

**Marine Stewardship Council (MSC) Expedited Principle 1 Audit
Report**

SFSAG North Sea Cod

On behalf of

SFSAG

Prepared by

Control Union Pesca Ltd

September 2019

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QA

Role	Signature and date
Originator:	HJ – 02-09-2019
Reviewer:	TT – 06-09-2019
Approver:	TT – 18-09-2019

Glossary

Acronym	Definition
ACOM	ICES Advisory Committee
CFP	Common Fisheries Policy
CPUE	Catch Per Unit Effort
EEZ	Exclusive Economic Zone
E-log	Electronic logbook
F	Fishing mortality
FCR	Fisheries Certification Requirements (MSC scheme document)
FMAC	Fisheries Management and Conservation Group
GITAG	Gear Innovation and Technology Advisory Group
HCR	Harvest Control Rule
IBTS	International Bottom Trawl Surveys
ICES	International Council for the Exploration of the Sea
ICJ	International Court of Justice
IPI	Inseparable or Practicably Inseparable (stocks)
IUU	Illegal, Unreported, Unregulated
LO	Landing Obligation
M	Natural mortality
MCS	Monitoring Control and Surveillance
MMO	Marine Management Organisation
MSY	Maximum Sustainable Yield
NSAC	North Sea Advisory Council
PA	Precautionary Approach
PCR	Public Certification Report
PI	Performance indicator
PO	Producer Organisation
PRI	Point of Recruitment Impairment
SFF	Scottish Fishermen's Federation
SFO	Scottish Fishermen's Organisation
SG	Scoring Guidepost
SSB	Spawning Stock Biomass
SWFPA	Scottish White Fish Producers Association
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
TRP	Target Reference Point
UoA	Unit of Assessment

Acronym	Definition
UoC	Unit of Certification

1 Executive Summary

This report is an expedited audit of the SFSAG North Sea Cod fishery undertaken by CU Pesca against the MSC standard (V2.01) and Process (V2.1).

The fishery was certified as sustainable on the 18th July 2017. This is an expedited audit of Principle 1 following the first annual surveillance audit which took place on 12-13th April 2018 and an expedited audit of Principle 1 in November 2018. This audit was conducted against FCP 2.1 of the MSC standard FCR 2.01 and GCR 2.3. The off-site audit was carried out on the 2nd August 2019 by Hugh Jones (Team Leader) and Robin Cook (Principle 1 assessor).

The expedited audit considered Principle 1 and finds that the North Sea Cod fishery of SFSAG cannot maintain their MSC certificate. The failure is based on failing PI 1.1.1 (stock status), PI 1.1.2 (Stock Rebuilding) and PI 1.2.4 (Assessment of stock status).

Following consideration of all stakeholders' inputs and new information provided by the client and the relevant stock assessments the fishery assessment team concludes that the fishery can no longer remain certified against the MSC standard and is hence the UoA is suspended.

2 Report Details

2.1 Audit information

1	Fishery name	
	Scottish Fisheries Sustainable Accreditation Group (SFSAG) North Sea cod	
2	Surveillance level and type	
	<p>Expedited audit of Principle 1.</p> <p>Following the publication of ICES advice for North Sea Cod published by ICES 28th June 2019. CU Pesca reviewed the information presented and as per FCP2.1 - 7.29.1 concluded that an “expedited audit” is required for this fishery as the new information may cause a major change in the status of Principle 1. This audit will examine whether there is any change in the perceived status of the stock with respect to the scoring of Principle 1 of this fishery.</p>	
3	Surveillance number	
	1st Surveillance	
	2nd Surveillance	
	3rd Surveillance	
	4th Surveillance	
	Other (expedited etc)	X
4	Proposed team leader	
	Name	Dr Hugh Jones
	Areas of responsibility	Team Leader
	Competency criteria (Annex PC)	<p>Dr Hugh Jones has a PhD in Ecotoxicology and strong background in marine research including publications and reports on ecotoxicology, environmental risk assessments and fisheries research. Prior to joining CU Pesca he was employed as a fisheries scientist in the development of an empirical harvest strategy for commercial abalone fisheries and fisheries assessments of estuarine bivalves. This included work on population metrics (recruitment, growth), harvest dynamics (catch rates, market selectivity), and the use of fine scale geospatial techniques as performance measures to assess stock sustainability. Dr Jones has completed the required Fishery Team Leader MSC training modules for the V2.01 Fisheries Certification Requirements and qualified for ISO 9001:2015.</p>

	<table border="1"> <tr> <td>Conflict of interest in relation to this fishery</td> <td>CU Pesca have reviewed Hugh's information and found no conflict of interest.</td> </tr> <tr> <td>On-site or off-site</td> <td>It is proposed that Dr Hugh Jones will act as team leader for this audit.</td> </tr> <tr> <td>CV</td> <td>Available on request</td> </tr> </table>	Conflict of interest in relation to this fishery	CU Pesca have reviewed Hugh's information and found no conflict of interest.	On-site or off-site	It is proposed that Dr Hugh Jones will act as team leader for this audit.	CV	Available on request						
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CV	Available on request												
5	Proposed team members												
	<table border="1"> <tr> <td>Name</td> <td>Dr Robin Cook</td> </tr> <tr> <td>Areas of responsibility</td> <td>Principle 1</td> </tr> <tr> <td>Competency criteria (Annex PC)</td> <td>Dr Cook meets the following requirements in Table PC3: 1. Fish stock assessment and Table PC3 2. Fish stock biology / ecology. In a career spanning over 40 years, Robin has gained experience with the following stock assessment techniques: Bayesian age structured assessment models, Bayesian state-space models applied to demersal stocks that include marine mammal predation interactions, Surplus production modelling of mixed species, Extended Survivors Analysis (XSA), Time Series Analysis (TSA), Stock Synthesis, BAM, ADAPT, SAM and related methods. Over 30 years' experience working with the biology and population dynamics of the target or species with similar biology: Robin is an expert in demersal fisheries population dynamics. His expertise has focused on North Atlantic systems, in particular the North Sea gadoid populations.</td> </tr> <tr> <td>Conflict of interest in relation to this fishery</td> <td>Based on the information above and Robin's CV CU Pesca are confident Robin meets the requirements of Table PC3 for 1. Fish stock assessment and 2. Fish stock biology / ecology.</td> </tr> <tr> <td>On-site or off-site</td> <td>Off-site</td> </tr> <tr> <td>CV</td> <td>Available on request</td> </tr> </table>	Name	Dr Robin Cook	Areas of responsibility	Principle 1	Competency criteria (Annex PC)	Dr Cook meets the following requirements in Table PC3: 1. Fish stock assessment and Table PC3 2. Fish stock biology / ecology. In a career spanning over 40 years, Robin has gained experience with the following stock assessment techniques: Bayesian age structured assessment models, Bayesian state-space models applied to demersal stocks that include marine mammal predation interactions, Surplus production modelling of mixed species, Extended Survivors Analysis (XSA), Time Series Analysis (TSA), Stock Synthesis, BAM, ADAPT, SAM and related methods. Over 30 years' experience working with the biology and population dynamics of the target or species with similar biology: Robin is an expert in demersal fisheries population dynamics. His expertise has focused on North Atlantic systems, in particular the North Sea gadoid populations.	Conflict of interest in relation to this fishery	Based on the information above and Robin's CV CU Pesca are confident Robin meets the requirements of Table PC3 for 1. Fish stock assessment and 2. Fish stock biology / ecology.	On-site or off-site	Off-site	CV	Available on request
Name	Dr Robin Cook												
Areas of responsibility	Principle 1												
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On-site or off-site	Off-site												
CV	Available on request												
6	Audit/review time and location												
	Off-site. The expedited audit will consisted of an off-site audit on 3 rd August 2019, based on publicly available stock assessment and management materials. Email contact was available for both assessors and the client and video conference facilities were utilised as required.												
7	Assessment and review activities												
	During the audit, CU Pesca will communicate with the client and any relevant stakeholders and use any available up to date information to assess and review;												

<ul style="list-style-type: none"> • Any changes to the scientific base of information such as stock assessments and its impact on Principle 1 scoring. • Any other significant changes in the fishery
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3 Background

3.1 Version details

Table 1. Fisheries programme 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 Reporting Template	Version 2.01

3.2 Unit(s) of Assessment (UoA)

CU Pesca confirms that the fishery under audit remains within the scope of the MSC Fisheries Standard (7.4 of the MSC Fisheries Certification Process v2.1):

- The target species is not an amphibian, reptile, bird or mammal;
- The fishery does not use poisons or explosives;
- The fishery is not conducted under a controversial unilateral exemption to an international agreement;
- The client or client group does not include an entity that has been successfully prosecuted for a forced or child labour violation in the last 2 years;
- The fishery has in place a mechanism for resolving disputes, and disputes do not overwhelm the fishery;
- The fishery is not an enhanced fishery as per the MSC FCP 7.4.6; and
- The fishery is not an introduced species-based fishery as per the MSC FCP 7.4.7.

CU Pesca confirms that the client group has submitted the completed 'Certificate Holder Forced and Child Labour Policies, Practices and Measures Template' prior to the start of this audit and this is available on the MSC website.

The current Unit of Assessment (UoA) is given in Table 2.

Table 2. Unit(s) of Assessment (UoA)

Species	Atlantic cod (<i>Gadus morhua</i>)
Stock	Cod (<i>Gadus morhua</i>) in Subarea 4, Division 7.d and Subdivision 3.a.20 (North Sea, eastern English Channel, Skagerrak)
Geographical range of fishery	North Sea
Harvest method / gear	Single <i>Nephrops</i> trawl Twin <i>Nephrops</i> trawl Demersal trawl Twin demersal trawl Danish seine Pair seine–trawl Pair trawl
Client group	Scottish Fisheries Sustainable Accreditation Group (SFSAG) member vessels (see up to date vessel list here: http://scottishfsag.org/wp-content/uploads/2017/07/MSC-Saithe-and-haddock-Master-250717xlsx.pdf)
Other eligible fishers	None

3.3 Vessel list

Is available here:

<http://scottishfsag.org/wp-content/uploads/2017/07/MSC-Saithe-and-haddock-Master-250717xlsx.pdf>

3.4 Principle 1

3.4.1 Stock Update

The current ICES assessments show stock trends from 1963 onwards although data from the 1960s are available and show very large year classes in 1962 and 1967, a period often referred to as the “gadoid outburst” (Hislop 1996). Discards have traditionally been a significant fraction of the total catch especially when a large year class enters the fishery. For many years fishing mortality (F) was very high but reduced substantially from about 2001 onwards and was reducing towards F_{MSY} and below F_{lim} until 2017 (Figure 1). In 2017 and 2018 F has climbed above F_{LIM} with the estimate of F in 2018 at 0.63 which is more than double the F_{MSY} value (0.31) (Figure 1). Retrospective analysis of F shows consistent retrospective bias which has not been taken into account with successive assessments showing a repeated upward revision in F (Figure 2). Spawning stock biomass did show recovery from 2005, surpassing B_{lim} in 2013, but successive retrospective revisions of biomass over the past few years including for age of maturity in 2017 (Figure 2) now has SSB now well below B_{LIM} (Figure 1 and Figure 2). The 95 % confidence interval for the SSB in 2019 is estimated to be 57,451 tonnes - 114,834 tonnes against a B_{LIM} of 107,000 tonnes (ICES 2019). Recruitment shows low levels since 1997 but the best recruitment since then was in 2017 (Figure 1).

