Marine Stewardship Council (MSC) 4th Annual Surveillance Report

SFSAG North Sea Saithe

On behalf of

SFSAG

Prepared by

ME Certification Ltd

June 2018

Authors: Dr Hugh Jones
Dr Geir Hønneland

ME Certification Ltd
56 High Street, Lymington
Hampshire SO41 9AH
United Kingdom
Tel: 01590 613007
Fax: 01590 671573
E-mail: info@me-cert.com
Website: www.me-cert.com

Contents

Glossary

Acronym	Definition
CFP	Common Fisheries Policy
CR 1.3	Certification Requirements v1.3 (MSC Scheme Document)
CRP	Cod Recovery Plan
CV	Coefficient of Variation
DCF	Data Collection Framework
DEFRA	Department for Environment, Food & Rural Affairs
DFPO	Danish Fisheries Producer Organisation
EC	European Council
EMFF	European Maritime and Fisheries Fund
EP	European Parliament
ETP	Endangered, Threatened and Protected (species)
EU	European Union
F	Fishing mortality
FAM	Fishery Assessment Methodology
FCR	Fishery Certification Requirements (MSC Scheme Document)
FIS	Fisheries Innovation Scotland
FISA	Fishing Industry Science Alliance
FMAC	Fisheries Management and Conservation Group
FU	Functional Unit (Nephrops)
GITAG	Gear Innovation and Technology Advisory Group
HCR	Harvest Control Rule(s)
IBTS	International Beam Trawl Survey
ICES	The International Council for the Exploration of the Sea
LO	Landings Obligation
LTMP	Long-Term Management Plan
MAP	Multi-Annual Plan
MCRS	Minimum Conservation Reference Sizes
MCS	Monitoring Control and Surveillance
MCZ	Marine Conservation Zones
MEC	ME Certification Ltd
MLS	Minimum Landing Size
MS	Member State(s) (EU)
MSE	Management Strategy Evaluation
MSFD	Marine Strategy Framework Directive

Acronym	Definition
MSS	Marine Scotland Science
MSY	Maximum Sustainable Yield
NCMPAs	Nature Conservation Marine Protected Areas
NSAC	North Sea Advisory Council
NWWAC	North Western Waters Advisory Council
OSPAR	Oslo-Paris Convention
PA	Precautionary approach
PCDR	Public Comment Draft Report
PCR	Public Certification Report
PETS	Protected, Endangered and Threatened (species)
PI	Performance Indicator
PO	Producer Organisation
RBF	Risk Based Framework
RP	Reference Point
SAC	Special Area of Conservation
SAM	Space Assessment Model
SCCS	Scottish Conservation Credits Scheme
SFF	Scottish Fishermen's Federation
SFPA	Scottish Fisheries Protection Agency
SFSAG	Scottish Fisheries Sustainable Accreditation Group
SI	Scoring Issue
SIDI	Scottish Industry Discard Initiative
SPA	Special Protected Area
SSB	Spawning Stock Biomass
SSIs	Scottish Statutory Instruments
STEFC	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
TSA	Time Series Analysis
UNCLOS	UN Convention on the Law of the Sea
UNFSA	UN Fish Stock Agreement
UoA	Unit of Assessment
VMS	Vessel Monitoring System
WGNSSK	ICES Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak
XSA	eXtended Survivor Analysis

1 General summary

Fishery name	Scottish Fisheries Sustainable Accreditation Group (SFSAG) saithe		
Unit(s) of assessment	The fishery for saithe (*Pollachius virens*) in the North Sea and West of Scotland (ICES Subareas IIa, IIIa, IV and VI) by single-rig trawl (TR1 and TR2), pair trawl (TR1), twin-rig trawl (TR1 and TR2) and Danish seine vessels covered by membership of the Scottish Fisheries Sustainable Accreditation Group (SFSAG) following organisations: • Aberdeen Fish Producers Organisation • Anglo-Scottish Fish Producers Organisation • Fife Fish Producers Organisation • Fishermen's Mutual Association (Pittenweem) • North East of Scotland Fishermen's Organisation • Northern Producers Organisation • Orkney Fish Producers Organisation • Scottish Fishermen's Organisation • Shetland Fish Producers Organisation • East of England Fish Producers Organisation • Scottish White Fish Producers Association (SWFPA)		
Date certified	3rd Oct 2013	Date of expiry	2nd Oct 2018
Surveillance level and type	Surveillance level 6, on-site surveillance audit. The certification date for this fishery was the 3rd October 2013 and therefore the Year 4 surveillance site visit would normally have taken place in October 2017. However, due to assessment team availability and the need for harmonisation this audit took place in April 2018. It was combined with the SFSAG North Sea Cod and North Sea Haddock surveillances to allow for harmonisation, and client cost saving.		
Date of surveillance audit	12th -13th April 2018		
Surveillance stage	4th Surveillance	X	
Surveillance team	Lead assessor:Dr Hugh Jones Assessor(s): Dr Geir Honneland		
CAB name	MEC		
CAB contact details	Address	ME Certification, 56 High Street, Lymington, SO41 9AH United Kingdom Tel: +44 (0)1590 613007 Fax: +44 (0)1590 671573 Hugh.jones@me-cert.com	
	Phone/Fax		
	Email		
	Contact name(s)		
Client contact details	Address	South Harbour Road, Fraserburgh, Scotland, AB43 9TN	
	Phone/Fax	+44(0)1346514545	
	Email	sfsag@scottishfishermen.co.uk	
	Contact name(s)	Mike Park (SWFPA CEO), Jennifer Mouat (SFSAG co-ordinator)	

2 Background

This report outlines the process and outcome of the fourth annual surveillance audit for the MSC certified SFSAG saithe fishery. The fishery is conducted by vessels affiliated to the ten producer organisations (PO) and one trade association (SWFPA) making up the SFSAG (see UoA in General summary).

The UoA includes all saithe caught around Scotland landed by SFSAG vessels (currently 232 vessels), whether saithe is targeted or, most commonly, is a retained bycatch species. The vessels use a variety of gears, including whitefish trawls (TR1 - single, twin-rig and pair – mainly single), *Nephrops* trawls (TR2 - single and twin rig – mainly twin) and Danish seines. An updated list of member vessels is available on the SFSAG website.

The most important fishing area for the fishery in terms of landings is the North Sea (ICES Division IVa occasionally IVb), followed by the W. Scotland (ICES Division VIa); detailed maps are given in the Public Certification Report (Gascoigne et al., 2013). ICES consider the stock to be mostly distributed in the North Sea including Northern Norway, with just over 10 % found around the W. Scotland. For management purposes, Scottish landing quotas are set for the two areas separately. In addition to its share of the UK quota, the Scottish fleet secures landing quotas from swaps with other EU member states, and this has become increasingly relevant with the staged introduction of the landings obligation (LO) which includes saithe in the North Sea for 2018. As of 2017 saithe was only required to be landed through the LO by vessels considered to be saithe targeting vessels[1] in the North Sea in accordance with EU definitions. No vessels in the UoA are defined as saithe targeting vessels. Saithe is currently not a LO species for the W. Scotland.

Table 1. TAC and Catch data in tonnes. UK share given as initial TAC at start of year and final after swaps. *estimate final figures not available at time of site visit.

TAC	2018	118,460
	2017	100,287
	2016	65,696
UK share of TAC	2018	Initial: 8,146
	2017	Initial: 8,146 Final: 11,005
	2016	Initial: 5,284 Final: 8,720
Total green weight catch by UoC	2017	NS 6,900* WS 2,500*
	2016	NS 6,769 WS 2,493

[1] A vessel shall be identified as targeting saithe if, when using trawls with mesh ≥ 100 mm, they have had annual average landings of saithe of ≥50% of all landings by the vessel taken in both EU and third country zones of the North Sea (ICES Areas IIIa, IV and EU waters of IIa) over the period of x-4 to x-2 where x is the year of application; i.e. 2013-2015 for 2017.

Table 2. Conditions

Condition number	Status	PI original score	PI revised score
1	PI 1.1.1 Because the stock is considered depleted, PI 1.1.3 (rebuilding plan) was scored. This requirement for a rebuilding plan acts as the de facto condition for this PI, therefore no formal condition was required here. The score for PI 1.1.3 was 80. (NB: These scores were agreed during the harmonisation process for all the MSC-certified saithe fisheries during December 2011 and January 2012.)	Closed during 1st year	80
2	PI 2.1.1 The fishery should work to ensure that it can demonstrate within 5 years that its impact on the whiting stock in Subarea VI, including via discards, does not put the recovery of the stock at risk.	Closed during 3rd year	Whiting in 6A = 90 Overall in 6A = 85
3	PI 2.1.2 The fishery should put in place a management plan for the whiting stock in Subarea VI within 5 years, should working with other management agencies if necessary.	Closed during 3rd Year	90
4	PI 2.1.3 The fishery should carry out a data needs assessment for these stocks within two years, and to support the gathering of the information required to undertake a basic stock assessment – data should be made available for stock assessment within four years, with data collection on-going as required from that point.	Closed during 3rd Year	80
5	PI 2.2.1 The fishery should within three years collect sufficient information on sandy ray bycatch to assess the likely impact of the overall fleet, so that it is possible to assess whether or not it is appropriate to consider this species a 'main' bycatch species. If further assessment considers that it should be 'main', the fishery should ensure that its bycatch of this species is not having a population-level impact within five years.	Closed during 3rd Year	80
6	PI 2.2.3 This condition relates to the quantitative information available on discards for the UoC. The information provided to the assessment team was not sufficient to make a quantitative or semi-quantitative assessment of total discard rates by the fleet for all, or even main, discard species. The fishery should put in place within 3 years a data collection system such that discard rates can be quantitatively assessed across the fleet.	Closed during 3rd Year	80
7	PI 2.3.1 This condition relates to possible impacts on common skate in IV and VI 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.	Open	75
8	PI 2.3.2 The fishery should put in place within three years a strategy for common skate, to ensure that bycatch is not hindering the recovery of the stock.	Open	75
9	PI 2.3.3 This condition also relates to common skate and can be addressed jointly with Conditions 7 and 8. The fishery should within two years collect data on common skate	Open	75

Condition number	Status	PI original score	PI revised score
	bycatch such that the population-level impacts of the whole fishery on common skate can be assessed.		
10	PI 2.4.1 This condition relates to the possible overlap of the fishery in Subarea VI with the East Mingulay reef area. The fishery should ensure that it does not act either now or in the future to damage this area. Protection should be in place within three years.	Closed during 3rd Year	80

2.1 General

2.1.1 Industry developments

The EU LO has focussed attention on the urgent need to develop effective strategies for reducing the catch of unwanted species or sizes of fish by the Scottish industry. There has been a number of gear technology increases in both TR1 and TR2 sectors in recent years by the UK sector to improve selectivity and reduce habitat impact. A useful summary of the Gear Innovation and Technology Advisory Group (GITAG) programme and its partners is available from Montgomerie (2016). In brief, the use of 'letterbox headlines' on TR2 nets, smaller opening heights of 1 ft – 3 ft compared to 6 ft - 8 ft previously, has shown a reduction in haddock and saithe bycatches, as these species tend to rise in the water column when disturbed. In one set of trials (zenith) there was a reduction in catches of haddock, whiting cod, hake and saithe ranging from 25 % to 85 % less, while *Nephrops* catches remained similar (Montgomerie, 2016). For TR1 gear a large proportion of SFSAG vessels has moved to 130 mm net mesh size up from 100 mm – 120 mm and the majority have adopted 24' hoppers which allow fish such as juvenile cod to go under the net and avoid capture (Figure 1).

Figure 1. 24' hopper. Source Mike Park (SFSAG).

For TR2 gears square mesh panels of 300 mm x 300 mm are now mandated in the fishery; however, the industry report that selectivity continues to be a problem for some species in some areas. There are continued efforts and funding from the European Maritime and Fisheries Fund (EMFF) through the GITAG programme to address this. One notable project

which is ongoing in this area is the Amity II project which is using a modified TR2 trawl net which is split into lower and upper panels (SFF, 2016). The split separates *Nephrops* into the lower cod end, while the upper panel resembles a TR1 net with escape meshes. The trials report that the net is significantly improving selectivity with similar size retention of white fish in the upper net to that found in TR1 gears, while the condition of the *Nephrops* in the lower net portion is improved, and bycatch is reduced. A full report on this project is expected from the GITAG project in 2018. An observer program is also in operation within the GITAG group with the data feeding into the current observer programmes and reports to Marine Scotland Science.

Coupled to the development of gear is the movement by industry into spatial and temporal reporting of unwanted catches. A review in 2017 highlighted the advent of real-time reporting used for the analysis and dissemination of bycatch data so as to enable skippers to improve the match between catch composition and available quota (Marshall, Wiff, and Cornulier, 2017). The Scottish fishing industry were early adopters of spatial selectivity in the form of real-time closures as part of the Cod Conservation Credit Scheme and while collaboration at a national level like that scheme is not in place currently for discards, the report notes that individual POs are already using this to manage their activities. The study pilot showed how a Bayesian spatial model using observer data and catch data could be used to assist in the avoidance of immature cod areas, and explored the use of real-time closures in the US which have been effective in discard mitigation (Marshall, Wiff, and Cornulier, 2017). The authors note that the model only becomes useful when effective real-time reporting exists and that this is not presently the case in Scottish fisheries but could be with sufficient PO and skipper collaboration.

Finally, a report released by Fisheries Innovation Scotland (FIS) in 2017 using stereo cameras in nets to evaluate catch, and gates to release or retain fish has shown promise in reducing unwanted catch and further work is needed to compliment this work (Marshall, Wiff, Rosen, et al., 2017).

SFSAG report that with the higher levels of available quota, better technology and communications the fleets are now managing their available quota by avoiding specific areas in space and time to avoid species with lower quotas. Evidence for this was argued at the site visit in terms of the reduction in real-time closures (RTC) for juveniles by TR2 gears decreasing from >40 to <5 in 2017. SFSAG skippers have reported that all of the measures discussed above have reduced discards from TR1 gears and they are now much lower into single digit percentages.

The client notes that there are ongoing resourcing issues with Marine Scotland Science and that an industry-led science group is being convened to address the deficiencies from this department, to provide more timely access to data. This is discussed further under Principle 2 in relation to this assessment.

2.1.2 Landing Obligation (LO)

The introduction of the Landing Obligation (EU, 2015) is intended to eliminate discarding of fish at sea and requires all regulated fish species caught to be landed. This process has been phased in since 2015 and there has been a continued increase in LO species added to the list per annum since its introduction and prior to full implementation on 1st January 2019 (Table 3). The stepped introduction of the LO is regionalised by sea basin, on joint recommendations

by fisheries directors of member states, thereby the species listed each year in the North Sea and W. Scotland LOs differ (Table 3).

Table 3. Landing Obligation for North Sea and W. Scotland between 2016 and 2018 relevant to the UoA. Source http://www.gov.scot/Topics/marine/Sea-Fisheries/discards.

