabirds or non-protected elasmobranchs. The lack of records of interactions (together with the lack of records available to the team on catch composition) prevent the UoA from meeting the requirements at SG60, as it is not possible to determine if possible out-of-scope species are above biologically based limits or if there are measures to ensure that the UoA is not hindering recovery and rebuilding of main secondary species. SG60 is not met for out of scope main secondary species.

Since at least one component of main secondary species (such as out of scope species) does not meet the requirements at SG60, SIa does not meet the requirements of SG60, regardless of some individual scoring elements (such as secondary fish species) meeting the requirements at SG60 and SG80.

b	Minor secondary species stock status			
	Guide post			Minor secondary species are highly likely to be above biologically based limits.

				OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			**N/A**

Rationale

On a precautionary approach all secondary species listed by stakeholders have been considered as main secondary species. Further information on catch composition would be needed in a full assessment.

References

- Stakeholder comments.
- ICES 2019 advice for ling (*Molva molva*) in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a (Northeast Atlantic and Arctic Ocean)

Overall Performance Indicator (PI) Rationale

Draft scoring range	**<60**
Information gap indicator	**More information sought**
Data-deficient? (Risk-Based Framework needed)	**Yes**

PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **strategy** in place for the UoA for managing main and minor secondary species.
	Met?	**No**	**No**	**No**
Rationale				

Main secondary species are ling, blackbelly rosefish, lemon sole, pollack, bib, dab and grey gurnard. The team has considered all secondary species to be main, however is uncertain about the reliability of the information used, since information on catch composition comes from stakeholder meetings and the team had no access to any records on catch composition. To the team's knowledge there are no management measures which are expected to maintain or not hinder rebuilding of main secondary species regardless of these being necessary. SG60 is not met.

b	Management strategy evaluation			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	**No**	**No**	**No**
Rationale				

The team is not aware of management measures directed to these species and has no information on their efficiency. SG60 is not met.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**
	Met?		**No**	**No**
Rationale				

The team is not aware of any management measure directed to secondary species. Besides, there are uncertainties on what management measures will apply after UK leaving the EU. The requirements at SG80 are not met.

d	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**Yes**	**Yes**	**No**
Rationale				

According to stakeholder comments there are sharks in the catch composition but they are discarded immediately after capture and finning does not occur. Shark finning is also forbidden by Council Regulation (EC) No 1185/2003 of 26 June 2003 on the removal of fins of sharks on board vessels.

e	Review of alternative measures to minimise mortality of unwanted catch			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of all secondary species, and they are implemented, as appropriate.
	Met?	**No**	**No**	**No**
Rationale				

To the team's knowledge there is no formal review of alternative measures to minimise UoA related mortality of secondary species. SG60 is not met.

References

- Stakeholder comments
- Council Regulation (EC) No 1185/2003 of 26 June 2003 on the removal of fins of sharks on board vessels

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**<60**
Information gap indicator	**Further information sought.**

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and **adequate to assess with a high degree of certainty** the impact of the UoA on main secondary species with respect to status.
	Met?	**Yes**	**No**	**No**
Rationale				

According to stakeholder comments, secondary species to consider are lemon sole, blackbelly rosefish, pollack, dab and grey gurnard. Apparently, it is expected that these species do not reach the 5% threshold level to be considered as main (although there is no evidence of this) since squid catches seem to be very clean. Apart from ling, RBF was used to score secondary species. Qualitative information is adequate to estimate productivity and susceptibility attributes for all main secondary species, since qualitative information on expected catch could be estimated given the catch of the targeted veined squid. Besides, ICES advice on ling provides information that is adequate to estimate the impact of the UoA with respect to status, while for those species assessed using the RBF Fishbase database provides qualitative information which is adequate to estimate the productivity and susceptibility attributes. The requirements of SG60 are met for all fish secondary species.

The team had no access to any quantitative information in relation to the impact of the UoA to secondary species, regardless of this information probably been available for management authorities or fishermen associations. The requirements at SG80 at present are not met by any secondary species.

b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			**No**
Rationale				

The lack of any quantitative information on the amount of secondary species taken by the UoA prevents the fishery from meeting the requirements at SG100.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage	Information is adequate to support a **partial strategy** to	Information is adequate to support a **strategy** to manage

		main secondary species.	manage **main** secondary species.	**all** secondary species and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.
	Met?	**No**	**No**	**No**

Rationale

The lack of information on catch composition and estimates prevents the UoA from meeting the requirements at SG60, since there isn't sufficient information to quantitatively estimate the impact of the UoA on the different secondary species stocks. SG60 is not met.

References

- Fishbase

Draft scoring range	**<60**
Information gap indicator	**Further information sought**

PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the **effects of the UoA** on the population/ stock are known and **likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, the **combined effects of the MSC UoAs** on the population /stock are known and **highly likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a **high degree of certainty** that the **combined effects of the MSC UoAs** are within these limits.
	Met?	**NA**	**NA**	**NA**
Rationale				

ETP species are unspecified rays and sharks and some of these species have national or international limits. The lack of species level identification precludes to properly assess this SI. The team considers it is N/A.

b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species.	There is a **high degree of confidence** that there are no **significant detrimental direct effects** of the UoA on ETP species.
	Met?	**No**	**No**	**No**
Rationale				

According to stakeholder comments, there are sporadic interactions of the UoA with sharks and rays, however there is no recording of these interactions nor identification of the species interacted. Given this, there isn't sufficient information to asseverate that the requirements of SG60 are met. SG60 is not met.

c	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be **highly likely** to not create unacceptable impacts.	There is a **high degree of confidence** that there are no **significant detrimental indirect effects** of the UoA on ETP species.
	Met?		**No**	**No**
Rationale				

Indirect effects would be those related to injuries to the species, the trophic chain and prey availability or seabed disturbance. Given the lack of information on what species are interacted or the frequency of these interactions the requirements at SG80 are not met.

References
Stakeholder comments.

Draft scoring range	**<60**
Information gap indicator	**Further information sought.**

Data-deficient? (Risk-Based Framework needed)	**Yes**

PI 2.3.2 – ETP species management strategy

PI 2.3.2		**The UoA has in place precautionary management strategies designed to:** - **meet national and international requirements;** - **ensure the UoA does not hinder recovery of ETP species.** **Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species**		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are **measures** in place that minimise the UoA-related mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
	Met?	**NA**	**NA**	**NA**
Rationale				

ETP species are unspecified rays and sharks and some of these species have national or international limits. The lack of species level identification precludes to properly assess this SI. The team considers it is N/A. See SIb.

b	Management strategy in place (alternative)			
	Guide post	There are **measures** in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **strategy** in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **comprehensive strategy** in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	Met?	**No**	**No**	**No**
Rationale				

ETP species should be protected by national law or binding international treaty. Fish species (such as elasmobranchs) may be classified as ETP species if protected by EU fisheries regulations (Council Regulation 2017/127 of 20 January 2017, (EU, 2017b)). However, since the UK is now out of the EU this regulation does not apply any longer, although similar regulations are expected to be implemented. Given the uncertainties in relation to the impact of the UoA on ETP species and the management measures in place the UoA does not meet the requirements at SG60.

c	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/species).	There is an **objective basis for confidence** that the measures/strategy will work, based on **information** directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis** supports **high confidence** that the strategy will work.