3.4.2 Reference Points

Improved catch data from sampling programmes such as the Fully Documented Fisheries (FDF) have been provided to ICES since 2012. The benchmark in 2015 introduced annually varying maturity estimates to the assessment. Maturity-at-age was re-estimated in 2017 to produce a time-series of maturity estimates that are consistently calculated over time and corrected for errors. The re-estimated maturities caused a re-scaling of the SSB (Figure 2), to an extent that necessitated the recalculation of reference points. ICES re-evaluated reference points for this stock in 2017 (ICES 2017c).

Table 3. ICES reference points for North Sea Cod. Source ICES (2019) citing (EU 2008; ICES 2017c; EU 2016).

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	150 000	B_{pa}	ICES (2017)
	F_{MSY}	0.31	EQsim analysis based on the recruitment period 1988–2016	ICES (2017)
Precautionary approach	B_{lim}	107 000	SSB associated with the last above-average recruitment (1996 year class)	ICES (2017)
	B_{pa}	150 000	$B_{lim} \times \exp(1.645 \times 0.2) \approx 1.4 \times B_{lim}$	ICES (2017)
	F_{lim}	0.54	EQsim analysis based on the recruitment period 1998–2016	ICES (2017)
	F_{pa}	0.39	$F_{lim} \times \exp(-1.645 \times 0.2) \approx F_{lim} / 1.4$	ICES (2017)
EU Management Plan (MAP) EU (2018)	MAP MSY $B_{trigger}$	150 000	MSY $B_{trigger}$	ICES (2017)
	MAP B_{lim}	107 000	B_{lim}	ICES (2017)
	MAP F_{MSY}	0.31	F_{MSY}	ICES (2017)
	MAP range F_{lower}	0.198–0.31	Consistent with ranges provided by ICES (2017), resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2017)
	MAP range F_{upper}	0.31–0.46	Consistent with ranges provided by ICES (2017), resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2017)

3.4.3 Issues relevant to the ICES advice

In recent years (since 2017), assessments resulted in a downscaling of SSB and upward revision of F (Figure 2). This is caused by lower catch rates of older fish in the fishery independent surveys, compared to the commercial catches. ICES are unclear to the source of this discrepancy but it may include a number of possible ecological and anthropogenic drivers (ICES 2019).

The EU Landing Obligation (LO) was implemented from 1 January 2017 for several gears, including otter trawlers with >100 mm mesh (TR1), beam trawlers >120 mm (BT1), and fixed gears. From 2018, cod is fully under the EU landing obligation in Subarea 4 and Subdivision 20. The LO did not apply to cod in Division 7.d in 2018 but is now included for 2019. The landings of cod below minimum size reported to ICES are currently negligible, and are much lower than the estimates of catches below MCRS (Minimum Conservation Reference Size) estimated by observer programmes (ICES 2019).

It is uncertain if and to what extent the discontinuation of the days-at-sea regulation in 2017, which was part of the cod recovery plan, has an impact on the recent decline of the cod stock (ICES 2019).

3.4.4 Principle 1 overall conclusion

The scoring of principle 1 is re-evaluated in section 4.4.

3.5 Principle 2

Not reviewed at this expedited audit

3.6 Principle 3

Not reviewed at this expedited audit

3.7 Traceability

Not reviewed at this expedited audit

4 Results

4.1 Surveillance results overview

4.1.1 Total Allowable Catch (TAC) and Catch Data

The TAC and catch data for the UoA are shown in Table 4.

Table 4. TAC and Catch Data

TAC	Year	2018	Amount	43,146 t
UoA share of TAC	Year	2018	Amount	22,046 t (Initial allocation 16,808 t)
UoC share of total TAC	Year	2018	Amount	51 % (99 % of UK share)
Total green weight catch by UoC	Year (most recent)	2018	Amount	20,907t
	Year (second most recent)	2017	Amount	18,125t

4.1.2 Summary of conditions

Table 5. Summary of conditions.

Condition number	Condition	Performance Indicator (PI)	Status	PI original score	PI revised score
1	The fishery should work with Marine Scotland and other experts as appropriate to ensure that the bycatch of this species is not hindering the recovery of the stock.	2.3.1	On-target	75	NA
2	The fishery should put in place within three years a strategy for common skate and starry ray in IV, to ensure that bycatch is not hindering the recovery of the stock.	2.3.2	On-target	75	NA
3	A fleet-wide estimate of bycatch of starry ray and common skate, as well as some basis by which population-level trends can be evaluated for common skate (noting that ICES considers that existing data are insufficient for this purpose).	2.3.3	On-target	75	NA
4	The fishery needs to provide quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs.	2.4.2	On-target	75	NA
5	Within 4 years provide evidence that it is highly likely that the stock is above the point at which recruitment would be impaired (PRI).	1.1.1	FAIL	60	<60

Condition number	Condition	Performance Indicator (PI)	Status	PI original score	PI revised score
6	Within 4 years show a rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time.	1.1.2	FAIL	80	<60
7	Within 4 years show evidence that the harvest strategy is achieving its objectives.	1.2.1	New	85	75
8	Within 4 years show that the HCRs are robust to the main uncertainties and available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	1.2.2	New		65
9	Within 4 years show that the assessment identifies major sources of uncertainty.	1.2.4	FAIL	100	<60

4.1.3 Recommendations

None

4.2 Conditions

Table 6. Condition 1.

Performance Indicator	2.3.1
Score	65
Justification	<p>From PCR (Sieben et al. 2017): Scoring Issue b (SG80): Known direct effects of the UoA are highly likely to not hinder recovery of ETP species.</p> <p>Starry ray ICES notes that although the species is widespread in the central and northern North Sea, the survey abundance index has been decreasing continuously since the 1990s. ICES advise no targeted fishery and measures to reduce bycatch. The species is almost entirely discarded, and neither total discards nor discard survival can be quantified. Total interactions with this species recorded in the PETS data was 102 individuals (100 dead) in 152 trips. In terms of the regulatory requirements, the species is always discarded (according to ICES, recorded landings in total for the whole area of IIa, IIIa and IV are ~300 kg), but according to the PETS data, individuals are usually dead on arrival on board, or in some cases injured (these have been classified as 'dead' in Table 10), so it is not clear that the requirement to discard promptly has much effect for this species.</p> <p>The team noted that while the average interaction rate was ~2 individuals every 3 trips, in practice interactions are patchy (e.g. 40 of the 100 dead individuals came from one tow, all the 2015 interactions came in the period Sept-Dec). The team concluded that since regulatory requirements are being met following ICES advice, direct impacts could be evaluated (qualitatively) as 'unlikely' to hinder recovery (SG60 met). It is at least possible, however, that the fishery could do more, perhaps by evaluating the areas or conditions under which large quantities of the species are caught together, and/or the circumstances in which the individuals are brought on board in good or bad condition – i.e. it was possible to do more to avoid fishing or killing these individuals. On this basis, the team considered that SG80 was not fully met.</p>

	<p>Common skate</p> <p>ICES evaluates the whole species complex together, although they note that most/all of these in the North Sea are <i>D. intermedia</i>. ICES considers that the species (complex) is depleted, although stock abundance and trends are unknown (survey catch rates are too low to allow an abundance index). ICES advice is the same as for starry ray.</p> <p>The PETS data record the three species separately, and likewise estimate that most of the interactions are with <i>D. intermedia</i>. From the 152 trips observed in 2014 and 2015, interactions were as follows:</p> <p><i>D. intermedia</i>: 15 alive, 31 dead</p> <p><i>D. batis</i>: 7 alive, 4 dead</p> <p><i>D. flossada</i>: 2 alive, 3 dead</p> <p>The team considered that the scoring outcome is the same for this species as for starry ray.</p>
Condition	<p>Although there are mitigation measures in place to minimise impacts on common skate and starry ray (in IV), observer data suggest that some impacts remain. MEP notes that the international management framework for this species is confused (cannot discard in Norwegian waters, must discard in EU waters). Because of the poor stock status of common skate and starry ray in IV, even small impacts may have population-level impacts.</p> <p>This condition relates to possible impacts on common skate in IV and VI and starry ray in IV and can be addressed jointly with Conditions 8 and 9. The fishery should work with Marine Scotland and other experts as appropriate to ensure that the bycatch of this species is not hindering the recovery of the stock.</p>
Milestones	<p>(To be implemented alongside Conditions 2 and 3)</p> <p>Year 5 – fishery can demonstrate that its impact on common skate and starry ray (IV) is not hindering the recovery of the stock.</p>
Consultation on condition	<p>SFSAG has primary responsibility for implementing this action plan but will provide opportunity for stakeholder input from third parties such as research institutions (e.g. Marine Scotland Science)</p>
Progress on Condition (Year 1)	<p>SFSAG have produced an updated skate and ray handbook and released a SFSAG mitigation strategy document in 2017- 2018. There is evidence of data analysis of skate and ray capture and response in the form of instigation of a voluntary recording programme for TR 1 vessels in Subarea 6b. Requests to Marine Scotland for spatial and temporal analysis of interactions and the convening of a ICES working group to evaluate the stocks of key skate species will be important elements for the fishery to meet the milestone in year 5 of assessing the impact on stock.</p>
Status	<p>On target</p>
Additional information	<p>Not re-evaluated at this audit.</p>

Table 7. Condition 2.