Year	North Sea		W. Scotland	
	Gear	Species	Gear	Species
2016	Vessels using gear of 100 mm or more need to land haddock, plaice and northern prawn, and vessels using gear of 80-99 mm	*Nephrops,* sole and northern prawn.	Vessels where 10 % or more of their total landings in 2013 and 2014 were any combination of cod, haddock, whiting and saithe	haddock
			Vessels where 30% or more of their landings in 2013 and 2014 were *Nephrops.*	*Nephrops*
			Vessels which meet both conditions have to land both	Haddock, *Nephrops*.
2017	vessels using gear of 100 mm or more.	saithe (if caught by a saithe-targetting vessel), plaice, haddock, whiting, cod, northern prawn, sole and N*ephrops*	Vessels where 5 % or more of their total landings in 2014 and 2015 were from a combination of cod, haddock, whiting and saithe	haddock, sole, plaice and megrim
	80 - 99 mm	*Nephrops,* haddock, sole and northern prawn	Vessels where 20 % or more of their landings in 2014 and 2015 were N*ephrops*	*Nephrops,* haddock
2018	Bottom trawls and seines of mesh equal to or larger than 100 mm	Cod, haddock, Nephrops, plaice, saithe, sole, whiting and northern prawn	Haddock, and by-catches of sole, plaice and megrims, if total landings of the vessel in 2015 and 2016 consisted of more than 5 per cent of cod, haddock, whiting and saithe (combined). *Nephrops* and by catches of haddock, sole, plaice and megrim if total landings of the vessel in 2015 and 2016 consisted of more than 5 per cent of *Nephrops*. Saithe where total landings of the vessel in 2015 and 2016 consisted of more than 50 per cent of saithe. Black scabbardfish, where total landings of the vessel in 2015 and 2016 consisted of more than 20 per cent of black scabbardfish.	
	Bottom trawls and seines of mesh equal to or larger than 70 mm and less than 100 mm	Cod, haddock, *Nephrops*, saithe, sole, whiting and northern prawns		

Year	North Sea		W. Scotland
			Blue ling where total landings of the vessel in 2015 and 2016 consisted of more than 20 per cent of blue ling Grenadiers where total landings of the vessel in 2015 and 2016 consisted of more than 20 per cent of grenadiers. Hake, if total landings of the vessel in 2015 and 2016 consisted of more than 10 per cent hake.

The industry reports that in 2016 – 2017 the LO has not been much of an issue for TR1 vessels. This is due to increases in TACs (Table 4) as a result of improved stock status and TAC uplifts (from discards being added in key stocks), along with gear improvements and dynamic fishing practices. Also, species which are identified as potential choke species (e.g. hake in the North Sea) have not been introduced into the LO as yet.

The Scheveningen Group, which provides recommendations to the European Council for the North Sea, has developed a choke mitigation tool to identify which species will be problematic in 2018 and this was evaluated by the North Sea Advisory Council (NSAC) (NSAC, 2017). They broke down regulated species in three categories:

- Category 1 - Sufficient quota at Member State (MS) level—choke is due to distribution within the MS such that a region or fleet segment does not have enough and this can be resolved by the MS itself.
- Category 2 - Sufficient quota at EU level, but insufficient quota at MS level—choke is due to distribution between MS and can be resolved between themselves in a regional context.
- Category 3 - Insufficient quota at EU level—choke is due to insufficient quota within the relevant sea basin to cover present catches or catch levels that can be realistically reduced, resulting in a total cease to fishing for a MS.

The NSAC considered a number of stocks which have come under the LO in 2018 against the following ‘choke toolbox’ for resolution of the choke scenario:

- Quota uplift
- The setting of TACs and quotas for these species
- Exemptions on the basis of high survivability
- *De minimis* exemptions
- Interspecies flexibility
- Selectivity measures
- Avoidance measures
- Quota swaps
- Internal Member States’ quota allocation/management

- Inter-annual quota flexibilities – “banking and borrowing”

For saithe in the North Sea (under the LO as of 2018) the stock has been classed to be a Category 2 choke species for the TR1 sector, given the previous high discard rate of the Scottish fleet (44.96 %) being made up of mostly large mature fish and the result of discarding due to a lack of available quota. However, the Scottish industry has implemented a wide range of measures to improve selectivity across a range of species and the discard rate quoted is outdated. The introduction of real-time and spatial closures to protect spawning cod remains a major feature of the Scottish demersal finfish fishery and the purchase of additional quota from other MS (which SFSAG has been active in for 2017) all provide methods of meeting the LO. However, it seems quite difficult to improve the selectivity as regards saithe in the mixed fisheries without losing valuable catches of other stocks. The fish encountered are in the main large fish, which puts an emphasis on spatial management and the sharing of information. Projects to further develop spatial awareness are currently underway in Scotland (as discussed under section 2.1.1).

Other challenging species for 2018 will include North Sea whiting (category 3), where discard rates assumed by ICES are lower than those held by STECF. The NSAC concluded for North Sea whiting; *‘Other than improvements to selectivity and improvements to spatial and temporal awareness it is unclear how this choke situation can be averted within the current toolbox. There is not enough quota available within the EU to cover all catches and as many different fisheries have a quota shortage this could impact the majority of demersal fisheries in the North Sea.’*(NSAC, 2017). In 2019 challenging species will include hake in the North Sea and cod and whiting in W. Scotland which are considered category 3 stocks.

Stakeholders have raised questions with regard to how the Scottish Government plans to manage compliance and regulation in the advent of the LO in 2019 as no documented record of their intent is evident as yet. However, there are two key changes with large uncertainties taking place within the sector before 2019 which will have an impact on the LO. These are the introduction of the North Sea multiannual plan (MAP) (EU, 2018) (see section 2.2.2) and the UK’s withdrawal from the EU (see section 2.1.3).

Since the process of discarding takes place at sea it is not easily monitored and accurate figures on the practice are hard to obtain. This has implications for scientific stock assessments, scientific advice and the enforcement of any LO. With the introduction of the LO the fish previously discarded now need to be landed legally. There is a risk that, if enforcement at sea is low and there are low observer rates, the increases in TAC to accommodate discard which are applied through ICES modelling might be used to increase the landings of commercially sized fish whilst continuing to discard unwanted bycatch. This would provide an incentive to increase exploitation rates by weakening catch limits. The challenge is therefore to ensure that as TACs are raised to accommodate the LO, discards are forced to be landed. Further discussion on this is presented under Principle 3.

The lack of discard assessment from MS Science available for 2016 2017 inhibit further analysis of this element at this audit. The assessment team have taken into account the *modus operandi* of MS and SFSAG throughout the durations of this and other SFSAG MSC certificates and acknowledge that this scenario is a culmination of events and not a systemic

issue. However, the team feel the need to raise a recommendation against this issue and advise that resolution will be required to be evidenced at the next surveillance audit, with analysis of the 2016 – 2018 landings and discard estimates made available to avoid further action.

2.1.3 Brexit

Britain is scheduled to leave the EU on 29th March 2019; however, there is ongoing debate about when the UK should / will leave the Common Fisheries Policy (CFP), and whether it should be included in a Brexit transition period. Recent reports suggest that the EU position is that it should be included, and that the UK would not be able to participate in an official capacity in any quota setting during that period. There are also a range of views on to what degree the current quota allocation and management approach should be changed, and this is under scrutiny at present. Any changes will have to take into account the UK commitments under the United Nations Convention on the Law of the Sea and how it applies to the sharing of fisheries resources. The UK Government has made clear that new legislation will be required to replace the CFP, setting out how the UK will manage its fisheries within its 200 mile Exclusive Economic Zone (EEZ). The Department for Environment, Food and Rural Affairs (DEFRA) is due to publish a white paper on sustainable fisheries for future generations in 2018, which should provide clarity on how the UK will operate from 2019 onwards, including its commitment to the LO.

2.2 Principle 1

2.2.1 Stock update

The client group report good recruitment into the stock in the past year with high catches marked by smaller than average fish sizes, resulting in fishing trips being reduced in duration to 3 - 4 days average. The fleet does not target saithe specifically, but it is taken as part of mixed catch. Typically this is around 10 % of the catch (Table 4). It is targeted by the UoA only in the new year when prices at Hansthom (Norwegian port) are at a premium in the auction market.

The assessment model currently used has not changed since the last report and is a state-space assessment model (SAM) (Berg and Neilsen, 2016). This is an age-structured state-space model that accounts for both observation and process error, treating fishing mortality as a random walk. It provides posterior distributions of critical population metrics such as F and SSB using a Laplace approximation. Input data comprise commercial catches (international landings and discards, age and length frequencies from catch sampling); survey index (IBTS Q3, ages 3–8); combined commercial index scaled to the exploitable biomass (French, German, Norwegian trawler fleets). Maturity-at-age and natural mortality are assumed to be constant.

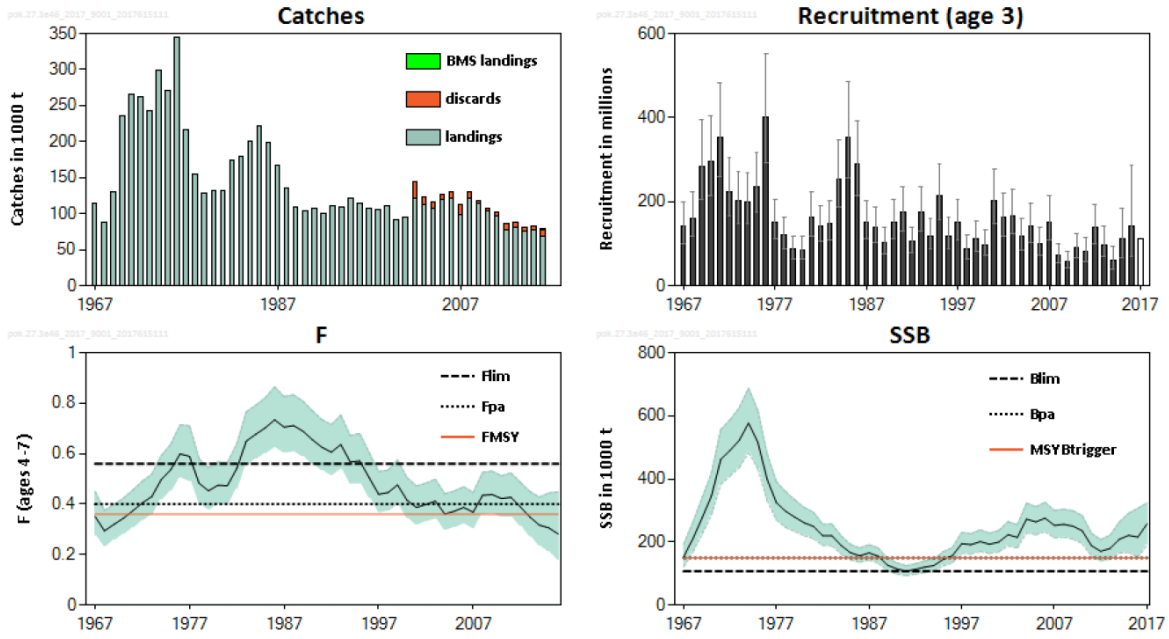

Figure 2. Saithe stock summary ICES (2017a)**.**

The stock remains above spawning stock biomass (SSB) reference points and below fishing mortality (F) reference points, validating the scores assigned at the last certification (Figure 2). The ICES advice notes that the 2017 discard rate for saithe was equal to 13 % of the total catch in 2016.

In March 2018, the North Sea Advisory Council (NSAC) held a saithe working group to discuss the LO, gear selectivity and reviewed presentations on the current assessment model and spatial models of recruitment[2]. These discussions will move forward ideas on improved survey and assessment methods.

2.2.2 North Sea Multiannual plan (MAP)

In 2016, following the 2013 revision of the CFP, the European Council (EC) proposed a new multiannual management plan (MAP) for the North Sea basin for several commercial target species (EU, 2016). The proposal includes HCRs when the stocks are below and above reference points, somewhat following ICES' MSY advisory rule (ICES, 2017b), although its specificity is not clear. The proposal considers species: a) that should be managed according to MSY (F_{MSY} by 2020), b) species that may be managed according to the precautionary approach if MSY scientific advice is not available, and c) other species not subject to catch limits to be managed based on the precautionary approach. If stock biomass for a species is below reference points "*appropriate remedial measures shall be adopted to ensure rapid return of the stock or functional unit concerned to levels above those capable of producing maximum sustainable yield*." Remedial measures include fishing opportunities set at levels consistent with a fishing mortality taking into account the decrease in biomass or abundance, or adequate reduction of fishing opportunities and suspending the targeted fishery.

The EC proposal has been amended and agreed internally by the Council of the EU and the European Parliament (EP) separately, before entering a negotiation process (trialogue)

[2] http://nsrac.org/forthcoming-meetings/saithe-workshop-29th-march-2018-hamburg/

between the two institutions (EU, 2016). Trilogue concluded on the 7th December 2017 but the text agreed was only publicly released on the 7th March 2018 (EU, 2018). The North Sea MAP includes several new provisions: applicable to two groups of species, target and bycatch, to be managed in accordance to MSY and precautionary approach, respectively; F_{MSY} ranges to deal with mixed-fisheries issues; inclusion of recreational catches in some fishing opportunities, amongst other provisions (CEU, 2017; EU, 2018). The plan for the target and bycatch species is to manage in accordance with the MSY and precautionary approach, respectively;

- F_{MSY} ranges to deal with mixed-fisheries issues;
- Inclusion of recreational catches in some fishing opportunities.
- Implement ecosystem-based approaches to fisheries management

How the MAP will deliver a TAC for saithe (and all other mixed species) within the context of ICES advice continues to be unclear. Although Art. 7 of the MAP still refers to appropriate remedial measures and taking into account the decrease in biomass for setting fishing opportunities when stocks are below MSY $B_{trigger}$, it now includes clearer specifications on what those remedial measures could be (EU, 2018). There is some hope within industry that the standardised approach of the MAP will deliver some flexibility in TACs around mixed fisheries. Evidence of this is found in the 2017 ICES advice where annual catch options for management are given under a number of scenarios (see table 3 - ICES (2017a)). Outputs from the MAP will only become evident in late 2018, and therefore although 'in-place' the interaction between the MAP and the fishery will only be effective from 2019 onwards, where it may be used to assess this fishery against Principle 1.

For W. Scotland, a EC proposal for a Western Waters MAP has been published in 2018 and will require agreement internally by the Council of the EU and the European Parliament (EP) separately, before entering a negotiation process (trialogue) between the two institutions. It is therefore not in place at present, but will continue to be monitored at each surveillance.

Based on the information provided above the current scoring related to Principle 1 remains in line with the fishery and there is scoring change from this audit.

2.3 Principle 2

2.3.1 Retained and discarded species

Landings by gear métier and proportional catch estimates (landings plus discard estimates) are routinely provided by Marine Scotland Science for the SFSAG fisheries annually. At the time of the site visit in April 2018, the client has been unable to secure the data from Marine Scotland Science and notes the restructuring of this department and lack of staff at present as the root cause of this. In response SFSAG have convened an industry led science partnership to cover the deficiencies in Marine Scotland science staffing levels. The assessment team noted that Marine Scotland believe this to be a temporary issue and have begun talks with the client group over data needs and a program of data analysis priorities for the remainder of 2018. As such evaluation of bycatch and discard species for 2017 cannot be assessed for the UoA at this audit and the assessment team have raised a recommendation that the data are made available for the next surveillance audit.

SFSAG were able to provide regulated landing data from the UK for 2016 - 2017 of which the SFSAG fleet comprise the majority share (Table 4 and Table 5). Using these data the assessment team evaluated the stock status of each species with >2 % in the landing record and using previous surveillances included W. Scotland cod (*Gadus morhua*) and whiting (*Merlangius merlangus*), witch flounder (*Glyptocephalus cynoglossus*) and megrim (*Lepidorhombus whiffiagonis*) on a precautionary basis (Table 6). W. Scotland cod and whiting were found to be depleted and therefore rescoring of PI 2.1 was undertaken for these stocks, all other stocks were found to be within biologically based limits and no rescoring was required.

Table 4. TACs and landing information for UK vessels of regulated species between 2016 and 2017 for North Sea. Note these data represent the UK fleet total of which the majority are SFSAG. Final allocations of quota include quota borrowing / purchase etc. Species considered as 'main' are highlighted in grey. Source: SFSAG.