	Met?	**No**	**No**	**No**
Rationale				

Given the lack of information on interacted species and frequency of these interactions, and the uncertainties in relation to the management measures in place after Brexit, it is not possible to determine that the requirements at SG60 are at present met. SG60 is not met.

d	Management strategy implementation			
	Guide post		There is some **evidence** that the measures/strategy is being implemented successfully.	There is **clear evidence** that the strategy/comprehensive strategy is being implemented successfully and **is achieving its objective as set out in scoring issue (a) or (b).**
	Met?		**No**	**No**
Rationale				

There isn't sufficient information from the fishery in relation to impacts neither on ETP species nor on the management measures that apply. The requirements at SG80 are not met.

e	Review of alternative measures to minimize mortality of ETP species			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	**No**	**No**	**No**
Rationale				

To the team's knowledge, there is no review of measures to minimise UoA related mortality of ETP species. SG60 is not met.

References

- Stakeholder comments
- Council Regulation 2017/127 of 20 January 2017, (EU, 2017b)

Draft scoring range	**<60**
Information gap indicator	**More information sought**

PI 2.3.3 – ETP species information

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: - Information for the development of the management strategy; - Information to assess the effectiveness of the management strategy; and - Information to determine the outcome status of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Qualitative information is **adequate to estimate productivity and susceptibility** attributes for ETP species.	Some quantitative information is **adequate to assess** the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Some quantitative information is **adequate to assess productivity and susceptibility attributes** for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	Met?	**No**	**No**	**No**
Rationale				

There is neither qualitative nor quantitative information available to the team in relation to the impact that the UoA may have on ETP species. The requirements at SG60 are not met.

b	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage the impacts on ETP species.	Information is adequate to measure trends and support a **strategy** to manage impacts on ETP species.	Information is adequate to support a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives.
	Met?	**No**	**No**	**No**
Rationale				

There is neither qualitative nor quantitative information available to the team in relation to the impact that the UoA may have on ETP species. The requirements at SG60 are not met.

References

Draft scoring range	**<60**
Information gap indicator	**Further information sought.**

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	**Yes**	**Yes**	**No**
Rationale				

According to Howell et al (2009) common encountered habitats by the UoA would be coarse sediments. VMS maps have not been provided, but information collected at the site visit states that the fishery takes place in a very small trench a few km long which is trawled once and again. Given the nature of the seafloor (coarse sediments) and the small proportion of seabed affected by the UoA it is expected that the UoA is highly unlikely to reduce structure and function of commonly encountered habitats to a point where there would be serious or irreversible harm, as impacted habitat is expected to be less than 20% of the distribution of coarse sediments in the managed area. In any case, VMS maps are required to support this score. SG80 is expected to be met.

b	VME habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	Met?	**Yes**	**Yes**	**No**
Rationale				

VME habitats identified in the Rockall area include:

- Biogenic reefs: Stony corals (mainly *Lophelia pertusa* and *Madrepora occulata)*
- Rocky reef: with encrusting and cup sponges, encrusting and cyclostome bryozoans, cup corals and anemones.
- Stony reef: The fauna is essentially the same as for rocky reefs (described above), but generally lacking a dense encrusting fauna; important species are encrusting sponges and bryozoans, keel worm and barnacles.

There are several VMEs identified in the Rockall area, however these appear to be distributed in waters deeper (over 400 m) than the depth where the squid fishery takes place (50-100 m). Besides, many VME are already protected by closed areas in NW and SW Rockall, although some VME can also be found outside these boundaries. Given the differences in depth and the existence of protected VMEs, the team considers that the UoA is unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm. SG60 is met.
Protected areas allow for protection of ~75 % of the area which are thought with medium or high confidence to contain VMEs. This gives a theoretical maximum potential for damage of ~25%, which would constitute 'serious or irreversible harm' according to MSC's definition, given above. Overall, the team concludes that the 75% closure, plus the qualitative factors of depth range, unfishable areas and small footprint of the UoA due to its concentration in an area, made it 'highly unlikely' for serious or irreversible harm to be caused to these VMEs, but that evidence is lacking in some areas. SG80 is met. Further information such as overlapped maps of VMS activities and location of VMEs would be needed to support a higher score. SG100 is not met.

c	Minor habitat status			
	Guide post			There is **evidence** that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	Met?			**No**

Rationale

Further information in form of evidence on the description of minor habitats together with the impacts of the fishing gear in the seafloor are needed in order to evaluate this SI. Considering the fishing gear and applying a precautionary approach, the team considers that the requirements at SG100 are not met.

References

- Howell et al, 2009.

Draft scoring range	**80**
Information gap indicator	**Further information sought**
Data-deficient? (Risk-Based Framework needed)	**No**

PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a **partial strategy** in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a **strategy** in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Management of Rockall area falls under both NEAFC and UKs jurisdiction.
The NEAFC approach to management of vulnerable habitats is set out in Recs 19/2014 and 9/2015 and cover the following measures:

- VME closed areas.
- Definition of 'bottom fishing areas' outside which only experimental fishing is permitted with a defined framework.
- Move-on rules triggered by 30 kg corals or 400 kg sponges on the NEAFC side of the Rockall area.
- A process for review of the various measures by NEAFC and for external review of the boundaries of the closed areas by ICES on a regular basis.

These requirements apply to the NEACF jurisdiction of Rockall area, but not necessarily to the UK jurisdiction. Given that the management strategy only applies to parts of the area, the team has considered this strategy as partial. The requirements at SG60 and SG80 are met.

b	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on **information directly about the UoA and/or habitats** involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on **information directly about the UoA and/or habitats** involved.
	Met?	**Yes**	**Yes**	**No**
Rationale				

There is relatively high confidence that the measures described in NEAFC Recommendations 19/2014 and 9/2015 (see SIa) will work, as set out in 2.4.1. There is an objective basis for this based on historical and recent habitat surveys and mapping (Howell et al., 2009; ICES, 2016b, 2017a). SG60 and SG80 are expected to be met. There is however not enough information about all VME taxa at Rockall and the impacts of fishing such that this could constitute 'testing' in this case; ICES recalls that there is evidence that there remains some loss of VMEs and has recommended for several years small changes to the boundary of the NW Rockall closed area. SG100 is not met.

c	Management strategy implementation			
	Guide post		There is **some quantitative evidence** that the measures/partial strategy is being implemented successfully.	There is **clear quantitative evidence** that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).