Performance Indicator	2.3.2
Score	70
Justification	<p>From PCR (Sieben et al. 2017):</p> <p>Scoring Issue c (SG80): 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.</p> <p>For the ray species (starry ray and common skate), since the measures are aligned with ICES advice, they can be considered ‘likely to work’. The team did not consider,</p>

	<p>however, that there is currently an objective basis for confidence that they will work. This is problematic, in as much as a reduction in bycatch rates could be attributed either to the measures working, or to a reduction in the population. For starry ray, however, the survey index suggests that the overall situation with the population remains of concern, and ICES state that the common skate species are depleted (although they do not provide data). On this basis, SG80 is not met.</p>
Condition	<p>Although there is a strategy in place to minimise impacts on common skate and starry ray in IV, it is not possible to have a ‘reasonable basis for confidence’ that it will work, due to lack of data on fleet-wide impacts.</p> <p>This condition also relates to common skate and starry ray and can be addressed jointly with Conditions 1 and 3. The fishery should put in place within three years a strategy for common skate and starry ray in IV, to ensure that bycatch is not hindering the recovery of the stock.</p>
Milestones	<p>To be implemented alongside Conditions 1 and 3</p> <p>Year 2 - Data collection.</p> <p>Year 3 – Data collection and provisional analysis of Year 2 data</p> <p>Year 4 – Data collection and provisional review of fishery impact</p> <p>Year 5 – Final review of impacts, identification and implementation of actions required.</p>
Consultation on condition	<p>SFSAG has primary responsibility for implementing this action plan but will provide opportunity for stakeholder input from third parties such as research institutions (e.g. Marine Scotland Science)</p>
Progress on Condition (Year 1)	<p>SFSAG have produced an updated skate and ray handbook and released a SFSAG mitigation strategy document in 2017- 2018. There is evidence of data analysis of skate and ray capture and response in the form of the instigation of a voluntary recording programme for TR 1 vessels in Subarea 6b. Requests to Marine Scotland for spatial and temporal analysis of interactions and the convening of a ICES working group to evaluate the stocks of key skate species will be important elements for the fishery to meet the milestone in year 5 of assessing the impact on stock.</p>
Status	<p>On target</p>
Additional information	<p>Not re-evaluated at this audit.</p>

Table 8. Condition 3.

Performance Indicator	2.3.3
Score	70
Justification	<p>From PCR (Sieben et al. 2017):</p> <p>Scoring Issue a (SG80): 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.</p> <p>Information about interactions with this fishery comes from the PET scheme, which covered 47 trips in 2014, and 105 trips in 2015. It is not possible to scale these data up to provide accurate estimates for the entire fleet, so estimates of mortality of PET species remain qualitative rather than quantitative. In terms of evaluating stock status for these species, spurdog and porbeagle have a quantitative stock assessment, grey seal a periodic survey, starry ray a survey abundance index and the common skate species nothing. For allis shad, the main centre of population is western France where the species is surveyed as it passes river impoundments (fish ladders etc.).</p> <p>Overall, SG60 is met (qualitative estimate of fishery-related mortality from PET data). SG80 is met for spurdog, porbeagle, grey seal and allis shad since the overall status or</p>

	trend in stock status can be evaluated quantitatively, and mortality rates from the PET trips are low enough to be able to infer with confidence that the impact of the fleet on the population is negligible. For common skate, SG60 is not met because of a lack of population-level data, while for starry ray, SG80 is not met because the impact of the fleet may be non-negligible, and cannot be assessed quantitatively, because the PET data cannot be scaled up to fleet level. SG100 is not met for any species, because the PET data cannot be scaled up to the whole fleet.
Condition	There needs to be sufficient information available such that the impact of this fishery on common skate and starry ray can be quantitatively estimated, and hence it can be determined whether the fishery may be a threat to the recovery of the starry ray population and the common skate complex. This requires, as a minimum, a fleet-wide estimate of bycatch of starry ray and common skate, as well as some basis by which population-level trends can be evaluated for common skate (noting that ICES considers that existing data are insufficient for this purpose).
Milestones	To be implemented alongside Conditions 1 and 2 Year 1 – Assessment of data gaps, data collection strategy Year 2 – Start of data collection Years 3 and on – Ongoing data collection, data analysis Initiate discussion with other organisations e.g. Seafish, with a view to identifying the most appropriate project management method. Distribute identification cards and user manuals.
Consultation on condition	SFSAG has primary responsibility for implementing this action plan but will provide opportunity for stakeholder input from third parties such as research institutions (e.g. Marine Scotland Science)
Progress on Condition (Year 1)	SFSAG have produced an updated skate and ray handbook and released a SFSAG mitigation strategy document in 2017- 2018. There is evidence of data analysis of skate and ray capture and response in the form of the instigation of a voluntary recording programme for TR 1 vessels in Subarea 6b. Requests to Marine Scotland for spatial and temporal analysis of interactions and the convening of a ICES working group to evaluate the stocks of key skate species will be important elements for the fishery to meet the milestone in year 5 of assessing the impact on stock.
Status	On target
Additional information	Not re-evaluated at this audit.
Additional information	Not re-evaluated at this audit.

Table 9. Condition 4.

Performance Indicator	2.4.2
Score	75
Justification	From Jones & Honneland (2018): The management requirements are not yet in place; there is thus nothing formal for the UoA to comply with as yet. Other SFSAG fisheries are certified (saithe, haddock) but these are essentially the same mixed fishery, hence there are no additional requirements coming from this source. Likewise, other MSC-certified fisheries operate in the same area under the same regulatory framework; there are no additional requirements in place for these fleets which are not in place for the Scottish fleet. Looking at compliance more widely, there are areas outside the North Sea which are closed to fishing for habitat protection (e.g. Darwin mounds), as well as areas of the

	<p>North Sea which are closed for other reasons (e.g. high densities of juvenile cod), whether temporarily or quasi-permanently. These closures are well-enforced by VMS ('quantitative evidence') and widely respected by this fleet and others. There is thus no reason to suppose that closures or other management measures put in place under the NCMPA system would not be complied with.</p> <p>Given the issues in 1st year of the certification program with the implementation of the SFSAG voluntary closure of the Fladen ground evidence of compliance of the fleet with the voluntary code is limited to May 2018 only. Analysis of compliance during this time showed that three vessels entered the area and SFSAG responded by contacting the vessel owners and POs responsible using the method outlines in the SFSAG Fladen Ground Process and communications to vessels (Appendix 5). The assessment team considered this sufficient evidence of compliance with the management requirements to meet SG60, but due to the limited time frame of the operation and the lack of active management in year 1 SG80 is not met.</p>
Condition	The fishery needs to provide quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs.
Milestones	<p>Year 2: Establish a data log of incidences of non-compliance with the SFSAG voluntary closed area in the Fladen ground and for each incident provide evidence of this being handled through the SFSAG process associated with this closure (SFSAG Fladen Ground Process and communications to vessels) (Score: 75).</p> <p>Year 3: Provide annual summaries from the years 2 and 3 years of the fishery showing all reports of where non-compliance with the closed area occurred and how it was handled through the closure process. (Score: 80)</p>
Consultation on condition	SFSAG has primary responsibility for implementing this action plan but have an agreement with Marine Scotland compliance to monitor this geo-fence and report annually on it. (Jones & Honneland 2018)
Progress on Condition	none
Status	On target
Additional information	Not re-evaluated at this audit.

Table 10. Condition 5.

Performance Indicator	1.1.1
Score	60
Justification	<p>From Jones & Honneland (2018):</p> <p>Scoring issue a (SG80): It is highly likely that the stock is above the PRI.</p> <p>The 95 % confidence interval for the SSB in 2018 is estimated to be 90,333 – 155,154 tonnes (ICES 2108). Assuming a lognormal distribution, the probability that the current SSB (118,387) exceeds Blim of 107,000 is 0.77 (77 %) which meets SG60. Inspection of the stock-recruitment data for the years ICES uses for MSY calculations (1988 onwards) suggests the lower bound of the current SSB estimate (90,333t) is above biomass values when recruitment is lowest (Figure 3). For this stock Blim is defined on the most recent biomass that produced above average recruitment (in 1996) rather than the point of impaired recruitment. Recent recruitment in this stock has typically been lower than historical values and it is possible that the productivity of the stock has declined in response to environmental change. There is evidence, for example, that recruitment in cod declines with increasing temperature (Cook and Heath, 2005, Beaugrand et al 2003, O'Brien et al 2000). Hence there is some doubt about the current definition of the PRI.</p>

	<p>Notwithstanding this, the assessment team took the precautionary approach and treated Blim to be a proxy for PRI. On this precautionary basis it cannot be considered that the stock is highly likely to be above Blim (as proxy for PRI) (> 80 % probability) and SG80 is not met.</p> <p>Note: scoring issue b also scored less than 80; however for this scoring issue, PI 1.1.2 was triggered.</p>
Condition	<p>Within 4 years provide evidence that it is highly likely that the stock is above the point at which recruitment would be impaired (PRI)¹.</p> <p>¹ This deadline is after the end of the current period of certification (17 Jul 2022). CU Pesca consider that attaining the SG80 standard will take at least 4 years. This time period is consistent with that set for the other fisheries this certificate is being harmonised with. This situation therefore meets the “exceptional circumstances” anticipated in FCRv2.0 at 7.11.1.3.a.i</p>
Milestones	<p>Year 1: Not applicable as this condition is raised after that surveillance</p> <p>Year 2: Evidence that the client is working with ICES, the relevant national authorities, and the EU on identifying measures required to rebuild the stock to a level that is highly likely to be above the PRI. Score: 60</p> <p>Year 3: Evidence that the measures are being developed. Score 60.</p> <p>Year 4: Evidence that the measures have been implemented and that the stock is rebuilding to a level that is highly likely to be above the PRI. Score SG60 at end of certificate</p> <p>Year 1 of reassessment: Evidence that the stock has rebuilt to a level that is highly likely to be above the PRI. Score: 80.</p>
Consultation on condition	<p>The clients will continue to liaise with scientists at Marine Scotland and within the wider ICES community through the North Sea Advisory Council (NSAC) (and other fora) where they can lobby effectively without needing input from third parties. (Jones & Honneland 2018)</p>
Progress on Condition (expedited audit 2019)	<p>As per Scoring table 1. PI 1.1.1 – Stock status the stock status has declined below PRI and therefore the fishery no longer meets SG60. Fishery is suspended</p>
Status	<p>UoA suspended condition is non-binding.</p>

4.2.1 New non-binding conditions from this audit

Table 11. Condition 6.