North Sea	2016						2017					
Species	Initial TAC	Landings	% landings	+ or - initial quota allocation	Final allocation of quota	+ or - final quota allocation	TAC	Landings	% landings	+ or - initial quota allocation	Final allocation of quota	+ or - final quota allocation
Cod	14,123	16,445	14.5	2,322	16,797	352	15,430	18,081	15.9	2,651	18,730	649
Haddock	43,239	26,375	23.2	-16,864	44,464	18,089	26,671	25,117	22.1	-1,554	27,899	2,782
Whiting	8,438	9,390	8.3	952	9,496	106	9,894	9,064	8.0	-830	10,598	1,534
Saithe	5,284	8,488	7.5	3,204	8,720	232	8,146	8,516	7.5	370	11,005	2,489
Plaice	37,458	18,717	16.4	-18,741	28,939	10,222	37,133	14,680	12.9	-22,453	32,281	17,601
Sole	649	704	0.6	55	848	144	759	495	0.4	-264	926	431
Hake	778	5,041	4.4	4,263	5,133	92	972	6,002	5.3	5,030	6,099	97
Nephrops	12,952	9,376	8.2	-3,576	10,851	1,475	18,433	11,803	10.4	-6,630	16,233	4,430
Monkfish	9,387	9,679	8.5	292	9,640	-39	11,040	10,450	9.2	-590	11,173	723
Megrim	2,760	1,274	1.1	-1,486	2,730	1,456	2,813	1,185	1.0	-1,628	2,744	1,559
Lem Sole & Witches	3,904	1,762	1.5	-2,142	3,589	1,827	3,904	1,843	1.6	-2,061	3,780	1,937
Skates & Rays	849	660	0.6	-189	721	61	892	697	0.6	-195	796	99
Dabs & Flounders	1,588	385	0.3	-1,203	1,558	1,173	Dab was de-regulated in 2017					
Turbot & Brill	693	543	0.5	-150	522	-21	739	478	0.4	-261	604	126
Spurdog (zero TAC)	0	18	0.0	18	0	-18	0	1	0.0	1	0	-1

North Sea	2016						2017					
Species	Initial TAC	Landings	% landings	+ or - initial quota allocation	Final allocation of quota	+ or - final quota allocation	TAC	Landings	% landings	+ or - initial quota allocation	Final allocation of quota	+ or - final quota allocation
Northern prawn	595	0	0.0	-595	565	565	595	7	0.0	-588	514	507
Ling	2,352	2,423	2.1	71	2,542	119	2,778	2,719	2.4	-59	2,823	104
Tusk	283	51	0.0	-232	265	214	107	39	0.0	-68	107	68
Total	148,520	113,797	100	-34,723	150,314	36,517	143,869	113,760	100	-30,109	149,413	35,653

Table 5. TACs and landing information for UK vessels of regulated species between 2016 and 2017 for W. Scotland. Note this data represents the UK fleet total of which the majority are SFSAG. Final allocations of quota include quota borrowing / purchase etc. Species considered as 'main' are highlighted in grey. Source: SFSAG.

W. Scotland	2016						2017					
Species	Initial TAC	Landings	% landings	+ or - initial quota allocation	Final allocation of quota	+ or - final quota allocation	Initial TAC	Landings	% landings	+ or - initial quota allocation	Final allocation of quota	+ or - final quota allocation
Cod	0	181	0.5	-181	0	-181	0	198	0.6	-198	0	-198
Haddock	5,214	3,092	8.7	2,122	5,130	2,038	3,387	2,456	7.9	931	3,367	911
Whiting	150	121	0.3	29	322	201	124	124	0.4	0	124	0
Saithe	3,093	2,770	7.8	323	2,875	105	3,569	2,637	8.5	932	3,259	622
Plaice	388	70	0.2	318	388	318	427	111	0.4	316	427	316
Hake	11,423	7,268	20.5	4,155	8,023	755	12,905	6,537	21.1	6,368	8,683	2,146
Sole	11	3	0.0	9	11	9	12	2	0.0	10	12	10
Monkfish	1,962	2,790	7.9	-828	2,735	-55	2,354	2,753	8.9	-399	3,064	311
Nephrops	17,686	14,567	41.1	3,119	17,636	3,069	17,783	11,525	37.2	6,258	17,474	5,949
Megrim	1,772	802	2.3	970	1,772	970	1,959	809	2.6	1,150	1,959	1,150
Pollack	145	29	0.1	116	145	116	145	14	0.0	131	145	131
Greenland Halibut	1,108	498	1.4	610	974	476	1,114	148	0.5	966	964	816
Spurdog	0	0	0.0	0	0	0	0	0	0.0	0	0	0
Tusk	283	51	0.1	232	265	214	290	68	0.2	222	287	219
Ling	3,779	2,759	7.8	1,020	3,896	1,137	5,024	2,744	8.9	2,280	5,084	2,340
Black Scabbardfish	208	96	0.3	112	194	98	187	101	0.3	86	197	96
G. Silver Smelt	265	0	0.0	265	265	265	243	0	0.0	243	237	237

W. Scotland	2016						2017					
Species	Initial TAC	Landings	% landings	+ or - initial quota allocation	Final allocation of quota	+ or - final quota allocation	Initial TAC	Landings	% landings	+ or - initial quota allocation	Final allocation of quota	+ or - final quota allocation
Roundnose Roughead Grenadier	216	5	0.0	211	216	211	170	9	0.0	161	170	161
Blue ling	1,003	270	0.8	733	979	709	2,215	645	2.1	1,570	2,230	1,585
Forkbeard	1,052	102	0.3	950	978	876	967	100	0.3	867	897	797
Total	49,758	35,474	100	14,285	46,804	11,331	52,875	30,981	100	21,894	48,580	17,599

Table 6. Stocks, status and management for all species with greater than 2 % landings from data in Table 4 separated by stock or functional unit (*Nephrops*).

Stock	Status	Management	Ref.
Cod 3a20, 4, 7d	$B<MSYB_{trigger}$; $F>F_{MSY}$	EU Norway long-term management plan	ICES (2017c)
Haddock 4, 6a, 3a20	$F>F_{MSY,} <F_{pa,}$ $B>B_{MSYtrigger}$	EU-Norway joint management strategy	ICES (2017d)
Whiting 4, 7.d	$B>B_{MSYtrigger}$, $F>F_{MSY,} <F_{pa}$	EU-Norway management strategy (fixed F without $B_{trigger}$ and with TAC constraints	ICES (2017e)
Plaice 4 , 3a20	$B>B_{MSYtrigger}$, $F\sim F_{MSY,} <F_{pa}$	A multiannual plan for plaice and sole in the North Sea	ICES (2017f)
Anglerfish 3a, 4, 6	Biomass index increasing since 2011	Precautionary framework for category 3 data limited stocks; change in biomass index over time used to determine change in precautionary TAC	(ICES, 2016a)
Megrim 4a, 6a	$B>>MSYB_{trigger}$, $F<<F_{MSY}$	MSY approach (target is F_{MSY})	ICES (2017g)
Ling NE Atlantic and Arctic	Biomass index increasing since 2001	Precautionary framework for category 3 data limited stocks; change in biomass index over time used to determine change in precautionary TAC	ICES (2017h)
Hake	$B>MSYB_{trigger}$; $F<F_{MSY}$	At present management advice is based on the MSY approach	ICES (2017i)
Witch 3a, 4, 7d	B estimated at $\sim=B_{MSY}$; $>MSYB_{trigger}$	Precautionary TAC for 3a and 4 combined with lemon sole; no TAC in 6a; not part of LO as yet	ICES (2017j)
Nephrops Functional Units			
FU7 – Fladen Ground	$B>MSYB_{trigger}$, $F<<F_{MSY}$ proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate (including discards) of 7.5 %, estimated from UWTV surveys	ICES (2017k)
FU8 – Firth of Forth	$B>>MSYB_{trigger}$, $F<F_{MSY}$ proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate of 16.3 %	ICES (2017l)
FU9 – Moray Firth	$B>MSYB_{trigger}$, $F\sim= F_{MSY}$ proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate of 11.8 %	ICES (2017m)
FU11 – North Minch	$B>MSYB_{trigger}$, $F<F_{MSY}$ proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate of 10.8 %	(ICES, 2016b)
FU12 – South Minch	$B>MSYB_{trigger}$, $F<F_{MSY}$ proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate of 11.7 %	(ICES, 2016c)
FU13 – Firth of Clyde / Sound of Jura	$B>>MSYB_{trigger}$, F variable, fluctuating around F_{MSY} proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate of 15.1 % (FoC) and 12.0 % (SoJ)	(ICES, 2016d)
FU15 – Irish Sea West	$B>MSYB_{trigger}$, $F>F_{MSY}$ proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate of 18.2 %	(ICES, 2016e)

2.3.2 Management of depleted stocks

Two “main” stocks are depleted ($B<B_{lim}$): W. Scotland whiting and W. Scotland cod. For whiting, ICES advice is to minimise catch, and a very small TAC (213 t) is set for Divisions 6a and 6b combined. ~80 % of the catch is discarded, and management at the Scottish level has focused on improving selectivity to reduce discards; with some success according to ICES

(ICES, 2016f). Management has reduced the fishing mortality to well below F_{MSY}, and since 2010, the spawner biomass has been on an upward trajectory (Figure 3). W. Scotland whiting is not subject to the landing obligation until 2019.

For W. Scotland cod, the situation is less clear; although catches have reduced significantly (by a factor of 10) since the 1980s, ICES' estimates of fishing mortality have remained high and there is no sign of recovery of the spawning biomass (Figure 4).

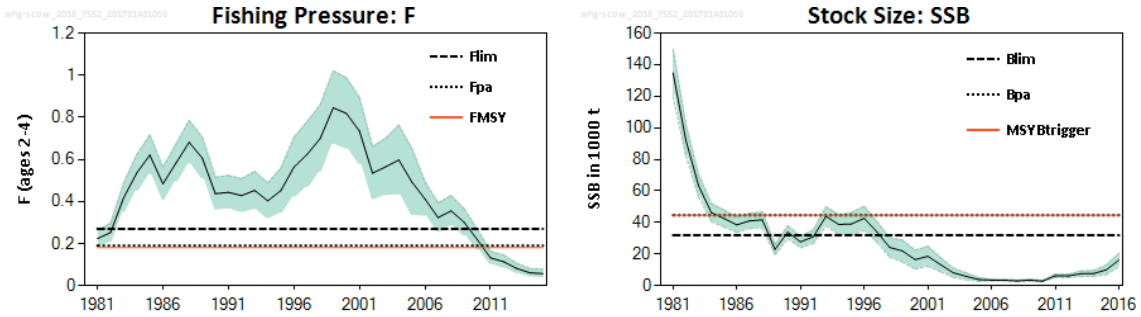

Figure 3. Fishing mortality (left) and spawner biomass (right) for W. Scotland whiting (ICES, 2016f)**.**

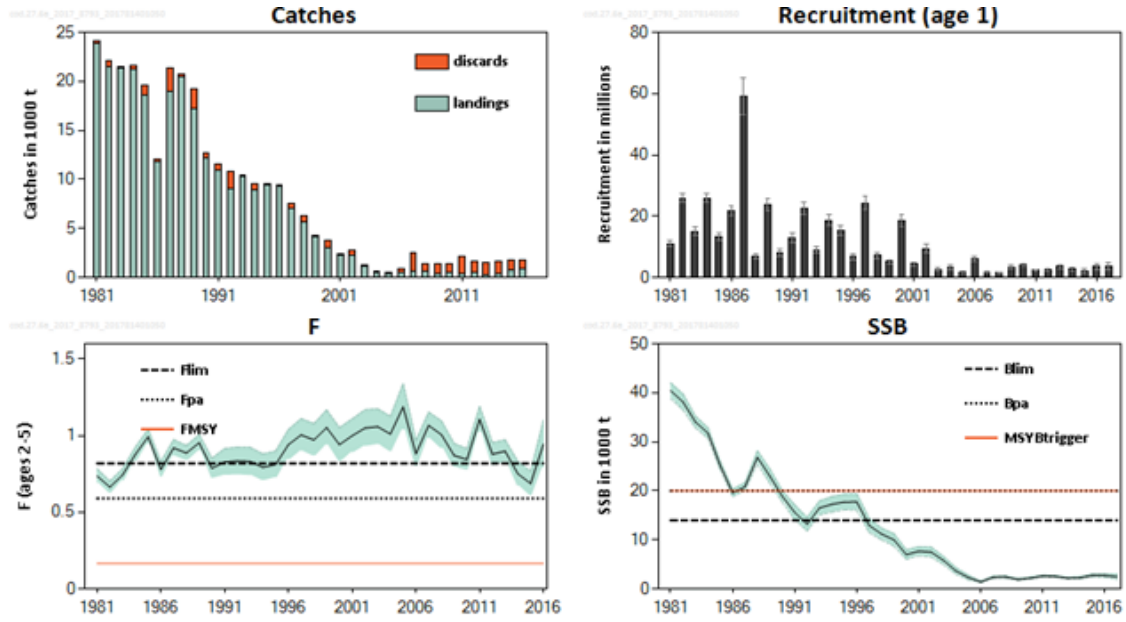

Figure 4. W. Scotland cod: Top left – catch; top right – recruitment; bottom left – fishing mortality; bottom right – spawning biomass; (ICES, 2017n)**.**

In order to match the estimated mortality rate of the stock to the catch data, ICES assumed a high rate of area misreporting – the assumption in the assessment includes 28 % of total catch being made up of this 'misreporting adjustment' – this is more than the total landings (either official or ICES estimate). Until 2012, ICES used estimates of the quantity misreported data provided by Marine Scotland Compliance. After 2012, estimates of misreporting dropped, but a combination of factors (the switch to eLogbooks resulting in less manual checking, and some staff retirements) led ICES to suppose that they may no longer be accurate. For the interbenchmark (ICES, 2015a), ICES developed a method to estimate area misreporting as follows:

- Define a 'high cod area' within 6a (essentially the NE corner where it abuts Subareas 4 and 5 as well as the north coast of Scotland)
- Use VMS data to define trips where there was fishing in this area and either 4 or 5
- Allocate the cod catch for these trips equally to each VMS ping when the vessel was fishing.

This provided a method for ICES to estimate area misreporting independent of the stock assessment model, but it does not have any basis of information about the amount of misreporting – in fact, it assumes it is systematic.

According to Marine Scotland Compliance (email from Gordon Hart, 15/8/17), the figures used by ICES are derived from an unverified provisional analysis of suspected area misreporting, which is intended to identify fishing trips where there is a suspicion or possibility of area misreporting, but not to identify actual misreporting by trip or by tonnage (the purpose being to deploy enforcement resources most effectively). Their experience suggests that real-world cases of misreporting are normally small ('considerably less than 10 t by species'), and they do not accept that ICES' analysis used this data for the purpose of verifying compliance.

Cook et al. (2015) put forward an alternative theory for the high mortality rate, with the 'missing' mortality coming from grey seal predation. It is known that a predator with a type two functional response can cause depensatory mortality in the prey species; i.e. that the mortality rate from predation increases as the prey population size or density decreases – also called an 'Allee effect' (Gascoigne and Lipcius, 2004). Cook et al. (2015) compare three models; i) a base case model without seal predation (corresponding more or less to the ICES stock assessment model; the 'no-seal model'); ii) a model with constant seal 'catchability'; seal remove a fixed proportion of cod, hence applying a mortality rate which is constant across all levels of biomass (the 'constant-seal model'; and iii) a model which incorporates data on seal population size and consumption rates of cod (the 'full-seal model').

The model outputs are summarised in Figure 5 (upper panel). All three models (as well as ICES) agree on the biomass trajectory, but the conclusions regarding fishing mortality are extremely divergent. According to ICES, fishing mortality increased over the time period, the non-seal and constant-seal models suggest a flat trajectory, while the full seal model suggests a consistent decline. This declining trajectory is what would be expected based on changes in effort in the fishery.