	Met?		**No**	**No**
Rationale				

Quantitative evidence on the successful implementation of the VME closed areas would be found in VMS maps if provided. At present, is not possible to determine if the requirements at SG80 are met, since there isn't detailed information on the specific area where the UoA takes place (VMS maps) nor on its possible overlap with VME areas (not expected due to differences in depths). Besides, information is needed from management authorities and enforcement agencies regarding the successful implementation of the management strategy. Recording of interactions with VMEs and analysis on the application of the move on rule would also easy the scoring of this SI. At present SG80 and SG100 are not met.

d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
	Guide post	There is **qualitative evidence** that the UoA complies with its management requirements to protect VMEs.	There is **some quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is **clear quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	Met?	**Yes**	**No**	**No**
Rationale				

It is expected that the UoA complies with management requirements to protect VMEs, especially when taking into consideration the small area where the UoA takes place. However, confirmation would be needed from management authorities in order to support an SG60 score (which is expected to be met). Further information on which are the voluntary protection measures by other MSC fisheries in the area (such as the SFSAG haddock fishery) and on the UoA fulfilment of these would be need to achieve the SG80 score. SG80 is not expected to be met.

References

- NEAFC Recs 19/2014 and 9/201
- Howell et al., 2009
- ICES 2016b
- ICES 2017a

Draft scoring range	**60-79**
Information gap indicator	**Further information sought**

PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of the main habitats are **broadly understood**. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and **vulnerability** of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	Met?	**Yes**	**Yes**	**No**
Rationale				

At a scale relevant to the fishery, the general distribution of habitats, including vulnerable habitats, at Rockall is known and continues to be monitored. Information is sufficient to define and evaluate closed areas which protect the majority of VMEs from trawl damage. SG80 is met. The distribution of the habitats over their whole range at Rockall is, however, not understood in much detail (for example in relation to depth range of VME indicator species). SG100 is not met.

b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Since habitats are broadly identified and mapped, VMEs are located and mapped and the spatial extent of the use of fishing gear should be known through VMS data and depth limits in both jurisdictions then SG80 is met. SG100 requirements are not met, since at present no information has been used to estimate the area affected by the UoA.

c	Monitoring			
	Guide post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in all habitat distributions over time are measured.
	Met?		**Yes**	**Yes**

Rationale

ICES reviews the VME closed areas on a regular basis and uses mapping of bycatch records of VME indicator taxa from fishing vessels and (presumably) surveys (for the closed areas). This mapping can be compared with surveys and historical data. There is continued exploration of Rockall through research cruises which include new mapping techniques which increase the knowledge of habitats and provide new information on deeper areas (MS, 2016). SG100 is met.

References

- Kaiser, MJ, Collie, JS, Hall, SJ, Jennings, S., Poiner, I., 2003. Responsible Fisheries in the Marine Ecosystem. CABI Publishing, pp. 197–217.
- JNCC, 2008. UK Biodiversity Action Plan; Priority Habitat Descriptions: Cold-water Coral Reefs. From: UK Biodiversity Action Plan; Priority Habitat Descriptions, in: Maddock, A. (Ed.), JNCC.
- Howell, K. l., Davies, J.S., Jacobs, C., Narayanaswamy, B.E., 2009. Broadscale survey of the habitats of Rockall Bank and mapping of Annex I “reef” habitat (No. 422). JNCC, Peterborough.
- NEAFC, 2014. Recommendation on the protection of vulnerable marine ecosystems in the NEAFC Regulatory Area. North East Atlantic Fisheries Commission.
- ICES, 2016b. Vulnerable deep-water habitats in the NEAFC Regulatory Area. ICES, ICES Advice, Published 4 July 2016.
- ICES 2017a. New information regarding vulnerable habitats in the NEAFC Regulatory Area. ICES. ICES Special Request Advice North Atlantic Ecoregion Published 20 June 2017 vme.neafc.
- MS, 2016. High resolution mapping and new discoveries at Rockall. The OFFCON Project. Marine Scotland.

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	Guide post	The UoA is **unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is **highly unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	**No**	**No**	**No**
Rationale				

The lack of harvest control rules which allow for high catches of squid, the uncertainties regarding catch composition and possible interactions with ETP species make it difficult to support an SG60 score, since at present is not possible to evaluate what is the impact of the UoA on the key elements of the ecosystem. While there is room for meeting the requirements at SG60, since the main driver of ecosystem change at Rockall seems to be climate change (ICES, 2016a), the team is not in a position to support that the requirements at SG60 are met given the uncertainties around the UoA. SG60 is not met. The team is unclear about if the PI is data deficient since there seems to be sufficient information on the ecosystem at Rockall but not necessarily on impacts by the UoA.

References

- ICES, 2016a. Celtic Seas Ecoregion – Ecosystem overview. ICES - ICES Ecosystem Overviews, Version 2, 13 May 2016.

Draft scoring range	**<60**
Information gap indicator	**Further information sought.**
Data-deficient? (Risk-Based Framework needed)	**Yes**

PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary which take into account the **potential impacts** of the UoA on key elements of the ecosystem.	There is a **partial strategy** in place, if necessary, which takes into account **available information and is expected to restrain impacts** of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a **strategy** that consists of a **plan**, in place which contains measures to **address all main impacts of the UoA** on the ecosystem, and at least some of these measures are in place.
	Met?	**Yes**	**No**	**No**
Rationale				

There is not an ecosystem management plan or a formal integrated ecosystem approach to the management of Rockall. There, are, however, measures to manage the various different ecosystem elements that might be impacted by fishing: these are TAC and quotas for the main fishery species, although not for the targeted squid; gear restrictions and (increasingly) the landing obligation for discards and closed areas for VMEs. The measures together can comprise a 'partial strategy' according to MSC's definition, however since some of those measures (such as the allocation of TACs) do not apply to the UoA, the requirements at SG80 are not met for the fishery. The existence of this partial strategy seems sufficient to meet the requirements at SG60.

SG 60 is met. **b**	Management strategy evaluation			
	Guide post	The **measures** are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar UoAs/ ecosystems).	There is **some objective basis for confidence** that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	**Testing** supports **high confidence** that the partial strategy/ strategy will work, based on information directly about the UoA and/or ecosystem involved.
	Met?	**Yes**	**No**	**No**
Rationale				

Despite the remoteness of Rockall, there is relatively extensive monitoring of the ecosystem; the area is covered by annual Scottish and Irish fish surveys, there is periodic monitoring of VMEs (see Habitats above) and ICES is monitoring changes in the ecosystem (ICES, 2016a). However, there isn't sufficient information in relation to what the impact of the UoA might be on the ecosystem, since there is no reliable information on catch composition nor on interactions with ETP species. Generally speaking, the measures described above are considered likely to work, and hence the requirements at SG60 are met. The lack of specific information on the impact by the UoA restrains the UoA from meeting the requirements at SG80.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**
	Met?		**No**	**No**

Rationale

The team could not confirm at the site visit the accomplishment rate of mandatory management measures. Given the level of enforcement in the area it is expected that the partial strategy is implemented successfully, however the assessment team could not find evidence of this. The requirements at SG80 are at present not met.