Performance Indicator	1.1.2
Score	<60
Justification	Scoring table 2. PI 1.1.2 – Stock rebuilding
Condition	Within 4 years show a rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time.
Milestones	N/A fishery suspended

Consultation on condition	N/A fishery suspended
Progress on Condition (expedited audit 2019)	N/A fishery suspended
Status	UoA suspended condition is non-binding.

Table 12. Condition 7.

Performance Indicator	1.2.1
Score	75
Justification	Scoring table 3. PI 1.2.1 – Harvest strategy
Condition	Within 4 years show evidence that the harvest strategy is achieving its objectives.
Milestones	N/A fishery suspended
Consultation on condition	N/A fishery suspended
Progress on Condition (expedited audit 2019)	N/A fishery suspended
Status	UoA suspended condition is non-binding.

Table 13. Condition 8.

Performance Indicator	1.2.2
Score	65
Justification	Scoring table 4. PI 1.2.2 – Harvest control rules and tools
Condition	Within 4 years show that the HCRs are robust to the main uncertainties and available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.
Milestones	N/A fishery suspended
Consultation on condition	N/A fishery suspended
Progress on Condition (expedited audit 2019)	N/A fishery suspended
Status	UoA suspended condition is non-binding.

Table 14. Condition 9.

Performance Indicator	1.2.4
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Score	<60
Justification	Scoring table 6. PI 1.2.4 – Assessment of stock status
Condition	Within 4 years show that the assessment identifies major sources of uncertainty.
Milestones	N/A fishery suspended
Consultation on condition	N/A fishery suspended
Progress on Condition (expedited audit 2019)	N/A fishery suspended
Status	UoA suspended condition is non-binding.

4.3 Client action plan

As per GCR 7.4.3e - The client must provide a documented corrective action plan for addressing the cause of suspension, which is acceptable to the CAB as being able to address the cause(s) for suspension, within 90 days from the date the Notice of Suspension is published on the MSC website.

4.4 Rescoring Performance Indicators

Scoring table 1. PI 1.1.1 – Stock status

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guide post	It is likely that the stock is above the point where recruitment would be impaired (PRI).	It is highly likely that the stock is above the PRI.	There is a high degree of certainty that the stock is above the PRI.
	Met?	No	No	No

Rationale

B_{lim} in ICES assessments is a suitable proxy for the PRI, ICES (2017b) – ‘A deterministic biomass limit below which a stock is considered to have reduced reproductive capacity’.

The 95 % confidence interval for the SSB in 2019 is estimated to be 57,451 tonnes - 114,834 tonnes (ICES 2019). There is a high probability that the current SSB (81,224 tonnes) is below B_{lim} 107,000 tonnes. Inspection of the stock-recruitment data for the years ICES uses for MSY calculations (1988 onwards) indicates that the SSB estimate for 2019 is at the point where recruitment is lowest (Figure 4). Hence SG60 is not met.

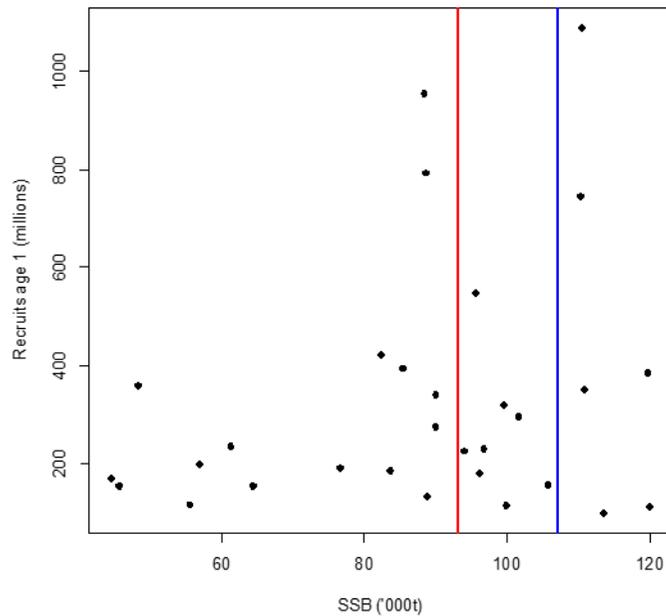


Figure 4. Stock recruitment plot for the period ICES uses for MSY calculations. Red line indicates the lower 2.5 %ile of the 2018 SSB estimate and occurs in a region when high recruitment has occurred. Blue line shows B_{lim} .

Recent recruitment in this stock has typically been lower than historical values and it is possible that the productivity of the stock has declined in response to environmental change. There is evidence, for example, that recruitment in cod declines with increasing temperature (Cook & Heath (2005), Beaugrand et al. (2003), and O’Brien et al. (2000)). Hence there is some doubt about the current definition of the PRI.

Note this a score reduction from previous audits of this fishery (as detailed below):

The 95 % confidence interval for the SSB in 2018 is estimated to be 90,333 – 155,154 tonnes (ICES 2018). Assuming a lognormal distribution, the probability that the current SSB (118,387) exceeds B_{lim} of 107,000 is 0.77 (77 %) which meets SG60. Inspection of the stock-recruitment data for the years ICES uses for MSY calculations (1988 onwards) suggests the lower bound of the current SSB estimate (90,333t) is above biomass values when recruitment is lowest (Figure 3). For this stock B_{lim} is defined on the most recent biomass that produced above average recruitment (in 1996) rather than the point of impaired recruitment. Recent recruitment in this stock has typically been lower than historical values and it is possible that the productivity of the stock has declined in response to environmental change. There is evidence, for example, that recruitment in cod declines with increasing temperature (Cook and Heath, 2005, Beaugrand et al 2003, O’Brien et al 2000). Hence there is some doubt about the current definition of the

PRI. Notwithstanding this, the assessment team took the precautionary approach and treated Blim to be a proxy for PRI. On this precautionary basis it cannot be considered that the stock is highly likely to be above Blim (as proxy for PRI) (> 80 % probability) and SG80 is not met.

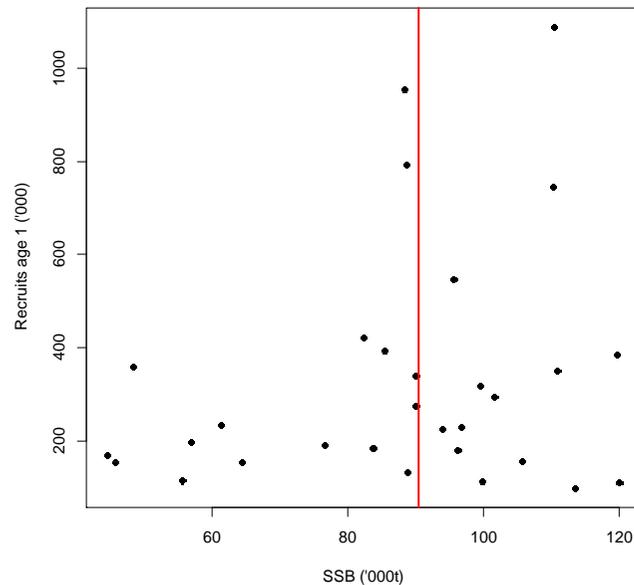


Figure 5. Stock recruitment plot for the period ICES uses for MSY calculations. Red line shows the lower 2.5%ile of the 2018 SSB estimate and occurs in a region when high recruitment has occurred.

b	Stock status in relation to achievement of Maximum Sustainable Yield (MSY)		
	Guide post	The stock is at or fluctuating around a level consistent with MSY.	There is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?	No	No

Rationale

The stock was increasing from an historical low value in 2006 and was above B_{lim} between 2015 and 2017 but the 2019 ICES assessment shows a recent decline. From the ICES 2019 assessment, the estimate for SSB in 2019 is 81,224 tonnes which is below $MSY B_{trigger}$ (150,000 tonnes). For this assessment $MSY B_{trigger}$ is actually B_{pa} which is considered as the stock status reference point above which the stock is considered to have full reproductive capacity, having accounted for estimation uncertainty ICES (2017b). The estimate of F in 2018 is 0.63 which is more than double the F_{MSY} value (0.31). Hence the current stock biomass is not at a level consistent with MSY . As the stock has been below $MSY B_{trigger}$ in the preceding decade, the SG80 level is not satisfied.

Note this an updated rationale from previous audits of this fishery (as detailed below):

At present the stock is increasing from an historical low value. From the ICES 2018 assessment, the estimate for SSB in 2018 is 118,387 tonnes which is below $MSY B_{trigger}$ (150,000 tonnes). There is only a 4 % chance of the stock being above $MSY B_{trigger}$. The estimate of F in 2018 is 0.44, above the F_{MSY} value (0.31) but within the F_{MSY} range stated by ICES where the upper bound is 0.48 (ICES 2017). However, the current stock biomass is not at a level consistent with MSY and as the stock has been below $MSY B_{trigger}$ in the preceding decade, the SG80 level is not satisfied.

References

(ICES 2019), Cook & Heath (2005), Beaugrand et al. (2003), and O'Brien et al. (2000)

Jones & Cook (2018)

Stock status relative to reference points

	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to PRI (S1a)	B_{lim}	$B_{lim} = 107,000$ tonnes $SSB_{2018} = 81,224$ tonnes	$81,224/B_{lim} = 0.76$
	$MSY B_{trigger}$	$MSY B_{trigger} = 150,000$ tonnes	$81,224/MSY B_{trigger} = 0.54$
Reference point used in scoring stock relative to MSY (S1b)	F_{MSY}	$SSB_{2018} = 81,224$ tonnes $F_{MSY} = 0.31$	$0.63/F_{MSY} = 2.03$
		$F = 0.63$	
Overall Performance Indicator score		<60	
Condition number		5 – existing condition now non-binding	

Scoring table 2. PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Rebuilding timeframes			
	Guide post	A rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed one generation time for the stock.
	Met?	No		No

Rationale

Article 2 of the reformed EU Regulation on the Common Fisheries Policy states that stocks, including North Sea cod, must be restored and maintained above biomass levels capable of producing maximum sustainable yield at the latest by 2020. The stock was subject to a recovery plan set out in EU 2008. This aimed to reduce F to 0.4 and achieve a minimum SSB of 150,000 tonnes. The 2017 ICES assessment indicated that rebuilding targets had been achieved with point estimates of SSB = 167,711 tonnes and F = 0.35. As a consequence, some of the controls in the recovery plan were abandoned, notably effort controls. However, the 2018 assessment revised the SSB downward to 118,387t and F upward to 0.44. The 2019 assessment shows the stock is now declining with F increasing to twice the F_{MSY} value and restoration of the stock to MSY is not possible by 2020. Further as no additional rebuilding time frame has been agreed SG60 is not met.