This initial model only ran to 2005 (because of availability of seal population and consumption data), but the full-seal model was subsequently updated to 2012 (Cook and Trijoulet, 2016) (Figure 5, middle and lower panels); this shows the same pattern, i.e. agreement with ICES in relation to biomass trends, but lower rates of fishing mortality.

Figure 6 (Cook et al., 2015) shows the proportions of total mortality made up of different components (natural mortality, fishing mortality from landings, fishing mortality from the area misreporting adjustment and seal predation) according to ICES and the various models.

It is clear from Figure 6 that observed total mortality is higher than would be expected from (assumed) natural mortality and fishing mortality, and this 'missing mortality' is accounted for by seal predation in the full-seal model. Where seal predation is not included (or assumed to

be constant – i.e. the ICES, no-seal and constant-seal models) the missing mortality is accounted for by assuming increasing amounts of area misreporting.

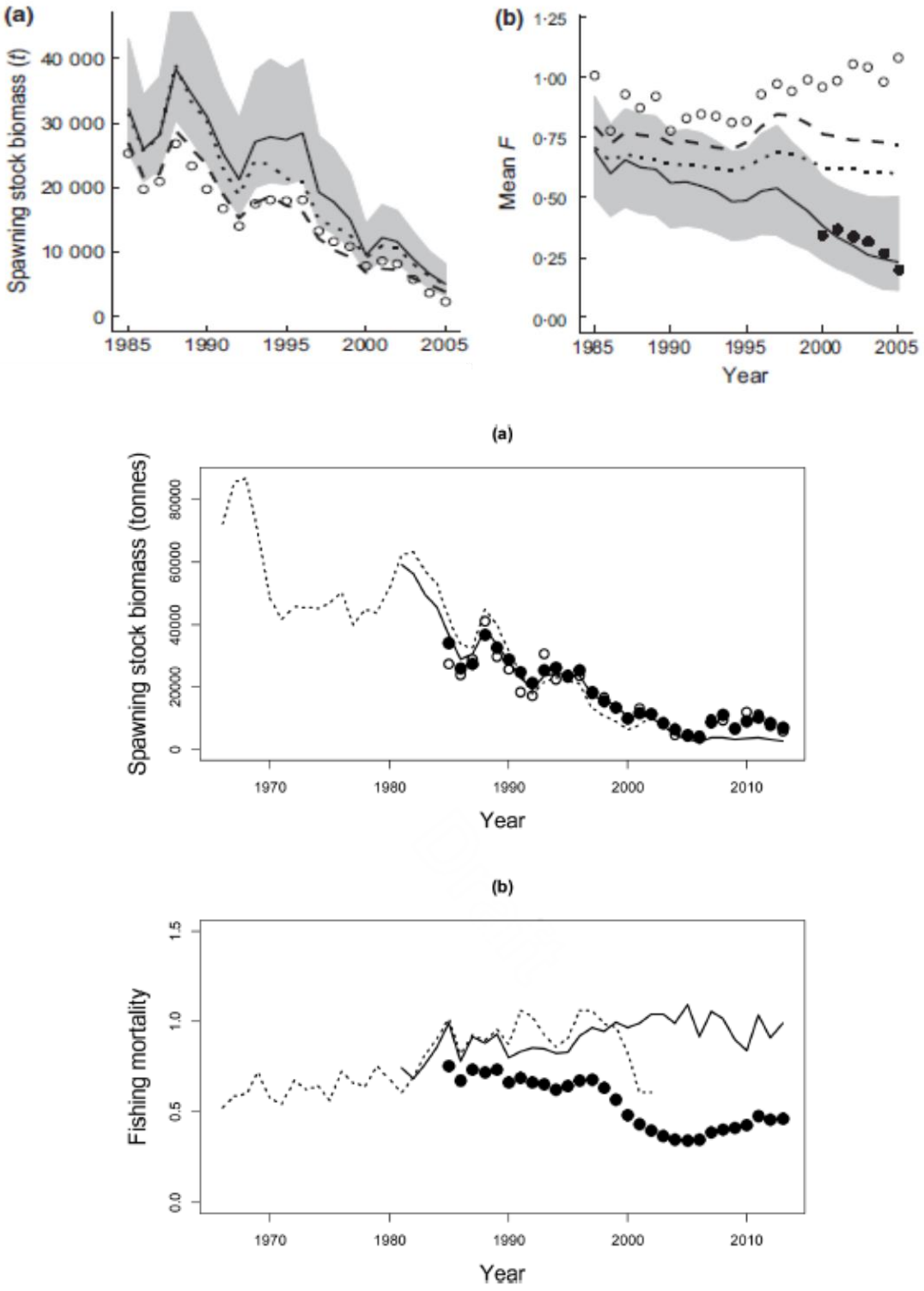

Figure 5. Upper panel: Spawning stock biomass (a) and fishing mortality (mean ages 2-5) (b) as estimated by ICES (open circles), the non-seal model (dashed), the constant-seal model (dotted) and the full-seal model (solid line and grey confidence intervals). Dark circles are scaled fishing effort from Scottish vessels. Figure 2 in Cook et al. (2015)**. Middle panel: As upper panel (a), updated to 2012, for the ICES stock assessment 2002 (dotted), ICES 2014**

(solid), full-seal model (black dots); open dots show the cod biomass available to seals as estimated by the full-seal model. Figure 1 in Cook and Trijoulet (2016)**.**

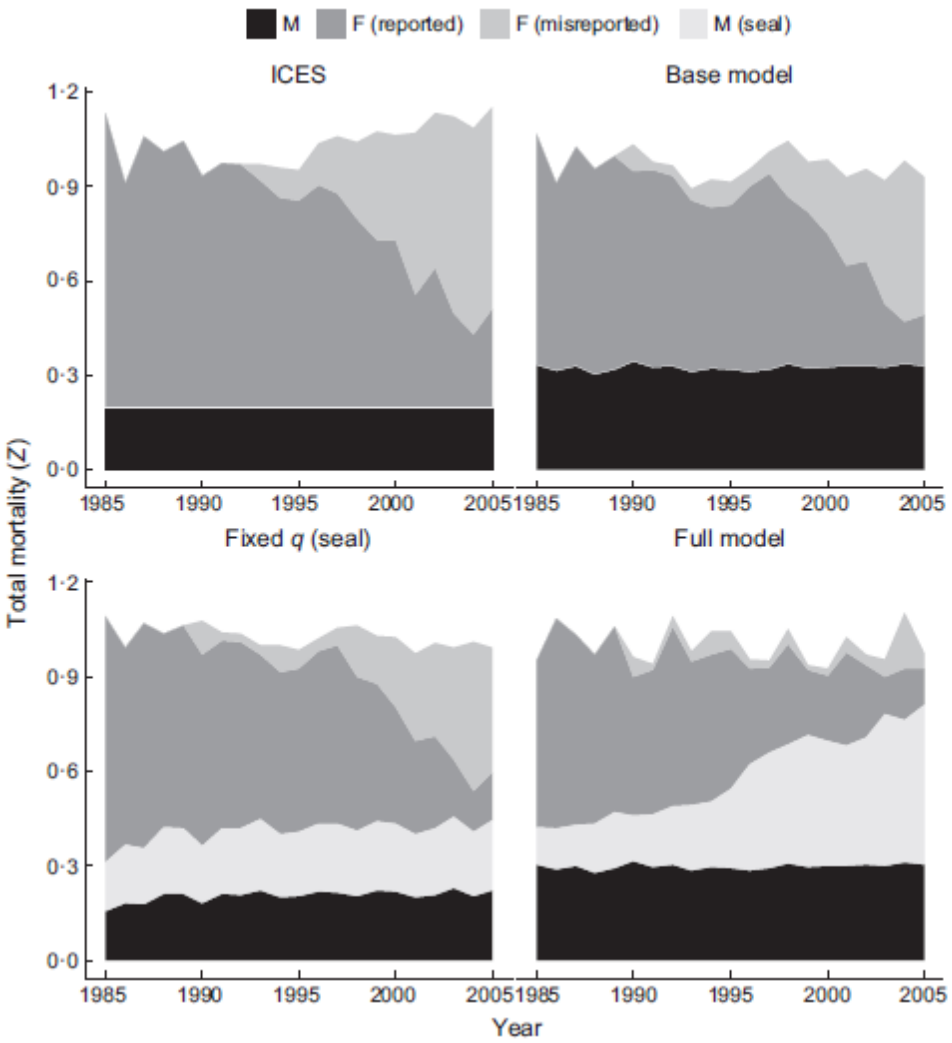

Figure 6. Composition of total mortality under the four models: Top left – ICES; Top right – no-seal; Bottom left – constant-seal; Bottom right – full-seal model. Black=natural mortality (assumed); dark grey=fishing mortality (from reported catches); mid grey= assumed fishing mortality from misreporting; light grey= seal mortality. Figure 7 in (Cook et al., 2015)**.**

Cook and Trijoulet (2016) also evaluate the probability of further decline of the stock biomass in relation to changes in rates of fishing effort and seal predation relative to the recent (2013) situation (Figure 7). It appears that biomass has approximately equally sensitivity to proportional changes in each: the current situation gives a probability of decline of ~16 % over 5 years and ~25 % over 50 years; a change in either fishing effort or the seal population to 1.2 times the 2013 level increases this to ~23 % / 35 %; an increase of this proportion in both increases it to ~30 % / 50 %.

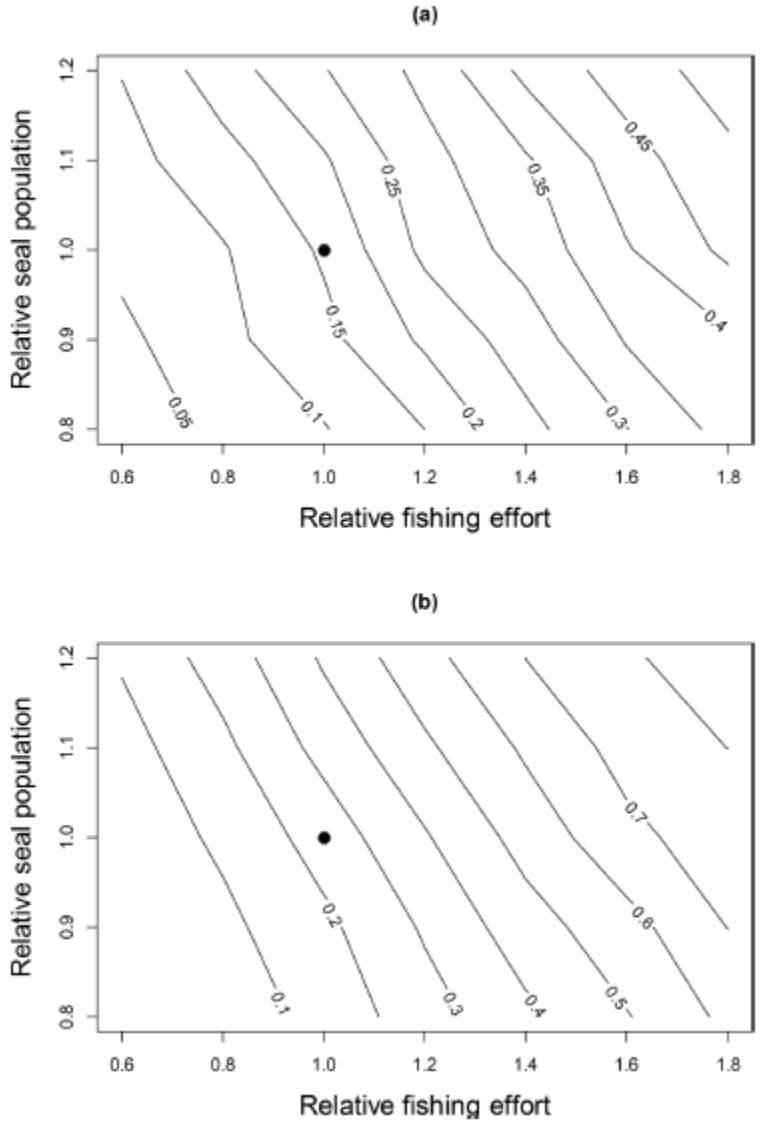

Figure 7. Probability of further decline of Division 6a cod spawner biomass relative to changes in fishing effort (x-axis) and seal population (y-axis), over 5 years (a) and 50 years (b); scaled to the level of each in 2013 (dot at (1,1)). Figure 5 in Cook and Trijoulet (2016)**.**

This analysis questions both ICES' estimates of fishing mortality and the extent to which further management measures on the fishery can be confident in enabling the stock to recover. As can be seen from Figure 6 (bottom right), if the seal hypothesis (based on actual seal population and diet data) is correct, in 2005 (and presumably since then; see Figure 4 and Figure 5) fishing mortality accounts for a relatively small proportion (~20 %) of the total mortality on the stock. The stock may be at a tipping point (a predictable consequence of a depensatory component in the dynamics), such that relatively small changes in mortality rates either from seals or from fishing could push the stock in the direction of recovery or further collapse. Based on the recent situation and the full-seal model, there is a relatively high probability of stock biomass increase (~84 % over the next 5 years). Grey seal populations are reportedly relatively stable on the West coast (see comments in Cook and Trijoulet (2016)) but they do estimate that fishing mortality might be creeping upwards (see Figure 5).

2.3.3 ETP

SFSAG has produced an updated Skates and Ray handbook for 2017 to assist members with the requirements and identification of these species (SFSAG, 2017). The handbook has been produced in association with the Shark Trust, Marine Scotland and Seafish and includes concise information on legal obligations, recording methods, codes of practice for handling these species and detailed images and photos of the key species (Figure 8). This document forms the initial phase of the SFSAG management strategy for these species. The handbook also makes it clear that all catches over all catches over 50 kg should be recorded. The data from logbooks are counted against quota (where there is such) and shared with the appropriate authorities (UK and EC).

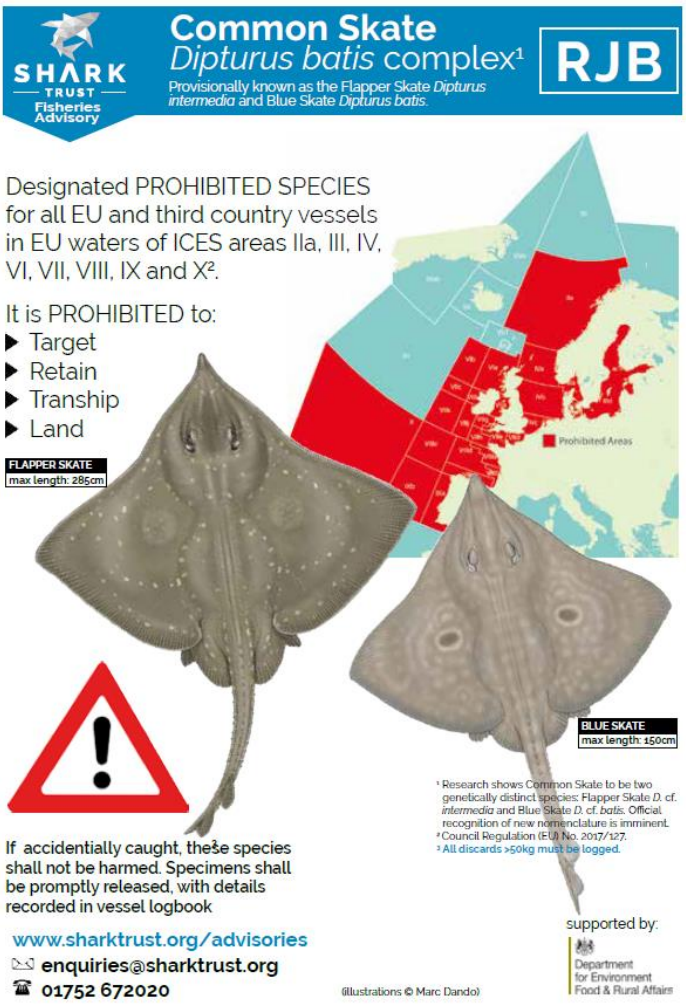

Figure 8. Example of species pages for common skate complex (*Dipturus batis*) from the SFSAG skate and ray handbook (SFSAG, 2017)**.**

ETP information continues to be collected from the PET observer scheme and Marine Scotland observer programme, with all data sent to Marine Scotland. The assessment team were presented with a SFSAG Skates and Rays Mitigation Strategy as part of the surveillance audit (SFSAG, 2018). This preliminary report includes data analysis of skate and ray data across four years and by area and gear. Catches by number remain low ranging downwards from 1.31 %, but the percentage of hauls these species occurred in peaked at 29 % for starry

ray, while common skate complex species were much lower (10.4 % max) (Table 7). Analysis of the data suggests that TR2 gear had little interaction with either of starry ray or common skate complex, but TR1 gear had interactions in Subarea 6. Further data have been requested from Marine Scotland Science by SFSAG to assist in on-going analysis. The data requested will give the location of each haul contacted in the PET data which has a starry ray or common skate included. This will then be plotted and will give a representation of whether there are any hot spots or seasonal trends. SFSAG have also initiated a voluntary programme to investigate incidental catches of starry ray and common skate for TR1 gears in Subarea 6a (see Appendices for example recording sheet). This programme has been designated through the POs with each PO nominating six vessels which routinely operate in the area with TR 1 gear.