References

- ICES, 2016a.

Draft scoring range	**60-79**
Information gap indicator	**Further information sought.**

PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to **identify** the key elements of the ecosystem.	Information is adequate to **broadly understand** the key elements of the ecosystem.	
	Met?	**Yes**	**Yes**	
Rationale				

The general elements of the ecosystem (plankton, fish, invertebrates, VMEs) are known and to some extent quantified, and it is possible to see roughly how the food web fits together. SG60 and SG80 are met.

b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but **have not been investigated** in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and **some have been investigated in detail**.	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and **have been investigated in detail**.
	Met?	**Yes**	**No**	**No**
Rationale				

The UoA lacks from information on its impact on ecosystem elements. While there is a general description on which bycatch fish species might be affected by the fishery (see primary and secondary species background information) there isn't information on the level of impact by the UoA. The requirements at SG60 are met, but neither at SG80 nor SG100.

c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are **known**.	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are **understood**.
	Met?		**Yes**	**No**
Rationale				

As regards the fish components (various gadoids, monkfish, megrim, various skates) their predator-prey dynamics are generally known, and their role in the food web can be evaluated at least qualitatively. The role of VMEs in the ecosystem (particularly as habitat for some fish species such as redfish) is also broadly understood (see Costello et al. (2005)). It was noted, however, by Alexander et al. (2015) that difficulties in fitting EcoPath models in the case of the west of Scotland shelf ecosystem were partially attributable to gaps in our knowledge of how the foodweb functions; on this basis it could be argued that while the main functions of the various components are known, how they fit together is not well understood in this area – SG80 is met, but SG100 is not met.

d	Information relevance			
	Guide post		Adequate information is available on the impacts of	Adequate information is available on the impacts of

			the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	the UoA on the components **and elements** to allow the main consequences for the ecosystem to be inferred.
	Met?		**No**	**No**
Rationale				

As noted above, the impact of the UoA on the various key components (fish, VMEs) can be inferred from stakeholder comments, although it has not been investigated to any detail, and there are uncertainties in relation to which would be the main consequences for the ecosystem. The requirements at SG80 are not met.

e	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?		**No**	**No**
Rationale				

As noted above, despite Rockall's remoteness, the key elements of the ecosystem likely to be impacted directly by the UoA (i.e. fish, VMEs) are monitored, although information on catch composition has not been made available to the team. Monitoring would allow for the detection of changes in risks (via stock assessments for certain species and VME mapping). However, the lack of stock assessment for the target species prevents the fishery from meeting the requirements at SG80, since it is not possible to determine increases in the risk level associated to overfishing of squid. Besides, the uncertainties in relation to species present in the catch composition and on interactions with out of scope and ETP species prevent the UoA from meeting the requirements at SG80. SG80 is not met.

References

- Costello et al., 2005
- Alexander et al., 2015
- ICES, 2016k, 2017e, 2017f

Draft scoring range	**60-79**
Information gap indicator	**Further information sought**

7.6 Principle 3

7.6.1 Principle 3 background

European Union

European fisheries are managed through the European Union Common Fisheries Policy (CFP). The CFP started in 1983 and is reviewed every 10 years, with the most recent review coming into force in 1 January 2014 (Regulation (EU) No 1380/2014). This newly reviewed legislation aims to ensure that "fishing and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies."

Other EU environmental legislation and international agreements that are applicable to habitats and species protection, but which are also relevant to fisheries activities are: the Marine Strategy Framework Directive (2008/56/EC) which obliges achieving a good environmental status by 2020; the Bird and Habitat Directives on the conservation of natural habitats providing the basis for the Natura 2000 networks; EC Regulation 812/2004 laying down measures concerning incidental catches of cetaceans; ASCOBANS (Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas); CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora); and finally the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention).

National

At a national level, individual Member States are responsible for implementing the CFP and other EU legislation and agreements. EU fisheries legislation is transposed directly to national legislation, while environmental and other agreements are transposed by primary and secondary national legislation, enacted in accordance with the EU legislation.

A Member State may take non-discriminatory measures to conserve and manage fish stocks, as well as maintain or improve the conservation status of marine ecosystems within 12 nautical miles of its baselines, as long as the EU has not adopted specific measures addressing conservation and management in that area or specifically addressing the problem identified by the Member State concerned. The Member State measures must be compatible with the objectives set out in CFP Article 2 and must be at least as stringent as the measures under Union law.

Until December 2020 the UK is under the EU CFP and its objectives, rules and procedures apply, through the so-called Transition Period for the UK to leave the EU CFP[1]. At the moment however there is significant uncertainty over Brexit and the agreement on fishing rights between the UK and the EU beyond 2020.

Competence for squid stock in the waters inside 12 nm of the Rockall bank lies within the UK Government, while its fishery is managed by Ireland. Nevertheless, the main fisheries law in the UK is its Fisheries Act while in Ireland it is the Sea-Fisheries and Maritime Jurisdiction Act 2006[2].

The only management measure applicable to the Irish squid fishery is the trawl minimum mesh size of 40 mm established at EU level, and a specific licencing scheme for freezer trawlers although specific to vessel type and not to targeted species.

Consultation, roles and responsibilities

The Department of Agriculture, Food and the Marine is the main government department for the management of Irish fisheries and the implementation of the Common Fisheries Policy, while in the UK it is Department for Environment, Food and Rural Affairs (DEFRA).

The main institutions involved in management of the Irish squid trawl fishery are:

- European Commission DG MARE – responsible for drafting European legislation on the management of European fisheries in accordance with the Common Fisheries Policy.
- The Department of Agriculture, Food and the Marine are responsible for the overall management of Irish fisheries.
- The Department for Environment, Food and Rural Affairs (DEFRA) is responsible for the overall management of UK fisheries.

[1] https://www.gov.uk/government/news/sustainable-fisheries-enshrined-in-law-as-uk-leaves-the-eu
[2] http://www.irishstatutebook.ie/eli/2006/act/8/enacted/en/index.html

- International Council for the Exploration of the Sea, ICES – provides the forum for consolidation of scientific work undertaken by scientists in participating national institutions (through relevant Expert Groups), and the delivery of advice on how best to manage fish stocks.
- European Commission's Scientific, Technical and Economic Committee for Fisheries, STECF – the fisheries scientific committee of the European Commission providing advice to the Commission on all aspects of fisheries science and economics.
- The Marine Institute - MI, responsible for trawl fisheries sampling and advice.
- The North Western Advisory Council (NWAC), established in the 2002 CFP reform to increase stakeholders participation in the management of north western European fisheries. It includes representatives of the fisheries sector and other groups (including environmental NGOs).

All of these institutions have well established protocols covering their purpose, roles, operation, representation, consultation, and decision-making process, as well as for communicating policy, plans, decisions, and other information. Their roles are well understood and the interaction between them works effectively. However, there is considerably uncertainty over Brexit and the relationship and decision making between the UK and EU, and for example the fact that the UK industry has withdrawn from the ACs.