Note this a score reduction from previous audits of this fishery (as detailed below):

Article 2 of the reformed EU Regulation on the Common Fisheries Policy states that stocks, including North Sea cod, have to be restored and maintained above biomass levels capable of producing maximum sustainable yield at the latest by 2020. The stock was subject to a recovery plan set out in EU 2008. This aimed to reduce F to 0.4 and achieve a minimum SSB of 150,000 tonnes (Bpa). The 2017 ICES assessment indicated that rebuilding targets had been achieved with point estimates of SSB = 167,711 tonnes and F = 0.35. As a consequence some of the controls in the recovery plan were abandoned, notably effort controls. However, the 2018 assessment revised the SSB to 118,387 t and F upward to 0.44. The assessment still shows the stock recovering but at a lower rate. The current HCR under the EU MSY approach should deliver Bpa by 2020 with the current stock trajectory upward and projected to reach SSB = 141,896 tonnes assuming an F = 0.31 (ICES advice based on MSY approach). Further, short-term projections under the EU MSY approach indicate that the stock will continue to recover even at the present level of F. Projections assuming status quo F (0.44) using the 2018 ICES assessment and average recent recruitment estimate the SSB will reach 150,000 t within 7 years which is within one estimated generation time (GT) of 8 years (1/0.2+3).

With projected recovery to Bpa by 2020 (or within 1 GT under current F) and an overarching management plan to reach BMSY biomass levels set out in the CFP there is sufficient evidence to suggest that the stock should recover to BMSY levels within 2 GT (16 years = 2034) and SG60 can be met.

As the shortest practicable rebuilding timeframe is not specified, SG 100 is not met.

b	Rebuilding evaluation			
	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is evidence that the rebuilding strategies are rebuilding stocks, or it is likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.	There is strong evidence that the rebuilding strategies are rebuilding stocks, or it is highly likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.
	Met?	Yes	No	No

Rationale

Annual assessments are carried out to evaluate stock status and the effects of management interventions and these have the capacity to show whether any rebuilding targets are met, hence SG60 is met. However, the most recent ICES assessment indicates that although the stock rebuilt above B_{lim} from the lowest value in 2006 the current stock trajectory is downward with SSB below B_{lim} . F has increased above F_{MSY} and hence there is evidence that the stock is not rebuilding and SG80 is not met.

Note this a score reduction from previous audits of this fishery (as detailed below):

The most recent ICES assessment indicates that the stock has rebuilt by a factor of 2.7 from the lowest value in 2006. The current HCR under the EU MSY approach should deliver Bpa within the required timescale with the current stock trajectory upward and projected to reach SSB = 141,896 tonnes by 2020 assuming an $F = 0.31$ (ICES advice based on MSY approach Table 10). Scenarios for the North Sea MAP evaluated by ICES suggest recovery is likely (Table 10). On this basis, the team considered that SG60 and SG80 are met. However, the interaction between the MAP and FMSY ranges and the rate of stock recovery cannot be defined until TAC decisions are made at EU level. Also, since Norway is not included in the MAP but is responsible for the joint management of the stock, TACs will more likely be determined by the EU-Norway agreement. With F currently above FMSY and the rate of recovery lower than in recent years, the evidence is not sufficiently strong for SG100 to be met.

Basis	Total catch (2019)	Wanted catch* (2019)	Unwanted catch* (2019)	F _{total} (2019)	F _{wanted} (2019)	F _{unwanted} (2019)	SSB (2020)	% SSB change **	% TAC change ***	% Advice change [^]
ICES advice basis										
MSY approach: $F_{MSY} \times SSB(2019) / MSY B_{trigger}$	28204	22331	5873	0.24	0.17	0.07	141896	22	-47	-47
Other scenarios ^{^^^}										
$F = MAP^{^^} F_{MSY lower} \times SSB(2019) / MSY B_{trigger}$	18759	14900	3859	0.154	0.109	0.045	152399	31	-65	-65

Table 15. Cod in Subarea 4, Division 7.d, and Subdivision 20. Annual catch scenarios. All weights are in tonnes.

References

EU (2008) and (ICES 2019)

Jones & Cook (2018), ICES (2018)

Overall Performance Indicator score	<60
Condition number (if relevant)	6 – non-binding

Scoring table 3. 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?	Yes	No	No

Rationale

MSC defines a harvest strategy as ‘the combination of monitoring, stock assessment, harvest control rules and management actions, which may include an Management Plan (MP) or an MP (implicit) and be tested by MSE’ (MSC – MSCI Vocabulary v1.1).

Until recently the harvest strategy was intended to recover the stock above B_{pa} . Currently, the strategy is to harvest the stock in a manner consistent with MSY. This is achieved through a variety of management tools that include TACs, minimum mesh size regulations, restrictions on discarding (the EU landing obligation) and measures to limit fleet capacity through licensing systems. The EU–Norway management strategy was updated in December 2008. The EU has adopted a long-term plan with the same aims (EU management plan 2008). ICES evaluated the EU–Norway management strategy in 2009 and concluded that it was in accordance with the precautionary approach if implemented and enforced adequately. The strategy responds to stock status by reducing fishing mortality in proportion to the size of the SSB when it falls below B_{pa} . The management strategy was considered by ICES to switch from the recovery phase to the long-term phase in 2013. Changes to the stock assessment and reference points in 2015 and 2017 imply a need to re-evaluate the management strategy to ascertain if it can still be considered precautionary under the new stock perception. An EU multiannual management plan (MAP) has been proposed for this stock (EC 2016). This plan is not adopted by Norway, thus, not used as the basis of the advice for this shared stock. ICES was requested by the EC to provide advice based on the MSY approach and to include the MAP as a catch option. There is no agreed management plan between the EU and Norway and the stock is below B_{lim} .

The 2019 ICES advice for 2020 implies the stock would recover to B_{lim} by 2021 and follows the MSY HCR. The advised catch limit corresponds to a reduction of F below F_{MSY} . Thus the harvest strategy can be considered responsive to the state of the stock and expected to achieve management objectives provided the advised catch is followed. However, The TAC for 2019 was set above the ICES advice that corresponds to the HCR and as there is no agreed management for 2020, hence the elements of the HS can not be considered to work together to achieve the objectives and SG80 is not met.

The score here is reduced from previous audits and the wording has been amended to include the most up to date references and values (previous rationale below):

Until recently the harvest strategy was intended to recover the stock above B_{pa} . Currently, the strategy is to harvest the stock in a manner consistent with MSY. This is achieved through a variety of management tools that include TACs, minimum mesh size regulations, restrictions on discarding and measures to limit fleet capacity through licensing systems. The EU–Norway management strategy was updated in December 2008. The EU has adopted a long-term plan with the same aims (EU management plan 2008). ICES evaluated the EU–Norway management strategy in 2009 and concluded that it was in accordance with the precautionary approach if implemented and enforced adequately. The strategy responds to stock status by reducing fishing mortality in proportion to the size of the SSB when it falls below B_{pa} . The management strategy was considered by ICES to switch from the recovery phase to the long-term phase in 2013. Changes to the stock assessment and reference points in 2015 and 2017 imply a need to re-evaluate the management strategy to ascertain if it can still be considered precautionary under the new stock perception. An EU multiannual management plan (MAP) has been proposed for this stock (EC 2016). This plan is not adopted by Norway, thus, not used as the basis of the advice for this shared stock. ICES was requested by the EC to provide advice based on the MSY approach and to include the MAP as a catch option. As there is no agreed management plan between the EU and Norway and the stock is below B_{pa} , SG100 is not met.

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?	Yes	No	No

Rationale

ICES assessments prior to 2018 have shown a long-term decline in F and increase SSB since 2006 which suggest the perceived improvement is robust to analytical error and that management measures were effective until recently (2018), hence SG60 is met. The most recent assessment indicates that management targets articulated in the 2008 recovery plan have yet to be reached and that the stock is now in decline with F increasing. This indicates recent management has not been effective and SG80 is not met. The harvest strategy has not been fully evaluated in the light of changes to reference points which means SG100 is not met.

Note this a score reduction from previous audits of this fishery (as detailed below):

All recent ICES assessments show a long term decline in F and increase SSB since 2006 which suggest the perceived improvement is robust to analytical error and that management measures are effective. The most recent assessment indicates that management targets articulated in the 2008 recovery plan have yet to be reached but that recovery is continuing. This satisfies SG80. The harvest strategy has not been fully evaluated in the light of changes to reference points which means SG100 is not met.

c	Harvest strategy monitoring		
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.	
	Met?	Yes	

Rationale

Article 25(2) of the revised Common Fisheries Policy sets out data collection requirements for fishery management purposes. All coastal states submit landings data and the relevant national scientific institutes submit age composition data for landings and discards. ICES also co-ordinates two annual international trawl surveys that cover the whole stock area. Using these data ICES conducts annual stock assessments that provide a basis for assessing the performance of the harvest strategy. ICES considers the data to be reliable.

The score here is unchanged from previous audits

d	Harvest strategy review		
	Guide post	The harvest strategy is periodically reviewed and improved as necessary.	
	Met?	Y	

Rationale

ICES and STECF evaluated the EU–Norway management strategy for North Sea cod in 2009 and 2011. The latest ICES advice recommends a re-evaluation of the plan in view of revised reference points. The EU has proposed a new Multi-annual management plan (MAP) but this is not yet agreed with Norway.

The score here is unchanged from previous audits.

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

The target species is not a shark – not relevant.

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?	Yes	Yes	No

Rationale

Discarding of cod below the legal minimum conservation reference size or commercial size is the principal cause of unwanted mortality. The effectiveness of technical measures to reduce bycatch is monitored through annual ICES assessments that use discard data to estimate unwanted mortality. ICES (2015) describes technical measures that form part of the “Conservation Credits Scheme” in Scotland that have been implemented to reduce discards and analysis shows that these are associated with lower discard rates. There is no systematic biennial review and therefore SG80 is met but not SG100.