The raising of observer data to fleet level has been raised as an issue in this fishery previously and to date this still has not been accomplished. Marine Scotland Science do not at present calculate estimates for common skate and starry ray, however, this is due to be the next step in their data collection process. ICES have convened a working group to look at the issue of skate bycatch and the lack of stock information for these species, and Marine Scotland data will feed into this process. SFSAG are investigating the possibility of a master project to support this work.

The draft management strategy laid out in the mitigation strategy document is currently based on filling knowledge gaps (see further data collection, further analysis by Marine Scotland and the ICES workshop) and employing best practice (SFSAG, 2018). Options for best practice include:

- Survival - prompt release / handle with care / keep it wet
- Selectivity - deterrents (light/necro/magnets) / raised fishing line / escape panels / grids.
- Avoidance - Avoiding spawning areas/real time communication between vessel / move on rules.

In addition to the mitigation strategy above, a skate and ray survival exemption has been submitted through the North Western Waters Advisory Council (NWWAC, 2017). An ICES working group is to review the stock assessments for a range of elasmobranch species in 2018 although details appear scarce. SFSAG will be following this work closely and will build the outputs from this into its strategy.

The process of SFSAG work is assessed against the milestones of the conditions in section 1.1.

Table 7. Starry Ray and Common skate complex analysis from observer data 2013-2016. Source: (SFSAG, 2018)**.**

year	species	Total trips	Total hauls	Total catch	Trips with ETP	Hauls with ETP	No. fish	% of species in catch	% of hauls with species present
2013	*Amblyraja radiata* Starry ray	86	806	154,511	27	179	1,441	0.93%	22.21%
2014		81	702	129,330	26	126	861	0.67%	17.95%
2015		79	726	131,241	19	156	1,230	0.94%	21.49%
2016		69	651	116,759	27	190	1,533	1.31%	29.19%
2013	*Dipturus batis* Common skate complex – common skate	86	806	154,511	16	98	361	0.23%	12.16%
2014		81	702	129,330	13	73	201	0.16%	10.40%
2015		79	726	131,241	9	42	93	0.07%	5.79%
2016		69	651	116,759	2	6	10	0.01%	0.92%
2013	*Dipturus flossada* Common skate complex – blue skate	86	806	154,511	1	3	7	0.00%	0.37%
2014		81	702	129,330	5	25	62	0.05%	3.56%
2015		79	726	131,241	7	10	13	0.01%	1.38%
2016		69	651	116,759	5	22	71	0.06%	3.38%
2013	*Dipturus intermedia* Common skate complex – flapper skate	86	806	154,511	4	12	35	0.02%	1.49%
2014		81	702	129,330	10	26	70	0.05%	3.70%
2015		79	726	131,241	13	24	104	0.08%	3.31%
2016		69	651	116,759	20	33	57	0.05%	5.07%

2.3.4 Habitats

2.3.4.1 Offshore protected areas

In Scottish waters the protection of threatened habitats under OSPAR are called Nature Conservation Marine Protected Areas (NCMPAs). The management measures for these are still being put in place. For the offshore sector of these NCMPAs (including the Southern Area of the Fladen Ground) Marine Scotland are preparing the submission to the European Commission's Scientific Technical and Economic Committee for Fisheries (STECF) for evaluation in October 2018. This follows meetings in June 2017 of the Scheveningen Group Article 11 experts in The Hague to discuss the proposal for the North Sea and the North Western Waters[3]. The proposals to date include defined habitat types, co-ordinates of prohibited areas and gear codes to which the prohibition effects. Control and enforcement requirements and economic analysis for each of the proposed areas (Figure 9, Figure 10).

The submission process in both the North Sea and North Western Waters to date has received strong industry support, and the outcome of the submissions will be tracked and updated in the next surveillance audit, by which time implementation of the measures should have occurred through delegated acts.

[3] http://www.gov.scot/Topics/marine/marine-environment/mpanetwork/SACmanagement/Offshore2017

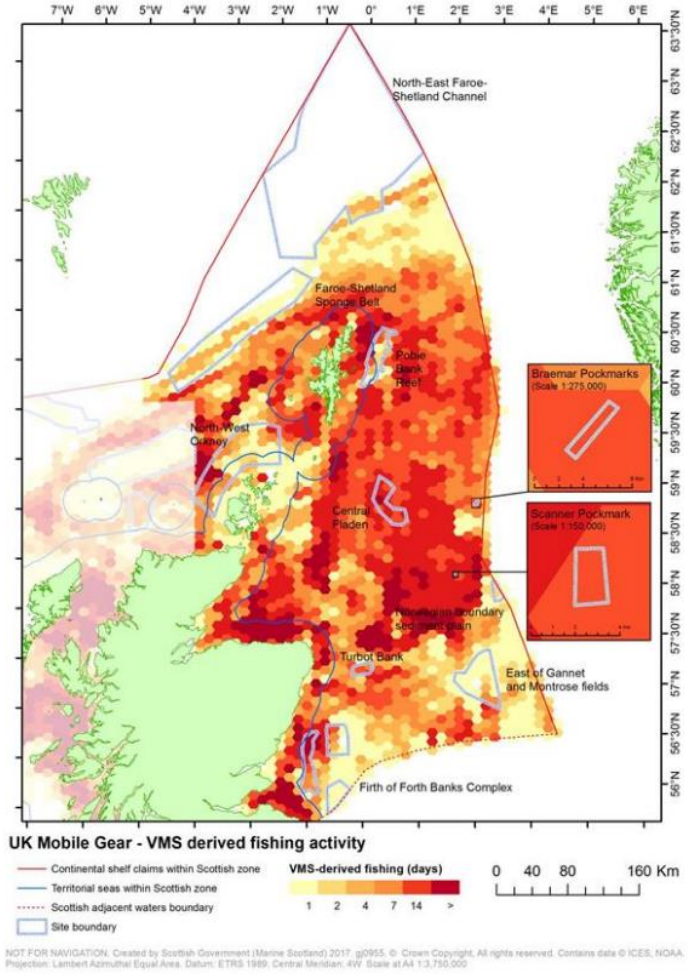

Figure 9. North Sea Offshore proposed Nature Conservation Marine Protected Areas (NCMPAs) with UK mobile gear vessel VMS tracks. NOTE: the VMS data here includes vessels outside of the UoA therefore is not representative of the SFSAG footprint. Source: (MS, 2017a)**.**

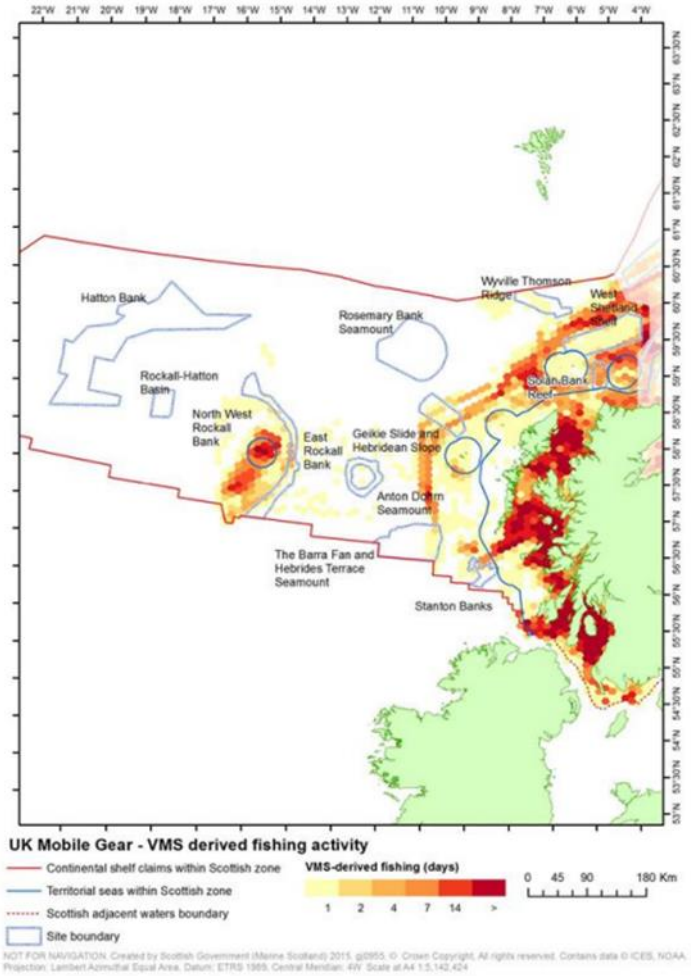

Figure 10. North Western Waters Offshore proposed Nature Conservation Marine Protected Areas (NCMPAs) with UK mobile gear vessel VMS tracks. NOTE: the VMS data here includes vessels outside of the UoA therefore is not representative of the SFSAG footprint. Source: (MS, 2017b)**.**

The inshore NCMPAs were split between Priority 1 and priority 2 sites in 2014 (MS, 2014), with the Priority 1 habitats in-place and described in previous reports. For the Priority 2 sites there are ongoing public consultancies and sustainability appraisals for these areas which will take place in June 2018. The list of sites under discussion is provided in Table 8.

Table 8. Inshore Marine Protected Areas (MPA) sites (6 nautical miles) and type of MPA. Source: http://www.gov.scot/Topics/marine/marine-environment/mpanetwork/inshorempas/Management

Site Name	Type of MPA
Clyde Sea Sill	MPA
Dornoch Firth/Morrich More and Moray Firth	SACs
East Caithness Cliffs	MPA & SPA
Fetlar to Haroldswick	MPA

Site Name	Type of MPA
Firth of Tay and Eden Estuary	SAC
Isle of May	SAC
Loch Moidart (& Loch Sheil Woods)/Sound of Arisaig	SACs
Loch nam Madadh	SAC
Moine Mhor	SAC
Monach Isles	MPA & SAC
Mousa/Mousa to Boddam	MPA & SAC
North Rona	SAC
Papa Stour	SAC
Papa Westray	MPA
Small Isles	MPA
Solway Firth	SAC
Sound of Barra	SAC
Sullom Voe	SAC

2.3.4.2 SFSAG voluntary closure of the Fladen Ground

In 2017, SFSAG announced the voluntary closure of the Southern Area of the Fladen ground on the basis of the presence of tall sea pen community in this area as part of the SFSAG Cod Certification report (Sieben et al., 2017). At the site visit compliance with this closure was sought from Marine Scotland who agreed to monitor the avoidance of this ground. The principle agreement between Marine Scotland and SFSAG was reached in May 2017 to set up a VMS based vessel monitoring and alert system within the Fladen seapen ground. However, the alert system was not made operational initially, but this has now been addressed and the area is now fenced and alarmed with systems in place to immediately alert industry management of any incursion. During the period prior to the alert system coming on line MS records show that there were 379 recorded incursions by 63 individual vessels representing approximately 26 % of the vessels on the SFSAG list, for which SFSAG were not notified. This notification system has now been rectified and there is an objective basis for confidence that the strategy will work. It is important to note that the cod certificate is assessed under FCR 2.0 which has more stringent performance indicators for VME habitats and a condition is raised against the cod fishery as a result (Jones and Honneland, 2018).

2.3.4.3 Priority Marine Features

The Priority Marine Features (PMF) review is ongoing with joint efforts between the Joint Nature Conservation Committee (JNCC) and Scottish Natural Heritage (SNH); it is understood that a stakeholder event and report is due towards the end of 2018. The principal aim is to identify the status of PMFs and which are at risk. It is anticipated that from the overall list two habitats and two species with the greatest risk will be taken forward for further action.

2.3.5 Ecosystem

There are no reported significant developments for these PIs in the past year.

2.4 Principle 3

As accounted for in sections 2.1.2 above, the LO poses new challenges for the management of the fishery that will necessarily influence the assessment of Principle 3, especially PI 3.2.3 on enforcement and compliance. This will require full harmonization of all EU fisheries in the North Sea when it comes into full force in 2019. In anticipation of such a harmonization, the team has decided to reduce the score for SI 3.2.3a (see revised scoring table in Appendices 2) since it can no longer be concluded that the enforcement system is sufficiently comprehensive for the context of the fishery. A condition has so far not been introduced, however, since the requirement for an 80 score is that a monitoring, control and surveillance system is in place that has demonstrated an ability to enforce relevant management measures, strategies and/or rules, which is the case here. (The higher requirements for an 100 score is that the system is 'comprehensive' and has demonstrated a 'consistent' ability to enforce regulations). As regards SI 3.2.3c on compliance, there is not yet evidence that the LO is not being complied with, but a harmonized approach to the North Sea fisheries must also involve agreement on how the lack of data shall influence scoring. It must also be agreed whether non-compliance with the LO shall be addressed under SI 3.2.3c on the *certainty* the fishers comply, or under SI 3.2.3d on whether any non-compliance is *systematic*. A pass, even without condition, on SI 3.2.3c does not require that *all* rules are complied with; the requirement is that there is *a high degree of confidence* that fishers *in general* comply with regulations. (The required *level* of compliance is not defined in the MSC Standard.) SI 3.2.3d, for its part, is used to assess the extent to which any non-compliance is *systematic*, but since this SI starts at SG 80 a condition cannot be invoked based on the fact that any non-compliance is of a *systematic nature*.

Overall, with the exception of the reduction in scoring of SI 3.2.3a (noted above), principle 3 remains at present in conformity with the MSC Principles and Criteria.

3 Assessment Process

The fishery was certified as sustainable under the MSC Certification Requirements v1.1 on the 3rd October 2013. The first surveillance audit was published on the 15/01/15 with the closure of condition 1. The second surveillance audit was completed 10/11/15, with no additional conditions closed. The third surveillance audit was completed 28/02/17, with conditions 3 – 6 and 10 closed. Conditions 8 and 9 were found to be behind target at this audit. This is the fourth annual surveillance audit, against V1.3 scoring and FCR 2.0 of the MSC standard for procedure. The on-site audit was carried out on the 12th and 13th April 2018 by Hugh Jones (Team Leader, Principle 2 assessor) and Geir Hønneland (Principle 3 assessor).