Long term and specific objectives for the fishery

The CFP has specific precautionary and MSY objectives to reach sustainable fisheries, namely to recover stocks biomass above maximum sustainable yield and reach MSY exploitation rates by 2015 where possible and, on a progressive, incremental basis at the latest by 2020 for all stocks. The UK Fisheries Act has similar MSY objectives.

The EU Marine Strategy Directive (Directive 2008/56/EC) also commits Members States to further foster the integration of environmental concerns into other relevant policies, such as the CFP, in order to achieve 'good environmental status' in the marine environment, through the development and implementation of national level policies based on an ecosystem approach.

Regarding the management of the squid trawl fishery (Principle 1) and its impact on ecosystem (Principle 2), the management system is however significantly less developed and less comprehensive when compared to other fish stocks, while Brexit creates significant uncertainty.

Control, enforcement, and compliance

The overall CFP requirements for Monitoring, Control and Surveillance (MCS) are enshrined in the Fisheries Control Regulation (Council Regulation (EC) 1224/2009). The specifications of the EU MCS systems (operational procedures) are well developed, are in place, and are applied in a clear and transparent way.

Ireland as a Member State of the European Union, its fisheries are subject to the principles and practices of the CFP, including its MCS systems. However, control and enforcement activities are an exclusive national competence. The Sea Fisheries Protection Authority is responsible for monitoring, enforcement and inspection. There is clear system of monitoring quota uptake, based on paper e-logbooks cross referenced with sales notes.

Overall there is some degree of confidence in the enforcement system and there is no evidence of systematic non-compliance.

7.6.2 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: - Is capable of delivering sustainability in the UoA(s); - Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and - Incorporates an appropriate dispute resolution framework		
Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guide post	There is an effective national legal system **and a framework for cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and **organised and effective cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and **binding procedures governing cooperation with other parties** which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

European fisheries are managed through the European Union Common Fisheries Policy (CFP). The CFP has specific precautionary and MSY objectives to reach sustainable fisheries in the context of ecosystem based management, and therefore has management outcomes consistent with MSC principles 1 and 2. Ireland and the UK (until 2020) have enacted the CFP and has set management objectives in line with its principles. SG60 and SG80 are reached. Also, Ireland as part of the EU is under binding procedures governing cooperation with other Member States and other parties and thus SG100 is also met.

b	Resolution of disputes			
	Guide post	The management system incorporates or is subject by law to a **mechanism** for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes which is **considered to be effective** in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes that is appropriate to the context of the fishery and has been **tested and proven to be effective**.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Disputes between Member States and the European Commission are resolved in the Council of Ministers, while legal disputes between European Institutions and with EU governments can be taken to the Court of Justice of the European Union. Nationally, the resolution of legal disputes is made through the Irish judicial system. In the event of a fisheries infringement, the Department of Agriculture, Food and the Marine passes the details to the public prosecutor who will then decide the value of the fine. Fishers, or industry representatives, can appeal to the full judicial process. Therefore SG60 and SG80 are met. However, there is considerable uncertainty how Brexit could impact resolution of disputes, while there is no information that the system has been tested and proven to be effective, and thus SG100 is not met.

c	Respect for rights			

	Guide post	The management system has a mechanism to **generally respect** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **observe** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **formally commit** to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

The EU CFP, Irish and UK national legislation, and their management system, has a mechanism to formally commit to the legal rights of people depending their livelihoods from fishing and thus SG 60, 80 and 100 are met.

References

- Information gathered at the site visit.
- Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

Draft scoring range	**≥80**
Information gap indicator	**More information sought**

PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **generally understood**.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for key areas** of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for all areas** of responsibility and interaction.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Although Brexit brings significant uncertainty beyond 2020, at the moment the major institutions involved in the management of the Irish squid trawl fishery are well known and their functions and roles are explicitly defined and well understood. Therefore SG100 is reached.

b	Consultation processes			
	Guide post	The management system includes consultation processes that **obtain relevant information** from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information and **explains how it is used or not used**.
	Met?	**Yes**	**Yes**	**No**
Rationale				

At European level there are several consultation processes that include local knowledge to inform management system, namely through the ACs and different industry associations and environmental organisations, that meet regularly. And thus SG 60 is met. There are also Irish regular meetings with the Department and this consultation process does include other interested stakeholders, such as environmental NGOs, that may hold relevant information (information gathered at site visit) and thus SG80 is reached. However, since there is uncertainty on how the information is used SG100 is not met.

c	Participation			
	Guide post		The consultation process **provides opportunity** for all interested and affected parties to be involved.	The consultation process provides **opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement.
	Met?		**Yes**	**No**

Rationale

The regular meetings with the Department provides an opportunity for all interested and affected parties to be involved and thus SG80 is met (information gathered at site visit), but there is no information if stakeholder engagement is facilitated and SG100 is not met.

References

- Information gathered at the site visit.

Draft scoring range	**≥80**
Information gap indicator	**More information sought**

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are **implicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach are **explicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are **explicit** within **and required by** management policy.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The CFP has clear precautionary and MSY long term objectives, and the Irish and UK fisheries laws are in accordance with these objectives. In addition, the EU Marine Strategy Directive (Directive 2008/56/EC) also commits Members States to further foster the integration of environmental concerns into other relevant policies, such as the CFP, in order to achieve 'good environmental status' in the marine environment. However, as Brexit brings significant uncertainty beyond 2020, where long-term objectives guide decision-making between EU and UK are required is unclear, SG100 is not met.

References

- Information gathered at site visit.
- Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

PI 3.2.1 – Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	**Objectives**, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well defined and measurable short and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.
	Met?	**Yes**	**No**	**No**
Rationale				

There are general sustainability objectives in the CFP and in national fisheries laws, that has specific precautionary, MSY and ecosystem objectives, but these have not been translated into short-term and long-term objectives specific for the fishery. The fishery specific management system includes only a minimum mesh size and does not have short or long term objectives. Therefore SG80 is not reached.

References

- Information gathered at the site visit.

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are **some** decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	**Yes**	**Yes**	
Rationale				

There are some decision-making processes in place through the EU CFP and its implementation and thus SG60 is met. There are also established decision making processes nationally in Ireland, , namely regular meetings between the government and stakeholders where management measures are discussed and thus SG80 is also met.

b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to **serious issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to **serious and other important issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to **all issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	**Yes**	**Yes**	**No**
Rationale				

At EU there is a decision making process that responds to serious and other important issues such as the poor state of a stock, or of the systematic non-compliance for example of the Landing Obligation. There is also a decision-making process nationally and SG60 and SG80 is met. However, there is uncertainty of the decision-making process does responds to all issues identified, namely squid stock structure for example, while in addition to the Brexit uncertainty in decision-making processes and thus SG100 is not met.

c	Use of precautionary approach			
	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		**Yes**	
Rationale				

The decision-making process at EU level uses the precautionary approach and is based on the best available scientific information and thus SG80 is met.