The EU Landing Obligation which requires all fish catch to be retained and landed, applies to the majority fleets in the fishery, but up until 2018 did not include ICES Division 7d which is part of this stock. It is unclear whether this measure has yet had any effect on reducing discards.

The score here is unchanged from previous audits

References

EU (2013), ICES (2017a; 2009; 2011) ICES (2015c) (ICES 2019).

(Jones & Cook 2018)

Overall Performance Indicator score	65
Condition number (if relevant)	7 – non-binding

Scoring table 4. 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?	Yes	No	No

Rationale

The current HCR used by ICES for advice is in place and has been used in EU -NOR meetings for setting exploitation rate. When the biomass falls below B_{pa} the fishing mortality is reduced in proportion to the biomass. The HCR has been evaluated by ICES and is considered to be consistent with the precautionary approach. Recent ICES assessments have shown recovery toward the desired minimum biomass when applying the rule as F reduced and biomass increased, so SG60 is met. The 2019 assessment estimates a recent decline in SSB and increase in F which has resulted in the ICES advice to reduce F below F_{MSY} . In 2018 the stock advice recommended a lower TAC but the HCR was not fully implemented so the rule is no longer considered well-defined and SG80 is not met. Changes to the stock assessment in 2018 and reference points in 2015 and 2017 imply a need to re-evaluate the management strategy to ascertain if it can still be considered precautionary under the new stock perception. Hence SG100 is not met.

The score here reduced from previous audits.

The current HCR used by ICES for advice is well-defined. When the biomass falls below B_{pa} the fishing mortality is reduced in proportion to the biomass. The HCR has been evaluated by ICES and is considered to be consistent with the precautionary approach. Recent ICES assessments show recovery toward the desired minimum biomass when applying the rule. Changes to the stock assessment in 2018 and reference points in 2015 and 2017 imply a need to re-evaluate the management strategy to ascertain if it can still be considered precautionary under the new stock perception. Hence SG100 is not met.

b	HCRs robustness to uncertainty			
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Guide post
Met?

Rationale

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.
No	No

HCRs have been evaluated considering uncertainties in the observations, stock assessments and implementation error and were thought to be robust. However, significant changes to the assessments in recent years have demonstrated that assessment uncertainty is not adequately accounted for and therefore the HCRs cannot be robust to these and SG80 is not met. The ecological role of the stock is not considered in these evaluations and hence SG100 is not met.

Note this a score reduction from previous audits of this fishery (as detailed below):

HCRs have been evaluated considering uncertainties in the observations, stock assessments and implementation error and are likely to be robust. The ecological role of the stock is not considered in these evaluations and hence SG100 is not met.

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?	Yes	No	No

Rationale

The two main tools for implementing the HCR are Total Allowable Catches (TACs) and effort control measures. These are set according to ICES advice based on annual assessments. Fishing mortality as estimated from ICES assessments up to 2018, e.g. ICES (2019), shows a long term decline towards the target fishing mortality which suggests these measures may contribute to controlling exploitation. In many countries decommissioning schemes have also reduced fleet size and are likely to be an important factor in reducing exploitation rate, hence SG60 is met. The most recent TAC setting (2018) shows a HCR that was not fully implemented and the 2019 stock assessment estimates an increase in F despite the application of the HCR tools thus indicates that the current measures in use have not been fully effective and SG80 is not met.

Note this a score reduction from previous audits of this fishery (as detailed below):

The two main tools for implementing the HCR are Total Allowable Catches (TACs) and effort control measures. These are set according to ICES advice based on annual assessments. Fishing mortality as estimated from ICES assessments, e.g. ICES (2017a), shows continuous decline to the target fishing mortality which suggests these measures contribute to controlling exploitation. In many countries decommissioning schemes have also reduced fleet size and are likely to be an important factor in reducing exploitation rates.

References

EU (2008), ICES (2017a; 2009; 2015c), Fernandes & Cook (2013) and ICES (2019)

Jones & Cook (2018) and ICES (2019)

Overall Performance Indicator score	60
Condition number (if relevant)	8 – non-binding

Scoring table 5. 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	Yes	Yes

Rationale

ICES conducted a benchmark assessment of North Sea cod in 2015 which reviews all the information and data relevant to the assessment and management. A considerable body of evidence of stock structure is available and reviewed in the report. Data used in assessments include age compositions for landings and discards that are reported to ICES by métier and this includes the UoA. Two annual surveys are used to provide information on stock distribution and abundance and these also provide information on oceanographic conditions which do not form part of the HS. Data on fishery removals are considered good and improving, especially in relation to discards. SG100 is met.

The score here is unchanged from previous audits.

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	Yes	No
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Rationale

The HCR requires a conventional age-based stock assessment using catch and survey data. These data are described in ICES (2015b) and are considered of good quality. Catch data are reported to ICES by quarter and métier. Two annual surveys are used in the assessment and modelling work has demonstrated consistency between the surveys. Uncertainties in the assessment have been investigated at the benchmark assessment and the uncertainties in the HCR investigated using management procedure methods. However, recent assessments have shown retrospective bias with a pattern of over-estimating SSB and under-estimating F. This source of uncertainty has not been taken into account when providing management advice, hence SG100 is not met

The score here is reduced from previous audits.

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

Rationale

Data on removals are listed in ICES (2015c) and cover all nations but with some years of incomplete reporting. Removals include estimates of landings, discards and industrial bycatch (fish for reduction to fishmeal etc). Data coverage has improved in recent years to include more countries reporting discards and age compositions by métier.

The score here is unchanged from previous audits.

References

ICES (2015b; 2011; 2015c)

Overall Performance Indicator score	95
Condition number	N/A

Scoring table 6. PI 1.2.4 – Assessment of stock status

PI 1.2.4	There is an adequate assessment of the stock status		
Scoring Issue	SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration		
	Guide post	The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?	Yes	Yes

Rationale

The HCR uses estimates of current fishing mortality and SSB to calculate changes to TACs and effort controls. The assessment estimates these quantities and is therefore appropriate for the HCR. The assessment takes into account changes to natural mortality resulting from trophic interactions, and maturity. The features of the assessment are described in the 2015 benchmark assessment.

The score here is unchanged from previous audits.

b	Assessment approach		
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.
	Met?	Yes	Yes

Rationale

The assessment estimates stock status relative to Precautionary Approach (PA) and MSY reference points. The reference points take into account uncertainty. The PA reference points are based on recruitment impairment while the MSY values are conditioned on a stock recruitment relationship. The bases for the reference points are given in ICES (2015b) and ICES (2017a). The assessment provides the information to calculate the reference points and the status of the stock in relation to these. It is important to note, however, that MSY values will change in response to changing maturity which has shown marked changes over recent years and the assumed stock-recruitment relationship. The latter appears to have changed in the past 20 years and reference points need to be carefully reviewed.

The score here is unchanged from previous audits.

c	Uncertainty in the assessment			
	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	No	No	No

Rationale

The assessment uses a state-space age structured model (SAM) that estimates both measurement and process error. These errors are taken into account in evaluating status in relation to reference points. The reference points themselves take into account estimation error, process error and structural uncertainty in the stock recruitment relationship. However, the assessment shows consistent retrospective bias which has not been taken into account. Successive assessments show repeated upward revision in F and downward revision in SSB and is a major source of uncertainty that is not taken into account. SG60 is not met.

Note this a score reduction from previous audits of this fishery (as detailed below):

The assessment uses a state-space age structured model that estimates both measurement and process error. These errors are taken into account in evaluating status in relation to reference points. The reference points themselves take into account estimation error, process error and structural uncertainty in the stock recruitment relationship.

d	Evaluation of assessment		
	Guide post		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?		No

Rationale

The assessment method (SAM) has been extensively tested. It was compared to other assessment methods at the World Conference on Stock Assessment Methods and found to perform well. The assessment is routinely compared to other models including SURBAR and a4a as a test of model uncertainty. The recent assessment results show that despite these tests, the assessment is not robust and has resulted in significant retrospective revisions of F and SSB. SG100 not met.

Note this a score reduction from previous audits of this fishery (as detailed below):

The assessment method (SAM) has been extensively tested. It was compared to other assessment methods at the World Conference on Stock Assessment Methods and found to perform well. The assessment is routinely compared to other models including SURBAR and a4a as a test of model uncertainty.

e	Peer review of assessment		
	Guide post	The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?	Yes	Yes

Rationale

The assessment is internally peer reviewed by an internal audit within the WGNSSK group itself and by the ICES Advisory Committee (ACOM).

Regular benchmark assessments are carried out in which key assumptions, input data and models used in the assessment are tested and reviewed by working group members and external peer reviewers (e.g. World Conference on Stock Assessment Methods).

The score here is unchanged from previous audits.

References

Needle (2015), ICES (2014; 2017a; 2015b; 2013), Jardim et al. (2015), (Nielsen & Berg 2014), (ICES 2015a)

Overall Performance Indicator score	<60
Condition number (if relevant)	9 – non-binding

4.5 Principle level scores

Table 16. Principle level scores

Principle	Score
Principle 1 – Target Species	<60
Principle 2 – Ecosystem Impacts	81.7
Principle 3 – Management System	94.4

Table 17. Performance Indicator scores

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
			Indicator ID	Description		
One	Outcome	0.33	1.1.1	Stock status	0.5	<60
			1.1.2	Stock rebuilding	0.5	<60
	Management	0.67	1.2.1	Harvest strategy	0.25	75
			1.2.2	Harvest control rules & tools	0.25	65
			1.2.3	Information & monitoring	0.25	100
		1.2.4	Assessment of stock status	0.25	<60	
Two	Primary species	0.2	2.1.1	Outcome	0.33	95
			2.1.2	Management strategy	0.33	100
			2.1.3	Information/Monitoring	0.33	100
	Secondary species	0.2	2.2.1	Outcome	0.33	80
			2.2.2	Management strategy	0.33	85
			2.2.3	Information/Monitoring	0.33	80
	ETP species	0.2	2.3.1	Outcome	0.33	75
			2.3.2	Management strategy	0.33	75
			2.3.3	Information strategy	0.33	75
	Habitats	0.2	2.4.1	Outcome	0.33	80
			2.4.2	Management strategy	0.33	75
			2.4.3	Information	0.33	80
	Ecosystem	0.2	2.5.1	Outcome	0.33	90
			2.5.2	Management	0.33	85
			2.5.3	Information	0.33	100
Three	Governance and policy	0.5	3.1.1	Legal &/or customary framework	0.33	85
			3.1.2	Consultation, roles & responsibilities	0.33	100
			3.1.3	Long term objectives	0.33	100
		0.5	3.2.1	Fishery specific objectives	0.25	90
			3.2.2	Decision making processes	0.25	100

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
	Fishery specific management system		3.2.3	Compliance & enforcement	0.25	85
			3.2.4	Monitoring & management performance evaluation	0.25	90

5 References

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6 Appendices

Appendix 1 Evaluation processes and techniques

Appendix 1.1 Site visits

The fishery was certified as sustainable on the 18th July 2017. This is an expedited audit of Principle 1 following the first annual surveillance audit which took place on 12-13th April 2018 and a expedited audit of Principle 1 in November 2018. This audit was conducted against FCP 2.1 of the MSC standard and GCR 2.3. The off-site audit was carried out on the 2nd August 2019 by Hugh Jones (Team Leader) and Robin Cook (Principle 1 assessor).