Stakeholders were informed of the scheduled site visit, its time and location and the proposed audit team on 8th March 2018. The site visit and announcement were conducted in parallel with the 1st annual surveillance of the SFSAG North Sea cod certificate (FCR 2.0) and the 2nd annual SFSAG North Sea haddock certificate (FR 1.3 scoring, FCR 2.0 procedure). No formal stakeholder responses were directed to the saithe fishery, but a written stakeholder response and subsequent participation in the site visit was received from World Wildlife Fund (WWF) in relation to the SFSAG North Sea cod certificate. As the three SFSAG certificates are harmonised across Principle 3 this submission has been applied across all the fisheries and included in this report. The site visit was held in Aberdeen at the Scottish Fishermen's Federation (SFF) building. Persons present were Hugh Jones, Jennifer Mouat (SFSAG), Mike Park (SFSAG chair), Kenny Coull (SWFPA), Rhona Kent (WWF), Claire Pescod (MSC). Gordon Hart, Paul McCathy and Thomas Robertson of Marine Scotland Compliance were contacted by phone during the audit. Prior to the audit Marine Scotland Science were contacted in regard to fleet (landing and discard's) data for 2016 – 2017.

The main purpose of the annual surveillance audit was to review progress in meeting the conditions as set out in the Client Action Plan in the Public Certification Report. The audit team also reviewed the fishery management system and regulations and its scientific information base for any significant changes since the last surveillance.

The fishery remains in conformance with the Scope Criteria relating to unilateral exemption and destructive fishing practices (Certification Requirements v2.0, Section 7.4.1).

5 Results

5.1 Progress against conditions

Table 9. Condition 7.

PI and scores	PI	Scoring guidepost	Score
	2.3.1.	Possible impacts on common skate and starry ray	65
Condition 7	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. 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.		
Milestones	(To be implemented alongside Conditions 8 and 9) Year 5 – fishery can demonstrate that its impact on common skate and starry ray (IV) is not hindering the recovery of the stock.		
Action Plan	Year 1 - 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. Year 2 - Data collection. Year 3 – Data collection and provisional analysis of Year 2 data Year 4 – Data collection and provisional review of fishery impact Year 5 – Final review of impacts, identification and implementation of actions required.		
Progress Year 1	The actions taken in relation to gathering data on bycatch of common skate are set out under the condition PI2.2.1 above. The audit team considered that the combination of the SFF observer data and the SFSAG targeted data collection for skate bycatch should provide a good estimate of the overall impacts of the fishery on common skate, after which appropriate actions can be taken.		
Progress Year 2	Common skate (and starry ray) are currently subject to strict EC regulations and they should not be retained on board. On the 2nd year surveillance audit landings of both species are not reported, which meets EC regulations. As part of the observer programme, any bycatch of vulnerable species is reported on a 'PETS (protected, endangered and threatened species) bycatch recording sheet'. For the 2nd year audit, data were provided on elasmobranch discards as the species group identified in the assessment as of key concern. Sampling data collected showed a low bycatch of common skate and a relatively medium bycatch of starry ray and spurdog. The audit team considered that the combination of the Marine Scotland /SFF observer data and the SFSAG SIDI project with targeted data collection for skate bycatch should provide a good estimate of the overall impacts of the fishery on common skate and starry ray, after which appropriate actions can be taken.		
Progress Year 3	Starry ray has been added to the list of prohibited species in Subarea IV under Council Regulation 2017/127 (see Article 12). This is therefore added to the list of ETP species for the North Sea. PIs 2.3.1-2.3.3 have therefore been rescored for starry ray.		

Progress Year 4	As detailed in section 2.3.3 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.
Status of condition	The condition is **on target**.
References / evidence	(SFSAG, 2017, 2018) and section 2.3.3

Table 10. Condition 8

PI and scores	**PI**	**Scoring guidepost**	**Score**
	2.3.2.	Management of impacts on common skate and starry ray	70
Condition 8	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. This condition also relates to common skate and starry ray and can be addressed jointly with Conditions 7 and 9. 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.		
Milestones	To be implemented alongside Conditions 7 and 9 Year 2 - Data collection. Year 3 – Data collection and provisional analysis of Year 2 data Year 4 – Data collection and provisional review of fishery impact Year 5 – Final review of impacts, identification and implementation of actions required.		
Action Plan	Year 1 - 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. Year 2 - Data collection. Year 3 – Data collection and provisional analysis of Year 2 data Year 4 – Data collection and provisional review of fishery impact Year 5 – Final review of impacts, identification and implementation of actions required.		
Progress Year 1	The actions taken in relation to gathering data on bycatch of common skate are set out under the condition PI2.2.1 above. The team considered that at present insufficient data are available to decide whether a strategy is necessary and if so, what it should contain.		
Progress Year 2	The actions taken in relation to gathering data on bycatch of common skate (and starry ray) are set out under the condition PI 2.2.1 and PI 2.3.1 above. The team considered that at present insufficient data are available to decide whether a strategy is necessary and if so, what it should contain.		

Progress Year 3	In years 1 and 2 the Audit Team noted that there was insufficient data to know if a management plan was required. Data is now much improved. The audit team noted, however, the progress has not been made by SFSAG in moving from data collection to data analysis and discussion of management needs and options. For example, data are now available which would allow the evaluation of additional management measures such as seasonal/temporal/spatial closures, which may (or may not) reduce fishery impacts on common skate (IV and VI) and starry ray (IV).
Progress Year 4	As detailed in section 2.3.3 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 of condition	The condition is **on target**.
References / evidence	(SFSAG, 2017, 2018) and section 2.3.3

Table 11. Condition 9

PI and scores	PI	Scoring guidepost	Score
	2.3.3.	Information on impacts on common skate	70
Condition 9	Although there is a strategy in place to minimise impacts on common skate, it is not possible to have a 'reasonable basis for confidence' that it will work, due to lack of data on fleet-wide impacts. This condition also relates to common skate and can be addressed jointly with Conditions 7 and 8. The fishery should within two years collect data on common skate bycatch such that the population-level impacts of the whole fishery on common skate can be assessed.		
Milestones	To be implemented alongside Conditions 7 and 8 Year 1 – Assessment of data gaps, data collection strategy Year 2 – Start of data collection Years 3 and on – Ongoing data collection, data analysis		
Action Plan	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.		
Progress Year 1	The actions taken in relation to gathering data on bycatch of common skate are set out under the condition PI2.2.1 above.		
Progress Year 2	*Year 2* - Data collection. The actions taken in relation to gathering data on bycatch of common skate (and starry ray) are set out under the condition PI 2.2.1 above.		
Progress Year 3	See discussion under Condition 8. Data collection has greatly improved but data analysis (due to start in Year 3) has not started in any significant way.		
Progress Year 4	As detailed in section 2.3.3 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 of condition	The condition is **on target**.		
References / evidence	(SFSAG, 2017, 2018) and section 2.3.3		

5.2 New conditions

The following conditions are raised as part of this surveillance audit and rescoring of the PI's shown in Appendices 2.

Table 12. Condition 11

Performance Indicator	PI 2.1.1. The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species
Score	75

Performance Indicator	PI 2.1.1. The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species
Rationale	Scoring Issue c (SG80): If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding. For *W. Scotland cod*: W. Scotland cod: This is managed under a long-term management plan (EU 2008a) modified in 2016 (EU 2016c). The TAC is set to zero, there are limits on landing bycatch (maximum 1.5% live weight of landings) and limits on effort. Most of the catch is discarded, and considerable efforts have been made in recent years to reduce discards by improving selectivity (e.g. under the Conservation Credits Scheme and subsequently as a consequence of the Landing Obligation). The issues around evaluating sources of mortality on this stock are reviewed in detail in Section 5.3.2. Whatever the source of mortality, an analysis by Cook & Trijoulet (2016) suggest that at current (2013) mortality levels, the stock has a reasonable (~85%) chance of increasing in the next five years (Section 3.4.2, Figure 12), but also that relatively small proportional increases in mortality (from whatever source) increase the chances of further decline. ICES, unfortunately, has not attempted any short-term projections of stock status in recent years (ICES 2016w; ICES 2015g; ICES 2015f). Grey seals may be an important source of mortality (ICES 2017a; Cook et al. 2015; Cook & Trijoulet 2016) but grey seal biomass on the W. coast appears to be relatively stable (see 3.4.2). It is therefore important that fishing mortality on the stock does not increase. ICES estimate that it is high but stable or declining (Figure 9), while Cook and Trijoulet (2015) estimate that it is lower (seals providing the 'missing' mortality) but potentially increasing (Figure 11). ICES account for the 'missing' mortality by assuming systematic area misreporting (Section 3.4.2), but Marine Scotland Compliance do not consider area misreporting to be a major source of error in the catch figures, and do not accept the way that compliance data have been used by ICES (Section 3.4.2). The team found the Marine Scotland Compliance argument persuasive that fishing mortality is actually a lower proportion of total mortality than estimated by ICES. Given the EU technical measures in place for this stock (gear size regulations, TAC and minimum conservation reference sizes), coupled with the low but stable SSB and the uncertainty in natural mortality contribution the team concluded that there was sufficient evidence that the measures in place are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species therefore SG60 is met. Management is not, however, so far 'demonstrably effective' – SG80 is not met.
Condition	By year 3 of the next certification phase the partial strategy for W. Scotland cod must be demonstrably effective at achieving recovery and rebuilding of the stock to appropriate and realistic rebuilding target levels defined by the relevant stock model.
Milestones	Year 5 – Work with Marine Scotland to re-evaluate appropriate reference points and fishing mortality rates for W. Scotland cod, as required. Score 75 Year 1 – Evaluate fishing mortality in relation to levels required to meet targets; if required, set out options for reduction. Score 75 Year 2 – Review and agree options for reduction of fishing mortality if required. Score 75 Year 3 – Implement reductions in fishing mortality; fishing mortality at appropriate levels to allow rebuilding of the stock to agreed target levels. Score 80

Performance Indicator	PI 2.1.1. The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species
Client action plan	Year 5 West of Scotland Cod is included in the North Sea Mutli annual plan and Adjacent seas. • The Plan is currently progressing though the EU Parliamantary process and it is expected to be adopted by Spring 2018. Year 1 There will be a review of the previous year taking account of any changes as a result of the current political situation. In years 2-3 the client will work with the relevant authorites to review the regulation coming out from the Multi Annual Plan and work with the Scottish Government in the implementation and reach agreement to reduce fishing mortality inline with required targets.
Consultation on condition	See Appendix 4 – Marine Scotland letter of support

Table 13. Condition 12

Performance Indicator	2.1.2 There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species
Score	75
Rationale	Scoring Issue b (SG80): There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved. W. Scotland cod: A detailed analysis of the stock status and projections for WS cod is given in Section 2.3.2 as well as in the rationale for 2.1.1. Further comments are given in the response to peer reviewer 1. There is evidence of stock rebuilding, giving an objective basis for confidence that the strategy is working. For W. Scotland cod, the strategy is not working to rebuild the stock, but projections indicate that they have a reasonable probability of doing so; see 2.1.1c. SG60 is met. There is, however, so far no evidence of rebuilding, and considerable uncertainties remain as to the key sources of mortality on the stock. Furthermore, Trijoulet et al. (2017) suggests that based on the hypothesis of significant seal predation, MSY reference points will need to be reconsidered, with both F_{MSY} and MSY estimates too high at present (i.e. rebuilding targets may not be realistic based on current seal populations). SG80 is not met.
Condition	By year 3 of the next certification phase there needs to be an objective basis for confidence that the strategy for rebuilding the W. Scotland cod stock will work, based on information about the stock and/or fishery.
Milestones	Year 5 – Work with Marine Scotland to re-evaluate appropriate reference points and fishing mortality rates for W. Scotland cod, as required. Score 75 Year 1 – Evaluate fishing mortality in relation to levels required to meet targets; if required, set out options for reduction. Score 75 Year 2 – Review and agree options for reduction of fishing mortality if required. Score 75

Performance Indicator	2.1.2 There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species
	Year 3 – Implement reductions in fishing mortality; levels of fishing mortality provide an objective basis for concluding that the strategy will allow the stock to recover. Score 80
Client action plan	Year 5 – SFSAG will work with Marine Scotland to re-evaluate appropriate reference points and fishing mortality rates for W. Scotland cod, as required. This will be the result of the Multi Annual Plan for the North Sea and Adjacent waters in which West of Scotland Cod is included. It is expected that the Plan will be adopted in Spring 2018. Year 1 – The client group will review the actions from Year 1 and will reassess the actions required in subsequent years. This will be influenced by any management changes. SFSAG will work with Marine Scotland to evaluate fishing mortality in relation to levels required to meet targets; if required, set out options for reduction. This will be dependent on the adoption of the Multi Annual Plan and resultant regulations. Year 2 – The client group will review the actions from Year 2 and will reassess the actions required in subsequent years. This will be influenced by any management changes Based on the outputs of the previous two years the client will work with Marine Scotland to review and agree options for reduction of fishing mortality. Year 3 – The client group will review the actions from year 3 and will reassess the actions required in subsequent years. This will be influenced by any management changes SFSAG will work with Marine Scotland to implement reductions in fishing mortality; levels of fishing mortality and provide an objective basis for concluding that the strategy will allow the stock to recover.
Consultation on condition	See Appendix 4 – Marine Scotland letter of support

5.3 Recommendation

Table 14. Recommendations

Number	Recommendation
1	Bycatch and discard data - The team raise a recommendation that by the next surveillance audit the assessment team shall be provided with Marine Scotland landing and discard data analysis of the 2016 – 2018 seasons.

5.4 Harmonisation

This fishery is harmonised against four other certified fisheries for P1 and the 2017 saithe advice has resulted in no significant changes in score from previous years (Table 15). Two of the harmonised fisheries are scored under FCR 2.0. There exist differences in individual PI scores across the five fisheries under certification, but the overall outcome is similar.

Harmonisation against SFSAG cod (noting the difference in default trees) was achieved albeit with different scoring trees (v1.3 and V2.0) and a condition raised against cod in relation to the Fladen Ground see (Jones and Honneland, 2018). Harmonisation activities were carried out in-house as all SFSAG fisheries are managed by MEC.

Table 15. harmonised fisheries P1.

Fishery	Area	Date certified	Status	CAB
Scapeche, Euronor and Compagnie des Peches St Malo saithe	4 and 7d	Mar 2010	Certified	MEC
UK Fisheries/ DFFU/Doggerbank Group saithe	4 and 6a	January 2011	Certified	MEC
DFPO Denmark North Sea & Skagerrak saithe	4 and 3a-d	February 2011	Certified	ACOURA
Norway North Sea saithe	4	June 2013	Certified	DNV-GL

6 Conclusion

There have been significant challenges to the fishery in relation to data acquisition from Marine Scotland and the assessment team raise a recommendation for resolution to this issue. Changes to the landing obligation taking place in the North Sea in which retained species from this fishery are now subject could not be effectively analysed as a result.

Conditions on PI 2.3.1 and 2.3.2 and 2.3.3 have been brought up to date and are now on target, reversing the behind target status recorded in year 3. The continued lack of recovery of the cod stock in W. Scotland and the uncertainty over the cause of the mortality rates required the assessment team to raise conditions for this scoring element. Two new conditions were raised against PI 2.1.1 and PI 2.1.2. These conditions have also been raised as part of the expedited assessment of SFSAG North Sea haddock[4] which saithe will become part of. The condition milestones associated with these conditions will overlap into the expedited assessment timeframe, as the PCDR which was published 26th April 2018.

The progression of the landing obligation towards full implantation in 2019, required the assessment team to consider the effectiveness of the compliance and surveillance system in place for this fishery, which resulted in a reduced scoring of PI .3.2.3.

The final principle scores have been updated to reflect the new PI scores. This fishery's overall progress is therefore considered to be on target. On the basis of the above, the SFSAG saithe fishery remains in conformity with the MSC Principles and Criteria for sustainable fishing.

[4] https://fisheries.msc.org/en/fisheries/scottish-fisheries-sustainable-accreditation-group-sfsag-north-sea-haddock/@@assessments

7 Evaluation Results

7.1 Principle Level Scores

The final principal scores are provided in Table 16.