	Accountability and transparency of management system and decision-making process			
d	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Information on stock sustainability and on the fishery is available publicly trough scientific papers, and explanations are provided to stakeholders with the reasons some management measures are proposed. Thus SG60 and 80 are met. However, since there is no formal reporting SG100 is not met.

	Approach to disputes			
e	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The squid trawl fishery acts proactively to avoid any legal disputes (information gathered at site visit), while their legal requirements specific to the fishery are very limited (reporting and minimum mesh size). Therefore SG100 is reached.

References

- Information gathered at the site visit.
- Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

Draft scoring range	**≥80**
Information gap indicator	**More information sought**

PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guide post	Monitoring, control and surveillance **mechanisms** exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance **system** has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A **comprehensive** monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

A comprehensive MCS system exists and is implemented in the fishery and has demonstrated an ability to enforce relevant management measures. Thus SG60, SG80 and SG100 are met.

b	Sanctions			
	Guide post	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, **are consistently applied** and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and **demonstrably** provide effective deterrence.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Sanctions exist in the Irish law and there is evidence, based on all stakeholders interviewed, that they are consistently applied and demonstrably provide effective deterrence, for example for mistakes in filling e-logbooks so SG60, SG80 and SG100 are met.

c	Compliance			
	Guide post	Fishers are **generally thought** to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	**Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

There is a high degree of confidence, based on all stakeholders interviewed, that the fishery complies with the management system and also provides information on catches therefore SG60, SG80 and SG100 is met.

d	Systematic non-compliance

	Guide post		There is no evidence of systematic non-compliance.	
	Met?		**Yes**	

Rationale

There is no evidence of systematic non-compliance and thus SG80 is reached.

References

Information gathered at the site visit.

Draft scoring range	**≥80**
Information gap indicator	**More information sought**

PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives There is effective and timely review of the fishery-specific management system		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guide post	There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.
	Met?	**Yes**	**Yes**	**No**
Rationale				

There are mechanisms in place to evaluate key parts of the fishery specific management system, namely monitoring of catches (mainly volumes) and licences. SG 60 and 80 is met. However, it is unclear if all parts of the management system are evaluated and thus SG100 is not reached.

b	Internal and/or external review			
	Guide post	The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external** review.	The fishery-specific management system is subject to **regular internal and external** review.
	Met?	**Yes**	**No**	**No**
Rationale				

The fishery-specific management system is subject to occasional internal review, namely with the review of the EU technical measures regulation and thus SG60 is reached. However, there is no information that the fishery-specific management system is subject to regular internal or external review and thus SG80 and SG100 is not met.

References

- Information gathered at the site visit

Draft scoring range	**60-79**
Information gap indicator	**More information sought**

8 Appendices

8.1 Assessment information

8.1.1 Small-scale fisheries

Table XI – Small-scale fisheries

Unit of Assessment (UoA)	Percentage of vessels with length <15m	Percentage of fishing activity completed within 12 nautical miles of shore
Irish squid trawl fishery	0%	100%

8.2 Evaluation processes and techniques

8.2.1 Site visits

The site visit was carried out by Lisa Borges to Galway, Oranmore and Dublin between the 6-8 January 2020, with the participation of Katie Keay and Jo Pollett from MSC, and included a visit to the port of Castletownbere, and interviews (in person) with the following stakeholders:

- Castletownbere Fishermen's Co-Operative Society Ltd
- Marine Institute, Oranmore
- Bord Iascaigh Mhara (BIM), Dublin

8.2.2 Recommendations for stakeholder participation in full assessment

All stakeholders contacted in this pre-assessment should participate in a full assessment, jointly with the Department of Agriculture, Food and the Marine; the Sea Fisheries Protection Authority and BirdWatch Ireland, among other stakeholders.

8.3 Risk-Based Framework outputs

8.3.1 Consequence Analysis (CA)

Since there is no information on stock status for squid *Loligo forbesii* in 6b a Risk Based Assessment was carried out to score PI 1.1.1 assuming a priori a high risk in the Consequence Analysis and conducting PSA directly.

8.3.2 Productivity Susceptibility Analysis (PSA)

The PSA analysis for Veined squid *Loligo forbesii* in 6b can be found in section 7.4 of this report.

The following secondary species have been assessed using the RBF, according MSC FCP v2.1, PF4. The results of this RBF should be reviewed with stakeholder input at a full assessment process.

Blackbelly rosefish (*Helicolenus dactylopterus*)

https://www.fishbase.se/summary/Helicolenus-dactylopterus.html

https://www.fishbase.se/popdyn/KeyfactsSummary_1.php?ID=76&GenusName=Helicolenus&SpeciesName=dactylopterus&vStockCode=85&fc=573

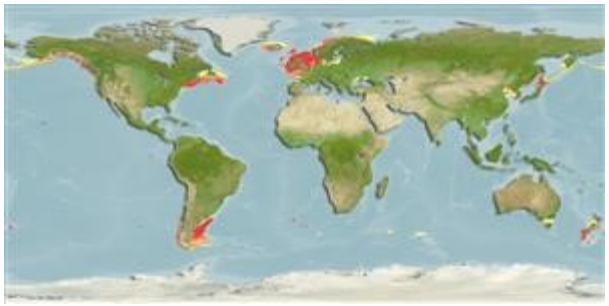
Productivity	Rationale: All information has been taken from www.fishbase.com	
Average age at maturity.	13 years	2
Average maximum age	57 years	3
Fecundity	Unknown	3
Average maximum size	50 cm	1
Average size at maturity	36 cm	1
Reproductive strategy	Expected to be spawner.	1
Trophic level	3,5	3
Susceptibility	**Rationale**	
Areal Overlap: Overlap of the fishing effort with a species concentration of the stock.	Distribution of Blackbelly rosefish: Western Atlantic: Nova Scotia, Canada to Venezuela. Eastern Atlantic: Iceland and Norway to the Mediterranean and the Gulf of Guinea, including Madeira, the Azores, and the Canary Islands; also Walvis Bay, Namibia to Natal, South Africa  The assessment team has considered that expected areal overlap is less than 10% since the fishery is very localised at Rockall.	1
Vertical Overlap: The position of the stock/species within the water column relative to the fishing gear.	The species lives in waters between 50 - 1100 m. Fishing takes place at waters less than 100 m depth. *The team considers that there is a low overlap with the fishing gear.*	1
Selectivity: The assessment team has to determine if individuals smaller than size at maturity are rarely, regularly or frequently caught. The team has to determine if individuals half the size at maturity can escape the net or not.	Mesh size is 40 mm. *Size of the fish at maturity is 36 cm* *On a precautionary basis, the team has considered that individuals at the size of maturity are probably caught* ***frequently***. *The team considers that it is not possible for individuals of 18 cm to escape through the mesh.*	3