The audit was completed in line with FCP2.1 procedure for expedited audits. The site visit was eligible to be remote based on FCP 2.1 - 7.29.3 and that the fishery can meet the higher requirements for remote audit in Table G13 (FCP2.1). The purpose of the expedited audit was to review the scoring of Principle 1 against the scores published in the 2018 expedited audit report Jones & Cook (2018).

Ability to verify remotely	CAB evaluation
Client and stakeholder input	All registered stakeholders and the client have email addresses and correspond by email. Previous offsite audits have included stakeholder participation and there has never been a complaint to this method of audit.
Fishery reports	All ICES documentation is freely available online, these documents underpin Principle 1. All EU regulations are also available online.
Principle 1 data	All ICES documentation is freely available online, these documents underpin Principle 1. All EU regulations are also available online.
Management system	There is a high level of transparency in management from the EU and NOR, information on the fishery is widely and publicly available online. Any information provided on the fishery can be easily verified.
Vessels, gear or other physical aspect of the fishery	This audit concerns Principle 1 only and access to vessels is not required.

Appendix 1.2 Stakeholder participation

The Expedited Audit was announced on 26th July 2019 with stakeholders informed on the 29th July 2019. The individuals contacted during the site visit, their roles and type of consultation on the fishery are listed in Table 18.

Table 18. List of attendees at the off-site meeting.

Name	Position	Type of consultation
Jennifer Mouat	Consultant SFSAG	Phone interview – Latest catch information from SFSAG, opinions on stock assessment and stock status.
Mike Park	SFSAG chair	Phone interview – Latest catch information from SFSAG, opinions on stock assessment and stock status. Availability of quota to SFSAG vessels.
Hugh Jones	Team Leader	phone
Robin Cook	Principle 1 expert	phone

Name	Position	Type of consultation
Rhona Kent	WWF UK	Phone interview –Opinions on stock assessment and stock status. WWF have concern on the application of the landing obligation and consider there is need for at sea monitoring.
Neil Campbell	Marine Scotland Science	Phone interview – MS perspective on stock assessment and stock status. Latest information on the landing obligation.
Jane Sandell	SFSAG Board	Phone interview – Latest catch information from SFSAG, opinions on stock assessment and stock status. Availability of quota to SFSAG vessels.

Appendix 2 Stakeholder Input

Neil Campbell of Marine Scotland Science and Robin Cook considered that the stock is currently suffering from model issues which is common with SAM based models. There is retrospective pattern in the assessment with F showing upward revisions and SSB downward revisions each year the assessment is updated. This suggests that the model is partially miss-specified. These comments were agreed by SFSAG representatives and it was also noted that reference points in particular B_{lim} are set from a period of higher productivity which may now not be representative of the system as a whole and this may lead to the current pessimistic stock perception. All of which suggests the stock assessment is in need of an in depth review. Benchmarking for the stock is not due until 2021.

Rhona Kent voiced WWF concern on how the landing obligation was being applied by the client fishery and cite the recent House of Lords report (UK 2019), further information is given in Appendix 3.

Neil Campbell noted that the latest analysis of discarding from Marine Scotland all gears put the discard rate at 4.5 % rather than the previous estimates of 15 %. This data had been presented at the most recent Industry advice meeting but a formal report what not be forthcoming for some months.

The site visit participants also noted that the impact of the landing obligation on the current stock status was unknown but likely small with ICES noting that *'The EU landing obligation did not apply to cod in Division 7.d in 2018. BMS landings of cod reported to ICES are currently negligible, and are much lower than the estimates of catches below MCRS (Minimum Conservation Reference Size) estimated by observer programmes.'*

There is some uncertainty in the future management of the stock in that post -31st October 2019 the UK may become an independent Coastal State which will need to build relationships with the EU and Norway over the management of stocks such as cod. Jane Sandell commented that the industry had already taken the lead in this regard convening meetings with industry representatives in Denmark and Norway and that long term stock management strategies were being discussed.

Appendix 2.1 Written Submissions
Phil Taylor - Open Seas

PI	Summary sentence	Detail of stakeholder input	Objective evidence or references should be provided in support of any claims or claimed errors of fact.	Stakeholder suggested score change	The CAB shall respond in this column.	Cab Response code
1.1.1 - Stock status	It is unlikely that the stock is above the point where recruitment is impaired	<p>The expedited audit undertaken in 2018 found “the probability that the current SSB [stock size] exceeds [its lower limit] of 107,000 is 77%, which meets [stock status PI SG60]”.</p> <p>ICES’s 2020 advice finds that, a) “the recruitment estimate for 2019 was substantially below the value assumed [in 2018]” and b) that the SSB was actually 81,224, which is inconsistent with the 77% probability prediction and suggests a more precautionary approach would have been more accurate. We also consider this fails the SG60.</p> <p>The assumption for 2020 included in ICES predictions is for an SSB of 81,755, this is significantly below the Blim of 107,000 and, in our view again fails SG60.</p>	(ICES 2019)	<60	Agreed score. Prior to stakeholder submission the CAB had evaluated the score for PI <60.	Accepted (no score change)

PI	Summary sentence	Detail of stakeholder input	Objective evidence or references should be provided in support of any claims or claimed errors of fact.	Stakeholder suggested score change	The CAB shall respond in this column.	Cab Response code
1.2.1 - Harvest strategy	<p>It appears highly likely that discarding of undersized cod continues and that F is not being properly accounted for. In such a case, the harvest strategy would not be expected to achieve its management objectives because it is limiting F by using landings quota, and failing to account for discards which also add to F.</p>	<p>Due to a lack of information about below MCRS catch, it is highly likely that there underestimation of unaccounted for removals and therefore the overall value for F. Freedom of Information requests have shown that there have been no landings of undersized cod from the North Sea to UK ports in 2018. Assuming the catch composition figures used to calculate the quota top-up given to UK boats for cod is accurate, this infers that somewhere between 5,224 and 7,500 tonnes of undersized cod were discarded at sea and not accounted for in the ICES statistics.</p>	<p>https://our.fish/press/fish-overboard-did-the-uk-throw-away-7500-tonnes-of-north-sea-cod/ ; https://www.parliament.uk/business/committees/committees-a-z/lords-select/eu-energy-environment-subcommittee/news-parliament-2017/landing-obligation-follow-up-publication/</p>	<p><60</p>	<p>The discarding problem is a compliance issue and is primarily dealt with in P3. The stakeholder provides no rationale against the MSC clauses relevant to this PI as to why the score is less than 60. The CAB note that the current strategy for cod is to eliminate discarding and if complied with would be expected to achieve its objectives. Previous experience of the strategy shows that F has reduced and the SSB has shown some recovery and hence SG60 is met. The stakeholder comments alone cannot justify a score of <60 therefore the suggested score cannot be accepted. However, the CAB have evaluated the PI against the MSC standard and as result found that a score reduction to <80 is required. The CAB also note that there are currently no court summons or prosecutions against the client related to non-compliance with the LO.</p>	<p>Accepted (material score reduction to <80)</p>

PI	Summary sentence	Detail of stakeholder input	Objective evidence or references should be provided in support of any claims or claimed errors of fact.	Stakeholder suggested score change	The CAB shall respond in this column.	Cab Response code
1.1.1 - Stock status	The repeal of the 'windsock' cod recovery area means that there is likely greater pressure on the stock, particularly older fish, and a negative impact on recruitment. This negative impact adds to the likelihood that the stock recruitment is impaired.	We also note that recruitment will be impacted since the repeal of the EU cod recovery measures have led to trawlers operating in the 'windsock' area, which was designated to "allow as many cod as possible to spawn". This area, which was unfished by mobile gear until August 2019 has provided a unimpacted spawning stock which has provided recruits into this broader stock. The impact of this repealed protection on recruitment must be considered.	https://theferret.scot/windsock-cod-trawling-wildlife/; http://www.europarl.europa.eu/doceo/document/TA-8-2019-0381_EN.html	<60	<p>The 'windsock' was a legacy of the European Commission's actions to protect cod in 2001. It has been lifted as a result of the recently introduced Technical Measures Regulation (EU) 2019/1241. The idea that the windsock protected area was a significant factor in aiding spawning is at best highly speculative. There is no evidence that fishing itself interferes with spawning activity. The crucial issue is the fishing mortality rate on mature fish throughout the year that erodes the size of the SSB. Such mortality operates outside the protected area. The score given for this SI is below SG60 on the basis of SSB in relation to B_{lim}.</p> <p>When questioned on the windsock area the client commented <i>'SFSAG vessels have been instrumental in promoting closed areas to protect aggregations including spawners, the first of these were introduced in 2008. We have very recently proposed an area for seasonal closure that lies</i></p>	Not accepted (no score change)