Table 16. Final Principle Scores

Final Principle Scores	
Principle	**Score**
Principle 1 – Target Species	85.8
Principle 2 – Ecosystem	NS: 83.7 WC: 81.0
Principle 3 – Management System	93.1

7.2 Summary of PI Level Scores

Princi-ple	Compo-nent	Wt	Performance Indicator (PI)		Wt	Score	
One	Outcome	0.5	1.1.1	Stock status	0.50/ 0.33	80	
			1.1.2	Reference points	0.5 / 0.33	90	
			1.1.3	Stock rebuilding	0.33	90	
	Manage-ment	0.5	1.2.1	Harvest strategy	0.25	90	
			1.2.2	Harvest control rules & tools	0.25	80	
			1.2.3	Information & monitoring	0.25	80	
			1.2.4	Assessment of stock status	0.25	90	
						NS	WC
Two	Retained species	0.2	2.1.1	Outcome	0.33	80	75
			2.1.2	Management strategy	0.33	90	75
			2.1.3	Information/Monitoring	0.33	80	80
	Bycatch species	0.2	2.2.1	Outcome	0.33	80	80
			2.2.2	Management strategy	0.33	90	90
			2.2.3	Information/Monitoring	0.33	80	80
	ETP species	0.2	2.3.1	Outcome	0.33	75	75
			2.3.2	Management strategy	0.33	75	75
			2.3.3	Information strategy	0.33	75	75
	Habitats	0.2	2.4.1	Outcome	0.33	80	80
			2.4.2	Management strategy	0.33	85	85
			2.4.3	Information	0.33	90	90

Princi-ple	Compo-nent	Wt	Performance Indicator (PI)		Wt	Score	
	Eco-system	0.2	2.5.1	Outcome	0.33	95	95
			2.5.2	Management	0.33	90	90
			2.5.3	Information	0.33	90	90
Three	Govern-ance and policy	0.5	3.1.1	Legal &/or customary framework	0.25	85	
			3.1.2	Consultation, roles & responsibilities	0.25	100	
			3.1.3	Long term objectives	0.25	100	
			3.1.4	Incentives for sustainable fishing	0.25	100	
	Fishery specific manage-ment system	0.5	3.2.1	Fishery specific objectives	0.20	90	
			3.2.2	Decision making processes	0.20	95	
			3.2.3	Compliance & enforcement	0.20	85	
			3.2.4	Research plan	0.20	90	
			3.2.5	Management performance evaluation	0.20	90	

References

Berg, C.W., Neilsen, A., 2016. Accounting for correlated observations in an age-based state–space stock assessment model. ICES Journal of Marine Science.

CEU, 2017. North Sea fisheries: new multiannual management plan agreed. Council of the EU Press release. 700/17. 8 December 2017. CEU.

Cook, R.M., Holmes, S.J., Fryer, R.J., 2015. Grey seal predation impairs recovery of an over-exploited fish stock. Journal of Applied Ecology 52, 969–979.

Cook, R.M., Trijoulet, V., 2016. The effects of grey seal predation and commercial fishing on the recovery of a depleted cod stock. Canadian Journal of Fisheries and Aquatic Sciences 73, 1319–1329.

EU, 2008. Council Regulation (EC) No 1342/2008 of 18 December 2008 establishing a long-term plan for cod stocks and the fisheries exploiting those stocks and repealing Regulation (EC) No 423/2004. European Union.

EU, 2013. Regulation (EU) No 605/2013 of the European Parliament and of the Council of 12 June 2013 amending Council Regulation (EC) No 1185/2003 on the removal of fins of sharks on board vessels. European Union.

EU, 2015. Regulation (EU) 2015/812 of the European Parliament and of the Council of 20 May 2015 amending Council Regulations (EC) No 850/98, (EC) No 2187/2005, (EC) No 1967/2006, (EC) No 1098/2007, (EC) No 254/2002, (EC) No 2347/2002 and (EC) No 1224/2009, and Regulations (EU) No 1379/2013 and (EU) No 1380/2013 of the European Parliament and of the Council, as regards the landing obligation, and repealing Council Regulation (EC) No 1434/98. European Union.

EU, 2016. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on establishing a multi-annual plan for demersal stocks in the North Sea and the fisheries exploiting those stocks and repealing Council Regulation (EC) 676/2007 and Council Regulation (EC) 1342/2008. European Commisson, Brussels, 3.8.2016 COM(2016) 493 final 2016/0238 (COD).

EU, 2018. Provision agreement resulting from Interinstitutional negotiations. Proposal for a regulation of the European Parliament and of the Council on establishing a multi-annual plan for demersal stocks in the North Sea and the fisheries exploiting those stocks and repealing Council Regulation (EC) 676/2007 and Council Regulation (EC) 1342/2008 (COM(2016)0493 – C8-0336/2016 – 2016/0238(COD)) - Provisional agreement. European Union.

Gascoigne, J., C.Fox, Clers, S. des, 2013. MSC Public Certification Report (PCR) SFSAG North Sea Saithe Fishery. Marine Stewardship Council.

Gascoigne, J.C., Lipcius, R.N., 2004. Allee effects driven by predation. Journal of Applied Ecology 41, 801–810.

ICES, 2015a. Report of the Inter-Benchmark Protocol of West of Scotland Roundfish (IBPWSRound). ICES IBPWSROUND REPORT 2015, ICES ADVISORY COMMITTEE, ICES CM 2015/ACOM:37 REF. ACOM, WGCSE.

ICES, 2015b. Report of the Working Group for the Celtic Seas Ecoregion (WGCSE)). ICES 4–13 May 2016, Copenhagen, Denmark. ICES CM.

ICES, 2016a. Anglerfish (Lophius piscatorius and L. budegassa) in subareas 4 and 6 and Division 3.a (North Sea, Rockall and West of Scotland, Skagerrak and Kattegat). ICES Advice on fishing opportunities, catch, and effort Celtic Seas and Greater North Sea ecoregions, 31st October 2016.

ICES, 2016b. Norway lobster (Nephrops norvegicus) in Division 6.a – FU 11 (West of Scotland, North Minch). ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. Oct 2016.

ICES, 2016c. Norway lobster (Nephrops norvegicus) in Division 6.a – FU 12 (West of Scotland, North Minch). ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. Oct 2016.

ICES, 2016d. Norway lobster (Nephrops norvegicus) in Division 6.a – FU 13 (West of Scotland, the Firth of Clyde, and the Sound of Jura). ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. Oct 2016.
ICES, 2016e. Norway lobster (Nephrops norvegicus) in Division 7.a – FU 15 (Irish Sea, West). ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. Oct 2016.
ICES, 2016f. Whiting (Merlangius merlangus) in Division 6.a (West of Scotland). ICES.
ICES, 2016g. Report of the Working Group for the Celtic Seas Ecoregion (WGCSE)). ICES 4–13 May 2016, Copenhagen, Denmark. ICES CM.
ICES, 2017a. Saithe (Pollachius virens) in subareas 4 and 6 and Division 3.a (North Sea, Rockall and West of Scotland, Skagerrak and Kattegat). ICES, Advice on fishing opportunities, catch, and effort Celtic Seas, Faroes, and Greater North Sea Ecoregions. Published 30 June 2017.
ICES, 2017b. ICES fisheries management reference points for category 1 and 2 stocks. ICES Advice Technical Guidelines. ICES Advice 2017, Book 12. ICES.
ICES, 2017c. Cod (Gadus morhua) in Subarea 4, Division 7.d, and Subdivision 20 (North Sea, eastern English Channel, Skagerrak). ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion Published 30 June 2017 cod.27.47d20.
ICES, 2017d. Haddock (Melanogrammus aeglefinus) in Subarea 4, Division 6.a, and Subdivision 3.a.20 (North Sea, West of Scotland, Skagerrak). ICES Advice on fishing opportunities, catch, and effort. Greater North Sea and Celtic Seas ecoregions. 30th June 2017.
ICES, 2017e. Whiting (Merlangius merlangus) in Subarea 4 and Division 7.d (North Sea and eastern English Channel). ICES Advice on fishing opportunities, catch, and effort Greater North Sea and Celtic Seas Ecoregions. 30 June 2017.
ICES, 2017f. Plaice (Pleuronectes platessa) in Subarea 4 (North Sea) and Subdivision 3.a.20 (Skagerrak). ICES Advice on fishing opportunities, catch, and effort Greater North Sea and Celtic Seas ecoregions. June 30th 2017.
ICES, 2017g. Megrim (Lepidorhombus spp.) in divisions 4.a and 6.a (northern North Sea, West of Scotland). ICES Advice on fishing opportunities, catch, and effort. Celtic Seas , Faroes, and Greater North Sea Ecoregions Published 30 June 2017.
ICES, 2017h. Ling (Molva molva) in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a (Northeast Atlantic and Arctic Ocean). ICES Advice on fishing opportunities, catch, and effort, Northeast Atlantic and Arctic Ocean Ecoregions Published 7 June 2017. lin.27.3a4a6-91214.
ICES, 2017i. Hake (Merluccius merluccius) in subareas 4, 6, and 7 and divisions 3.a, 8.a–b, and 8.d, Northern stock (Greater North Sea, Celtic Seas, and the northern Bay of Biscay). ICES Advice on fishing opportunities, catch, and effort Greater North Sea, Celtic Seas, and Bay of Biscay and the Iberian Coast ecoregions. 30th June 2017.
ICES, 2017j. Witch (Glyptocephalus cynoglossus) in Subarea IV and Divisions IIIa and VIId (North Sea, Skagerrak and Kattegat, Eastern English Channel). ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. Published 30 June 2017.
ICES, 2017k. Norway lobster (Nephrops norvegicus) in Division 4.a, Functional Unit 7 (northern North Sea, Fladen Ground). ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. June 2017.
ICES, 2017l. Norway lobster (Nephrops norvegicus) in Division 4.b, Functional Unit 8 (central North Sea, Firth of Forth). ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. June 2017.
ICES, 2017m. Norway lobster (Nephrops norvegicus) in Division 4.b, Functional Unit 9 (central North Sea, Moray Firth). ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. June 2017.

ICES, 2017n. Cod (Gadus morhua) in Division VIa (West of Scotland). ICES Advice on fishing opportunities, catch, and effort Celtic Seas, Oceanic Northeast Atlantic Ecoregion. 30th June 2017.
ICES, 2017o. Report of the Working Group for the Celtic Seas Ecoregion (WGCSE)). ICES 9-18 May 2017, Copenhagen, Denmark. ICES CM.
Jones, H., Honneland, G., 2018. Marine Stewardship Council (MSC) 1st Annual Surveillance Report - SFSAG North Sea cod. ME Certification. Lymington, Hants.
Marshall, C.T., Wiff, R., Rosen, S., Neilson, R., Campos, R., Hwang, J.-N., Fernandes, P.G., 2017. SMARTFISH: Selective management and retention of target fish. Fisheries Innovation Scotland (FIS).
Marshall, Wiff, R., Cornulier, T., 2017. Using commercial and survey data to infer real-time fish distribution in the North Sea at high resolution. Marine Scotland, The Scottish Government.
Montgomerie, M., 2016. Selectivity/ Discard Reduction in UK. Seafish.
MS, 2014. 2014 Consultation on the management of inshore Special Areas of Conservation and Marine Protected Areas - PRIORITISATION. Marine Scotland.
MS, 2017a. Offshore MPA management proposals for North Sea 20 June 2017. Marine Scotland.
MS, 2017b. Offshore MPA management proposals for North Western Waters 21 June 2017. Marine Scotland.
NSAC, 2017. Implementation of the Landing Obligation; implications for Cod, Plaice, Saithe and Whiting in 2018. North Sea Advisory Council - NSAC Advice Ref. 08-1617.
NWWAC, 2017. NWWAC Recommendations On the development of alternative management strategies for skates and rays 24 March 2017. North Western Waters Advisory Council.
Scheveningen, 2016. REPORT ON CONTROL AND MONITORING OF THE DEMERSAL LANDING OBLIGATION: Risk assessment and risk treatment. Scheveningen Control Experts Group.
SFF, 2016. Encouraging results from fishing trials with new trawl design for reducing unwanted catches.
SFSAG, 2017. Skate and Ray Handbook, Scottish Fisheries Sustainable Accreditation Group. Scottish Fisheries Sustainability Accrediation Group, Aberdeen, UK.
SFSAG, 2018. Skates and Rays Mitigation Strategy. Scottish Fisheries Sustainable Accreditation Group.
Sieben, C., Cook, R., Gascoigne, J., Hønneland, G., 2017. MSC Public Certifcation Report SFSAG North Sea Cod Fishery. Marine Stewardship Council.
Trijoulet, V., Holmes, S.J., Cook, R.M., 2017. Grey seal predation mortality on three depleted stocks in the West of Scotland: What are the implications for stock assessments? Canadian Journal of Fisheries and Aquatic Sciences 0, null.

Appendices

Appendix 1. ETP catch recording sheet

SFSAG **Incidental Catch Record**

RJI Sandy Ray RJB Common Skate NP None present

Vessel **Skipper / Master**

Gear **Dates** **From** **To**

Actions	
REL	Released
RET	Retained
A1	Alive Good condition
A2	Alive Lethargic
D	Dead

Date	Time	Stat Rect	Hauled (DD MM)	Species	Estimated Number	Estimayed Weight (KG)	Average length (CM)	Action	Release condition	Comment
Example										
01/01/2018	9.25	58 N 8 50 W	58 03 N, 8 51 W	RJB	2	30	125	REL	A1	ETP Species

SFSAG incidental catch record for Common skate and starry ray interactions.

Appendix 2. Rescoring evaluation tables

Rescoring of PIs 2.1 in relation to W. Scotland whiting and cod.

Evaluation Table for PI 2.1.1

PI 2.1.1		**The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Main retained species are likely to be within biologically based limits (if not, go to scoring issue c below).	Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below).	There is a high degree of certainty that retained species are within biologically based limits and fluctuating around their target reference points.
	Met?	N – W. Scotland cod (go to 2.1.1c) Y – other stocks	N – W. Scotland cod (go to 2.1.1c) Y – other stocks	N
	Justification	For W. Scotland cod SG80 is not met (i.e. it is not highly likely that the stock is above biologically-based limits; defined here as B_{lim})		
b	**Guidepost**			Target reference points are defined for retained species.
	Met?			N
	Justification	Target reference points are defined for all main retained species, but not for most minor retained species SG 100 is not met in full.		
c	**Guidepost**	If main retained species are outside the limits there are measures in place that are expected to ensure that the fishery	If main retained species are outside the limits there is a partial strategy of demonstrably effective management	

		does not hinder recovery and rebuilding of the depleted species.	measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	Y	N – WS cod	
	Justification	This applies to W. Scotland cod (see SIa) **W. Scotland cod:** This is managed under a long-term management plan (EU, 2008) modified in 2016 (EU, 2016). The TAC is set to zero, there are limits on landing bycatch (maximum 1.5 % live weight of landings) and limits on effort. Most of the catch is discarded, and considerable efforts have been made in recent years to reduce discards by improving selectivity (e.g. under the Conservation Credits Scheme and because of the Landing Obligation). From 2019 all vessels will need to land all catches of all quota species unless an exemption applies in north west waters. The issues around evaluating sources of mortality on this stock are reviewed in detail in Section 2.3.2. Whatever the source of mortality, an analysis by Cook and Trijoulet (2016) suggest that at current (2013) mortality levels, the stock has a reasonable (~85 %) chance of increasing in the next five years (Section 2.3.2, Figure 7), but also that relatively small proportional increases in mortality (from whatever source) increase the chances of further decline. ICES short-term projections of stock status for 2018 suggest ~no change in biomass with F at 2017 levels, while reducing F to F_{MSY} is projected to increase SSB significantly (64 %). Given the tendency of the stock assessment to over-estimate F in the terminal year, which is recognized by ICES this is likely achievable (ICES, 2017b). In WGCSE (2017) (ICES, 2017o), Section 5.3.5: Mean F in that year [terminal year – 2016] is estimated at 0.69 which is a significant downward revision compared to the previous year's assessment (0.88). The mean F in 2014 has also been revised downwards. Short-term forecasts of SSB conducted at previous WGs have not shown particularly good consistency with estimates of SSB in assessments conducted in successive years (ICES, 2015b). This downward revision of F is evident in the retrospective analysis of F (ICES, 2017o):		

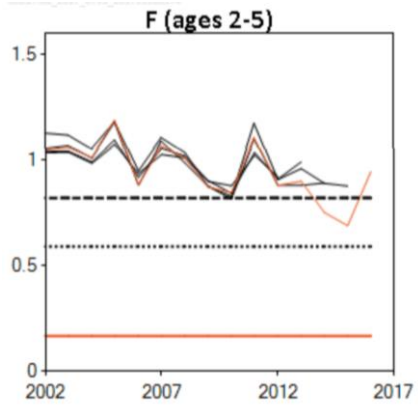

Figure: Cod in Division 6.a. Comparison of mean F (2–5) estimates produced by final run assessments between this year's assessment and previous four assessments. Source (ICES, 2017o)**.**

These analyses, clearly show each additional year of assessment has resulted in a revision downwards of the previous year's terminal F and therefore there is uncertainty in the modelled increase in F in the terminal year of the most recent assessment; the more since there is no good external explanation for it in the fishery dynamics.