Post capture mortality: The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival.	If taken in the net and hauled on board the fish will dye. High risk of fish dying if taken by the gear.	3

Lemon sole (*Microstomus kitt*)

https://www.fishbase.se/summary/Microstomus-kitt.html

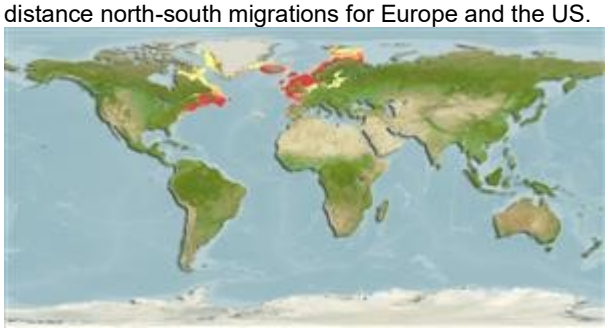
https://www.fishbase.se/popdyn/KeyfactsSummary_1.php?ID=1382&GenusName=Microstomus&SpeciesName=kitt&vStockCode=1401&fc=440

Productivity	Rationale: All information has been taken from www.fishbase.com	
Average age at maturity.	4,2 years	1
Average maximum age	17,8 years	2
Fecundity	27.453	1
Average maximum size	65 cm	1
Average size at maturity	28 cm	1
Reproductive strategy	open water/substratum egg scatterers	2
Trophic level	3.2 +/- 0.33	3
Susceptibility	**Rationale**	
Areal Overlap: Overlap of the fishing effort with a species concentration of the stock.	Distribution of Lemon sole: Northeast Atlantic: Bay of Biscay to the White Sea and off Iceland.  The assessment team has considered that expected areal overlap is less than 10% since the fishery is very localised at Rockall.	1
Vertical Overlap: The position of the stock/species within the water column relative to the fishing gear.	The species lives in waters between 10 - 200 m, usually 10 - 150 m. Fishing takes place at waters less than 100 m depth. *The team considers that there is a high overlap with the fishing gear.*	3
Selectivity: The assessment team has to determine if individuals smaller than size at maturity (13 cm) are rarely, regularly or frequently caught. The team has to determine if individuals half the size at maturity (7 cm) can escape the net or not.	Mesh size is 40 mm. *Size of the fish at maturity is 28cm* *On a precautionary basis, the team has considered that individuals at the size of maturity are probably caught* ***frequently*** *The team considers that it is not possible for individuals of 14 cm to escape through the mesh.*	3
Post capture mortality: The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival.	If taken in the net and hauled on board the fish will dye. High risk of fish dying if taken by the gear.	3

Pollack (*Pollachius virens*)

https://www.fishbase.se/summary/Pollachius-virens.html

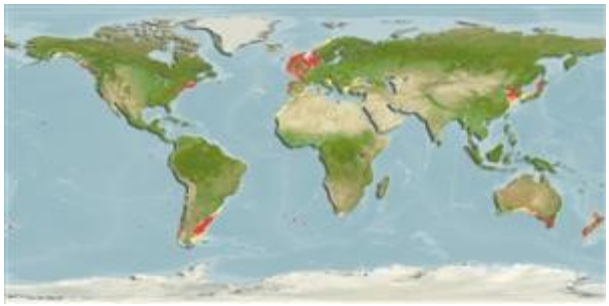
https://www.fishbase.se/popdyn/KeyfactsSummary_1.php?ID=1343&GenusName=Pollachius&SpeciesName=virens&vStockCode=1361&fc=183

Productivity	Rationale: All information has been taken from www.fishbase.com	
Average age at maturity.	3,1 years	1
Average maximum age	14,4 years	2
Fecundity	1.348.036	1
Average maximum size	130 cm	2
Average size at maturity	52 cm	2
Reproductive strategy	nonguarders: open water/substratum egg scatterers	2
Trophic level	4.3 +/- 0.35	3
Susceptibility	**Rationale**	
Areal Overlap: Overlap of the fishing effort with a species concentration of the stock.	Distribution of Pollack: Eastern Atlantic: Barents Sea, Spitsbergen to Bay of Biscay, around Iceland. Western Atlantic: southwest Greenland, Hudson Strait to North Carolina, although rare at the extremes of the range. Migrations for spawning are known to occur. Also long-distance north-south migrations for Europe and the US.  The assessment team has considered that expected areal overlap is less than 10% since the fishery is very localised at Rockall.	1
Vertical Overlap: The position of the stock/species within the water column relative to the fishing gear.	The species lives in waters between 37 - 364 m Fishing takes place at waters less than 100 m depth. *The team considers that there is a medium overlap with the fishing gear.*	2
Selectivity: The assessment team has to determine if individuals smaller than size at maturity (13 cm) are rarely, regularly or frequently caught. The team has to determine if individuals half the size at maturity (7 cm) can escape the net or not.	Mesh size is 40 mm. *Size of the fish at maturity is 52 cm* *On a precautionary basis, the team has considered that individuals at the size of maturity are probably caught* ***frequently.*** *The team considers that it is not possible for individuals of 26 cm to escape through the mesh.*	3
Post capture mortality: The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival.	If taken in the net and hauled on board the fish will dye. High risk of fish dying if taken by the gear.	3

Bib (*Trisopterus luscus*)

https://www.fishbase.se/summary/Trisopterus-luscus.html

https://www.fishbase.se/popdyn/KeyfactsSummary_1.php?ID=1367&GenusName=Trisopterus&SpeciesName=luscus&vStockCode=1385&fc=183

Productivity	Rationale: All information has been taken from www.fishbase.com	
Average age at maturity.	1,2 years	1
Average maximum age	4,8 years	1
Fecundity	416.475	1
Average maximum size	46 cm	1
Average size at maturity	23,5 cm	1
Reproductive strategy	nonguarders: open water/substratum egg scatterers	2
Trophic level	3.7 +/- 0.14	3
Susceptibility	**Rationale**	
Areal Overlap: Overlap of the fishing effort with a species concentration of the stock.	Distribution of bib: Northeastern Atlantic: from Norway to Morocco incl. British Isles and offshore islands, and Skagerrak, and in the western Mediterranean  The assessment team has considered that expected areal overlap is less than 10% since the fishery is very localised at Rockall.	1
Vertical Overlap: The position of the stock/species within the water column relative to the fishing gear.	The species lives in waters between 30 - 100 m. Fishing takes place at waters less than 100 m depth. *The team considers that there is a high overlap with the fishing gear.*	3
Selectivity: The assessment team has to determine if individuals smaller than size at maturity (13 cm) are rarely, regularly or frequently caught. The team has to determine if individuals half the size at maturity (7 cm) can escape the net or not.	Mesh size is 40 mm. *Size of the fish at maturity is 46 cm* *On a precautionary basis, the team has considered that individuals at the size of maturity are probably caught* ***frequently.*** *The team considers that it is not possible for individuals of 23 cm to escape through the mesh.*	3
Post capture mortality: The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival.	If taken in the net and hauled on board the fish will dye. High risk of fish dying if taken by the gear.	3