PI	Summary sentence	Detail of stakeholder input	Objective evidence or references should be provided in support of any claims or claimed errors of fact.	Stakeholder suggested score change	The CAB shall respond in this column.	Cab Response code
					<i>within the area of the 'windsock', this area is one of a number of new areas we have proposed to the Scottish Government.'</i>	
1.2.1 - Harvest strategy	Despite the 2015 (and then 2020) deadline for setting quota inline with MSY, TAC have been set above MSY for this stock in both 2018 and 2019. This harvest strategy is not expected to achieve its stock management objectives	TAC for this stock was set at 23,260 in 2018, versus a recommended 18,554. This is 25.4% in excess of scientific advice.	https://neweconomics.org/uploads/files/NEF_LTB_ATLANTIC_2019.pdf	<60	The CAB have scored this PI based on this information (e.g. the 2019 TAC), though the CAB does not view that this results in a fail at SG60, it does cause the PI score to be reduced from previous audits. The TAC for the stock have been set in line with ICES advice in years previous to 2019 and this must be accounted for as well as the latest EU-Nor agreed TAC for 2019. Knowledge of what will happen for 2020 is not currently available. The CAB have set the overall score at 65. Additionally the CAB note the stakeholder figures are incorrect: https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/2019-norway-fisheries-consultations_en.pdf section 5.13.6 of the above sets the TAC at 35,358 t which is 21 % above ICES advice from	Accepted (no score change)

PI	Summary sentence	Detail of stakeholder input	Objective evidence or references should be provided in support of any claims or claimed errors of fact.	Stakeholder suggested score change	The CAB shall respond in this column.	Cab Response code
					http://ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/cod.27.47d20.pdf	
1.2.3 - Information and monitoring	UoA removals are not monitored adequately, specifically because bycatch and discard volumes are unknown.	As stated above, FOI evidence shows that no undersized cod were landed from this stock in 2018. We contend that it is highly unlikely that all removals were above MCRS. We therefore consider the below MCRS to be an unknown amount, and that the overall removals are therefore unknown.		65	All removals are monitored through port sampling and at-sea observer programmes. If MCRS fish are not landed, they will still be sampled by the at-sea observers and accounted for in the stock assessment.	Not accepted (no score change)

Rhona Kent – WWF

General comments

General comments	Evidence or references	CAB response to stakeholder input	CAB Response Code
<p>The recent ICES advice on North Sea cod indicates decreasing Spawning Stock Biomass (SSB) and increasing fishing mortality(F) since 2015 resulting in low SSB and high F, increasing away from Fmsy. As a result the advice is a 70% reduction in the North Sea cod TAC for 2020. In light of this WWF does not consider it appropriate for North Sea cod to remain certified as an MSC fishery.</p>	<p>ICES Advice - Cod - greater North Sea ecoregion http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/cod.27.47d20.pdf</p>	<p>The CAB have considered this ICES advice throughout the scoring of Principle 1 and as a result the fishery no longer meets SG60 for PI 1.1.1</p>	<p>Accepted (no score change)</p>
<p>While there are likely other factors at play it is our belief that the weak implementation of the landing obligation, together with setting catches above scientific advice have contributed to overfishing of stocks in European waters and are contributing factors in the current depleted state of the North Sea cod stock. WWF has reached this conclusion based on evidence from numerous sources that there is widespread non-compliance with the landing obligation leading to overfishing. The House of Lords inquiry into the landing obligation published January 2019 states: “At the minute, there is wide acceptance that discard levels are occurring at similar and, in some circumstances, higher rates than previously. That is exceedingly dangerous for our stocks; it just means that in reality we have overfishing. We have done great things in recent years with positive trends—building stocks up again and decreasing fishing mortality, and we are about to reverse all that if we do not get this right.”</p>	<p>Fisheries: implementation and enforcement of the EU landing obligation https://publications.parliament.uk/pa/ld201719/ldselect/ldecom/276/276.pdf</p>	<p>The CAB have considered this advice throughout the scoring of Principle 1 and as a result the fishery no longer meets 60 for a number of PIs</p>	<p>Accepted (no score change)</p>

General comments	Evidence or references	CAB response to stakeholder input	CAB Response Code
<p>The HoL published a follow up report in July 2019 which highlighted the impact in stocks stating "Limits are set on the amount of each type of fish that fishers can catch, to ensure the health of fish stocks for future years. The EU's limits are now set on an assumption of 100% compliance with the landing obligation, making the need for an effective mechanism to monitor compliance even more pressing...This Committee wishes to see fishers and fishing communities flourish. If fishing is permitted above the maximum level that scientific advice states is sustainable, however, the long-term damage to fish stocks could pose a serious threat to the fishing industry."</p>	<p>House of Lords, The EU fisheries landing obligation: six months on, July 2019 https://publications.parliament.uk/pa/ld201719/ldselect/ldselect/395/395.pdf</p>	<p>The CAB have considered this advice throughout the scoring of Principle 1 and as a result the fishery no longer meets 60 for a number of PIs</p>	<p>Accepted (no score change)</p>

General comments	Evidence or references	CAB response to stakeholder input	CAB Response Code
<p>The European Fisheries Control Agency (EFCA) has acknowledged there is widespread non-compliance with the Landing Obligation across EU waters and have stipulated that traditional methods of monitoring compliance are no longer adequate, further advising that Remote Electronic monitoring with CCTV should be introduced, stating: "Member States (MSs) cannot ensure effective control and enforcement of the LO at sea by using conventional controls such as inspections at sea/landing and aerial surveillance...Voluntary compliance is highly unlikely in the absence of meaningful control...All credible sources point towards widespread non-compliance with the LO...REM (incorporating CCTV and sensors) is widely recognised as the best way to effectively control the LO at sea → CCTV can confirm non-compliance..."</p> <p>WWF support the EFCA recommendation and of the view that to ensure stocks in the North Sea (and wider European waters) have a chance of recovery, REM with CCTV must be installed as a matter of urgency on all demersal trawl vessels as this is the only way to demonstrate full documentation and with it sustainably managed fisheries.</p>	<p>Presentation from EFCA delivered at Landing Obligation seminar in Brussel 14th June 2019 and to the NWW advisory Council working group also June 2019 http://www.nwwac.org/fileupload/Papers%20and%20Presentations/2019/Ghent%202019/Landing%20Obligation%20control%20and%20enforcement.pdf</p>	<p>Systemic Non-Compliance is not considered directly under Principle 1 of the MSC rather it is scored under Principle 3, which is not under audit in this report. However following MSC interpretation on the EU LO CU (https://mscportal.force.com/interpret/s/article/Consideration-of-the-Landing-Obligation-in-fishery-assessments) CU Pesca have considered this across the P1 PIs and as a result scores of a number of PIs no longer meet the SG60 mark. The CAB also note that there are currently no court summons or prosecutions against the client related to non-compliance with the LO.</p>	<p>Accepted (no score change)</p>

General comments	Evidence or references	CAB response to stakeholder input	CAB Response Code
<p>WWF are of the view that an emergency stock recovery plan should be adopted in order to recover the stock. At the minimum this must include:</p> <ul style="list-style-type: none"> • a specified timeline to reduce fishing pressure and recover the stock as quickly as possible, • demonstrable use of the most highly selective fishing gear by the whole North Sea demersal fleet, • closed areas to protect large aggregations of cod, • requirement for quotas to be allocated to vessels on the basis of their ability to demonstrate compliance, • the introduction of Remote Electronic Monitoring (REM) with cameras to improve data for management of the fishery and provide monitoring of accountability and compliance with quota requirements. The UK Government must outline its plan and timetable for the widespread roll-out of this now vital technology, and, • Identification of Offshore Marine Protected Areas (MPAs) under the Marine and Coastal Access Act 2009 or Fish Stock Recovery Areas (identified in the CFP Article 8) to protect important seasonal spawning and nursery grounds for the North Sea cod stock. The case for this approach is further consolidated by the fact that cod are a Priority Marine Feature (PMF) whose national status must not be significantly impacted by use of the marine environment (General Policy 9(b) of National Marine Plan). 	<p>Priority Marine Features Scotland https://www.nature.scot/sites/default/files/2018-05/Priority%20Marine%20Features%20in%20Scotlands%20esas.pdf</p> <p>National Marine Plan (Scotland) https://www.gov.scot/publications/scotlands-national-marine-plan/</p> <p>"GEN 9 Natural heritage: Development and use of the marine environment must: (a) Comply with legal requirements for protected areas and protected species. (b) Not result in significant impact on the national status of Priority Marine Features. (c) Protect and, where appropriate, enhance the health of the marine area."</p>	<p>This viewpoint is directed at the recovery plan for the fishery rather than the scoring of the fishery under the MSC program as such CU Pesca as an independent CAB auditing against the MSC standard we cannot comment on what measures / strategy are required to recover the fishery.</p>	<p>Not accepted (no score change)</p>

PI specific comments

PI	Summary sentence	Detail of stakeholder input	Objective evidence or references should be provided in support of any claims or claimed errors of fact.	Stakeholder suggested score change	The CAB shall respond in this column.	Cab Response code
1.1.1 - Stock status	The NS cod stock is overfished and is not recovering	see General Comment (Row 4)	see General Comment 1	<60	agreed	Accepted (no score change)

Appendix 3 Revised Surveillance Program

Table 19. Fishery surveillance programme.

Surveillance level	Year 1	Year 2	Year 3	Year 4
6	N/A	On-site	On-site	On-site

Table 20. Timing of surveillance audit.

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
2	April 2017	November 2019	ICES November Advice will be available and the surveillance period will include the decisions of the EC council meetings in December 2019.

Table 21. Surveillance level rationale.

Year	Surveillance activity	Number of auditors	Rationale
2	On-site audit	2 auditors on-site	No change from PCR (Sieben et al. 2017)

Appendix 4 Harmonised fishery assessments

Table 22. Overlapping fisheries

Fishery name	Certification status and date	Performance Indicators to harmonise
DFPO Denmark North Sea & Skagerrak cod and saithe	Certified until 24 th Nov 2019	Principle 1 all
Norway North Sea Demersal fishery	Certified until 15 th Jun 2023	Principle 1 all
Joint demersal fisheries in the North Sea and adjacent waters	In assessment	Principle 1 all

Table 23. Overlapping fisheries

Supporting information	
<p>CU Pesca contacted the overlapping fisheries on 1st July to announce the intent to raise an expedited audit. CABs for the overlapping fisheries responded that they would also consider the need for expedited audits. Further emails 9th July confirmed all CABs intended to launch expedited audits. CU Pesca emailed the other CABs on 5th August confirming the site visit had taken place and providing them with draft scores. LR provided similar scoring on 12th August. DNV-GL provided initial scores higher than LR and CU Pesca but after review reduced scores to those proposed by CU Pesca and LR on 19th August.</p>	
Was either FCP v2.1 Annex PB1.3.3.4 or PB1.3.4.5 applied when harmonising?	No
Date of harmonisation meeting	Not required harmonisation completed via email
If applicable, describe the meeting outcome	
Agreement found among teams and lowest score adopted.	