Dab (*Limanda limanda*)

https://www.fishbase.se/summary/Limanda-limanda.html

https://www.fishbase.se/popdyn/KeyfactsSummary_1.php?ID=695&GenusName=Limanda&SpeciesName=limanda&vStockCode=711&fc=440

Productivity	Rationale: All information has been taken from www.fishbase.com	
Average age at maturity.	2,6 years	1
Average maximum age	10,5 years	2
Fecundity	86,603	1

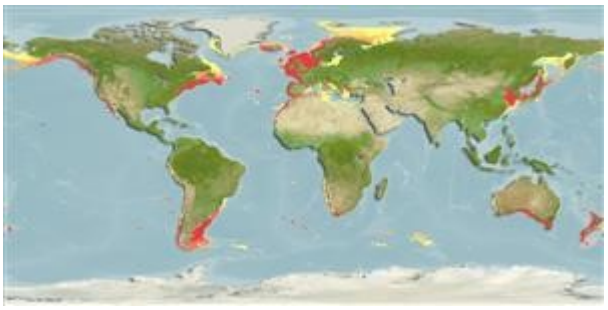
Average maximum size	40 cm	1
Average size at maturity	20,3 cm	1
Reproductive strategy	nonguarders: open water/substratum egg scatterers	2
Trophic level	3.4 +/- 0.64	3
Susceptibility	**Rationale**	
Areal Overlap: Overlap of the fishing effort with a species concentration of the stock.	Distribution of dab: Northeast Atlantic: Bay of Biscay to Iceland and Norway; Barents and White seas; also Baltic Sea.  The assessment team has considered that expected areal overlap is less than 10% since the fishery is very localised at Rockall.	1
Vertical Overlap: The position of the stock/species within the water column relative to the fishing gear.	The species lives in waters between 20 - 150 m. Fishing takes place at waters less than 100 m depth. *The team considers that there is a high overlap with the fishing gear.*	3
Selectivity: The assessment team has to determine if individuals smaller than size at maturity (13 cm) are rarely, regularly or frequently caught. The team has to determine if individuals half the size at maturity (7 cm) can escape the net or not.	Mesh size is 40 mm. *Size of the fish at maturity is 20 cm* *On a precautionary basis, the team has considered that individuals at the size of maturity are probably caught* ***frequently.*** *The team considers that it is possible for individuals of 10 cm to escape through the mesh.*	3
Post capture mortality: The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival.	If taken in the net and hauled on board the fish will dye. High risk of fish dying if taken by the gear.	3

Grey gurnard (*Eutrigla gurnardus*)

https://www.fishbase.se/summary/Eutrigla-gurnardus.html

https://www.fishbase.se/popdyn/KeyfactsSummary_1.php?ID=68&GenusName=Eutrigla&SpeciesName=gurnardus&vStockCode=78&fc=266

Productivity	Rationale: All information has been taken from www.fishbase.com	
Average age at maturity.	1,5 years	1
Average maximum age	6,1 years	1
Fecundity	244.949	1
Average maximum size	60 cm	1
Average size at maturity	20.3 cm	1
Reproductive strategy	nonguarders: open water/substratum egg scatterers	2
Trophic level	3.9 +/- s.e. 0.01	3
Susceptibility	**Rationale**	

Areal Overlap: Overlap of the fishing effort with a species concentration of the stock.	Distribution of grey gurnard: Eastern Atlantic: Norway to Morocco, Madeira, Iceland, including Greenland. Also known from the Mediterranean and Black Sea.  The assessment team has considered that expected areal overlap is less than 10% since the fishery is very localised at Rockall.	1
Vertical Overlap: The position of the stock/species within the water column relative to the fishing gear.	The species lives in waters between 10 - 340 m, usually 10 – 150. Fishing takes place at waters less than 100 m depth. *The team considers that there is a high overlap with the fishing gear.*	3
Selectivity: The assessment team has to determine if individuals smaller than size at maturity (13 cm) are rarely, regularly or frequently caught. The team has to determine if individuals half the size at maturity (7 cm) can escape the net or not.	Mesh size is 40 mm. *Size of the fish at maturity is 20 cm* *On a precautionary basis, the team has considered that individuals at the size of maturity are probably caught* ***frequently.*** *The team considers that it is not possible for individuals of 10 cm to escape through the mesh.*	3
Post capture mortality: The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival.	If taken in the net and hauled on board the fish will dye. High risk of fish dying if taken by the gear.	3

			Productivity Scores [1-3]								Susceptibility Scores [1-3]					PSA scores (automatic)			
PI	SCIENTIFIC_ NAME	COMMON_ NAME	Average age at maturity	Average max age	Fecundity	Average max size	Average size at Maturity	strategy	(fishbase)	Total Productivity (average)	Availability	Encounterability	Selectivity	Post-capture mortality	Total (multiplicative)	PSA Score	MSC Score	Risk Category Name	MSC scoring guidepost
2.2.1	*Helicolenus dactylopterus*	Blackbelly rosefish	2	3	3	1	1	1	3	2,00	1	1	3	3	1,20	2,33	88,5	Low	>80
2.2.1	*Microstomus kitt*	Lemon sole	1	2	1	1	1	2	3	1,57	1	3	3	3	1,65	2,28	89,7	Low	>80
2.2.1	*Pollachius virens*	Pollack	1	2	1	2	2	2	3	1,86	1	2	3	3	1,43	2,34	88,3	Low	>80
2.2.1	*Trisopterus luscus*	Bib	1	1	1	1	1	2	3	1,43	1	3	3	3	1,65	2,18	91,7	Low	>80
2.2.1	*Limanda limanda*	Dab	1	2	1	1	1	2	3	1,57	1	3	3	3	1,65	2,28	89,7	Low	>80
2.2.1	*Eutrigla gurnardus*	Grey gurnard	1	1	1	1	1	2	3	1,43	1	3	3	3	1,65	2,18	91,7	Low	>80

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10 Template information and copyright

This document was drafted using the ‘MSC Pre-Assessment Reporting Template v3.1’.

Template version control

Version	Date of publication	Description of amendment
1.0	15 August 2011	Date of first release
1.1	31 October 2013	Updated in line with changes to CR v1.3
2.0	08 October 2014	Confirmed background sections (Section 3) as optional (use of ‘may’ statements) Modified Table 6.3 to create a simplified scoring sheet to be completed in place of full evaluation tables Made amendments to PIs based on Fishery Standard Review changes (e.g. removed original PIs 1.1.2, 3.1.4 and 3.2.4).
2.1	9 October 2017	Inclusion of optional full evaluation tables
3.0	17 December 2018	Release alongside Fisheries Certification Process v2.1
3.1	29 March 2019	Minor document changes for usability

A controlled document list of MSC program documents is available on the MSC website (msc.org)

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