More generally, it is strange, given that the gadoid fishery in this area is a mixed fishery with management measures that impact across all four main species, that the pattern in F is so different in cod from that seen in haddock, whiting and saithe. For all of these species, F has declined significantly since the introduction of the CRP and related measures. ICES account for the 'missing' mortality by assuming systematic area misreporting, but Marine Scotland Compliance do not consider area misreporting to be a major source of error in the catch figures, and do not accept the way that compliance data which underpins the ICES misreporting have been used by ICES (see Section 2.3.2). Conversely, the analysis incorporating seal predation suggests grey seals may be an important source of mortality (Cook et al., 2015; Cook and Trijoulet, 2016; ICES, 2017n). The declining F is consistent with trends in the other species in the fishery, as well as consistent with the decline in the size of the fleet and the amount of fishing effort. (ICES WGCSE note their intention to evaluate the sensitivity of the model to seal predation data – new data has been provided to them but not in time to include in the 2017 assessment; see WGCSE 2017 Section 5.3.)

In reviewing the above information, the team concluded that fishing mortality is actually likely a lower proportion of total mortality than estimated by ICES but note that there is great importance that fishing mortality on the stock does not increase. Given the EU technical measures in place for this stock (gear size regulations, TAC and minimum conservation reference sizes), coupled with the low but stable SSB and the uncertainty in natural mortality contribution and terminal F values in each stock assessment the team concluded that there was sufficient evidence that the measures in place are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species therefore SG60 is met. Management is not, however, so far 'demonstrably effective' – SG80 is not met.

d	**Guidepost**	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.		
	Met?	Y		
	Justification	There are no main stocks where status is poorly known, SG60 is met.		
References		Marine Scotland Gordon Hart (pers. comm.), (ICES, 2015a, 2015b, 2016g) (Cook et al., 2015; Cook and Trijoulet, 2016)		
		Scoring elements		**Scores**
W. Scotland		W. Scotland cod		**75**
OVERALL PERFORMANCE INDICATOR SCORE				**75**
CONDITION NUMBER (if relevant):				**11**

Evaluation Table for PI 2.1.2

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guide post**	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	Y	Y	N
	Justification	W. Scotland cod: The TAC for 6a is set to zero, with an allowance for landing bycatch up to 1.5 % live weight retained catch per trip; except for fisheries subject to the LO. The MCRS is 35 cm. Advice and management is based on EU Regulation 2016/2094 which amends the previous long-term plan (the Cod Recovery Plan) as a transition to a multi-species plan for the area (although with Brexit this may change). An analysis in relation to the recovery and rebuilding of the stock is provided in Section 2.3.2 and in 2.1.1 above. SG100 is met for cod. As per the PCR SG100 is not met for minor species.		
b	**Guide post**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	N – WS cod Y – other species	N
	Justification	The stock assessment provides objective evidence of the success or otherwise of the management strategy. 'Testing' could be via short-term projections and/or evaluation of other management and model scenarios and uncertainty. W. Scotland cod: A detailed analysis of the stock status and projections for WS cod is given in Section 2.3.2, as well as in the rationale for 2.1.1. For W. Scotland cod, the strategy is not working to rebuild the stock, but projections indicate that they have a reasonable probability of doing so given the arguments provided in 2.1.1c. SG60 is met. There is, however, so far, no evidence of rebuilding, and considerable		

		uncertainty remains as to the key sources of mortality on the stock (see Section 2.3.2). Furthermore, Trijoulet et al. (2017) suggests that based on the hypothesis of significant seal predation, MSY reference points will need to be reconsidered, with both F_{MSY} and MSY estimates too high at present (i.e. rebuilding targets may not be realistic based on current seal populations). SG80 is not met.		
c	**Guide post**		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	A series of overlapping changes to the assessment and TACs (changes to many of the ICES assessments in additional to changes in TAC setting as stocks come under the Landing Obligation) plus a mismatch between stock assessment areas and TAC areas make it difficult at present to match ICES advice to TACs directly in many cases. Nevertheless, the stock assessments (summarised in ICES' advice) demonstrate that the stock objectives are being attained (i.e. B > $MSYB_{trigger}$) except for W. Scotland whiting and cod. Each scoring element is considered below. Note that only stocks considered to have a 'strategy' at SIa are eligible to score 100 here (i.e. whiting, cod stocks and anglerfish). W. Scotland cod: Although ICES use area misreporting to account for 'missing' mortality in their analysis, Marine Scotland Compliance do not accept their analysis which is based on their data (see Section 2.3.2 and PI 2.2.1). Other than this issue, the strategy is being implemented, i.e. catch (landings + discards) has reduced dramatically in recent years (ICES, 2017n). SG80 is met. Because of various issues (mismatch of TAC and stock assessment areas, questions around misreporting, estimates of discards), SG100 is not met in full.		
d	**Guide post**			There is some evidence that the strategy is achieving its overall objective.
	Met?			N – W. Scotland cod Y – all the others
	Justification	For all the stocks except W. Scotland cod, biomass is at target levels or (where there is no target) increasing – met. For W. Scotland cod, not met.		
e	**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?	Y	Y	Y
	Justification	Shark finning is forbidden in EU fisheries (EU Regulation 605/2013 (EU, 2013)) and there is no evidence that it happens or has ever happened in Scotland.		
References		Marine Scotland Gordon Hart (pers. comm.), (Cook et al., 2015; Cook and Trijoulet, 2016; Trijoulet et al., 2017), (ICES, 2017o)		
W. Scotland - W. Scotland Cod				**75**
OVERALL PERFORMANCE INDICATOR SCORE				**75**
CONDITION NUMBER (if relevant):				**12**

Evaluation Table for PI 3.2.3. Rescored at this audit new text in red

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guide post**	Monitoring, control and surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A comprehensive monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Y	Y	N
	Justification	Since 2008, the Scottish whitefish fishing fleet, including saithe, has been involved in a number of voluntary (Catch quota) or compulsory (real-time closures) schemes that have greatly increased MCS activities and notably extensive sampling of landings, inspections and sampling at sea, observer reports, CCTV cameras on board vessels and e-logbook real-time checks. SG 80 is met. However, with the introduction of the landing obligation new enforcement challenges have arisen that require significantly increased monitoring at sea, either in the form of higher observer coverage or a more comprehensive scheme of at-sea inspections. This has not taken place, so it cannot be concluded that a 'comprehensive' MCS system is in place. SG 100 is not met.		
b	**Guide post**	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.
	Met?	Y	Y	N
	Justification	By contrast with the previous Scottish Fisheries Protection Agency that published detailed annual reports, Marine Scotland Compliance does not publish data on surveillance and convictions. SG100 is not met		

c	**Guide post**	Fishers are generally thought to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	Y	Y	Y
	Justification	Evidence from the wider whitefish fishery demonstrate a satisfactory level of compliance regarding saithe. Fishers provide a large amount of information in the current Scottish fisheries management system. Marine Scotland Compliance (verbal com.) has a high degree of confidence that compliance with existing rules is good (see for example REM report 2011).		
d	**Guide post**		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	Marine Scotland Compliance has verbally confirmed to the team that there is no evidence of non-compliance in the fishery.		
References				

OVERALL PERFORMANCE INDICATOR SCORE:	**85**
CONDITION NUMBER (if relevant):	**NA**

Appendix 3. New conditions

Condition 11

Performance Indicator	PI 2.1.1. The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species
Score	75
Rationale	Scoring Issue c (SG80): If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding. For *W. Scotland cod*: W. Scotland cod: This is managed under a long-term management plan (EU 2008a) modified in 2016 (EU 2016c). The TAC is set to zero, there are limits on landing bycatch (maximum 1.5% live weight of landings) and limits on effort. Most of the catch is discarded, and considerable efforts have been made in recent years to reduce discards by improving selectivity (e.g. under the Conservation Credits Scheme and subsequently as a consequence of the Landing Obligation). The issues around evaluating sources of mortality on this stock are reviewed in detail in Section 5.3.2. Whatever the source of mortality, an analysis by Cook & Trijoulet (2016) suggest that at current (2013) mortality levels, the stock has a reasonable (~85%) chance of increasing in the next five years (Section 3.4.2, Figure 12), but also that relatively small proportional increases in mortality (from whatever source) increase the chances of further decline. ICES, unfortunately, has not attempted any short-term projections of stock status in recent years (ICES 2016w; ICES 2015g; ICES 2015f). Grey seals may be an important source of mortality (ICES 2017a; Cook et al. 2015; Cook & Trijoulet 2016) but grey seal biomass on the W. coast appears to be relatively stable (see 3.4.2). It is therefore important that fishing mortality on the stock does not increase. ICES estimate that it is high but stable or declining (Figure 9), while Cook and Trijoulet (2015) estimate that it is lower (seals providing the 'missing' mortality) but potentially increasing (Figure 11). ICES account for the 'missing' mortality by assuming systematic area misreporting (Section 3.4.2), but Marine Scotland Compliance do not consider area misreporting to be a major source of error in the catch figures, and do not accept the way that compliance data have been used by ICES (Section 3.4.2). The team found the Marine Scotland Compliance argument persuasive that fishing mortality is actually a lower proportion of total mortality than estimated by ICES. Given the EU technical measures in place for this stock (gear size regulations, TAC and minimum conservation reference sizes), coupled with the low but stable SSB and the uncertainty in natural mortality contribution the team concluded that there was sufficient evidence that the measures in place are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species therefore SG60 is met. Management is not, however, so far 'demonstrably effective' – SG80 is not met.
Condition	By year 3 of the next certification phase the partial strategy for W. Scotland cod must be demonstrably effective at achieving recovery and rebuilding of the stock to appropriate and realistic rebuilding target levels defined by the relevant stock model.
Milestones	Year 5 – Work with Marine Scotland to re-evaluate appropriate reference points and fishing mortality rates for W. Scotland cod, as required. Score 75 Year 1 – Evaluate fishing mortality in relation to levels required to meet targets; if required, set out options for reduction. Score 75

Performance Indicator	PI 2.1.1. The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species
	Year 2 – Review and agree options for reduction of fishing mortality if required. Score 75 Year 3 – Implement reductions in fishing mortality; fishing mortality at appropriate levels to allow rebuilding of the stock to agreed target levels. Score 80
Client action plan	Year 5 West of Scotland Cod is included in the North Sea Mutli annual plan and Adjacent seas. • The Plan is currently progressing though the EU Parliamantary process and it is expected to be adopted by Spring 2018. Year 1 There will be a review of the previous year taking account of any changes as a result of the current political situation. In years 2-3 the client will work with the relevant authorites to review the regulation coming out from the Multi Annual Plan and work with the Scottish Government in the implementation and reach agreement to reduce fishing mortality inline with required targets.
Consultation on condition	See Appendix 4 – Marine Scotland letter of support

Condition 12

Performance Indicator	2.1.2 There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species
Score	75
Rationale	Scoring Issue b (SG80): There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved. W. Scotland cod: A detailed analysis of the stock status and projections for WS cod is given in Section 2.3.2 as well as in the rationale for 2.1.1. Further comments are given in the response to peer reviewer 1. There is evidence of stock rebuilding, giving an objective basis for confidence that the strategy is working. For W. Scotland cod, the strategy is not working to rebuild the stock, but projections indicate that they have a reasonable probability of doing so; see 2.1.1c. SG60 is met. There is, however, so far no evidence of rebuilding, and considerable uncertainties remain as to the key sources of mortality on the stock. Furthermore, Trijoulet et al. (2017) suggests that based on the hypothesis of significant seal predation, MSY reference points will need to be reconsidered, with both F_{MSY} and MSY estimates too high at present (i.e. rebuilding targets may not be realistic based on current seal populations). SG80 is not met.
Condition	By year 3 of the next certification phase there needs to be an objective basis for confidence that the strategy for rebuilding the W. Scotland cod stock will work, based on information about the stock and/or fishery.
Milestones	Year 5 – Work with Marine Scotland to re-evaluate appropriate reference points and fishing mortality rates for W. Scotland cod, as required. Score 75

Performance Indicator	2.1.2 There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species
	Year 1 – Evaluate fishing mortality in relation to levels required to meet targets; if required, set out options for reduction. Score 75 Year 2 – Review and agree options for reduction of fishing mortality if required. Score 75 Year 3 – Implement reductions in fishing mortality; levels of fishing mortality provide an objective basis for concluding that the strategy will allow the stock to recover. Score 80
Client action plan	Year 5 – SFSAG will work with Marine Scotland to re-evaluate appropriate reference points and fishing mortality rates for W. Scotland cod, as required. This will be the result of the Multi Annual Plan for the North Sea and Adjacent waters in which West of Scotland Cod is included. It is expected that the Plan will be adopted in Spring 2018. Year 1 – The client group will review the actions from Year 1 and will reassess the actions required in subsequent years. This will be influenced by any management changes. SFSAG will work with Marine Scotland to evaluate fishing mortality in relation to levels required to meet targets; if required, set out options for reduction. This will be dependent on the adoption of the Multi Annual Plan and resultant regulations. Year 2 – The client group will review the actions from Year 2 and will reassess the actions required in subsequent years. This will be influenced by any management changes Based on the outputs of the previous two years the client will work with Marine Scotland to review and agree options for reduction of fishing mortality. Year 3 – The client group will review the actions from year 3 and will reassess the actions required in subsequent years. This will be influenced by any management changes SFSAG will work with Marine Scotland to implement reductions in fishing mortality; levels of fishing mortality and provide an objective basis for concluding that the strategy will allow the stock to recover.
Consultation on condition	See Appendix 4 – Marine Scotland letter of support

Appendix 4. Marine Scotland Letter of Support

Note the letter of support was supplied for the purposes of the expedited audit of SFSAG haddock certificate to which saithe is being expedited in 2018.

marine scotland

Scottish Government
Riaghaltas na h-Alba
gov.scot

E: Allan.gibb@gov.scot

Mike Park
Scottish Fisheries Sustainable Accrediatation Group
(SFSAG)
mike@swfpa.com

Dear Mike,

The Scottish Government encourages eco-labelling schemes and recognises that these have a valuable role to play in the promotion of sustainable fisheries and fish consumption. We therefore welcome the work of SFSAG in facilitating a number of key Scottish fisheries in becoming MSC certified, including your current work on North Sea haddock and associated fisheries.

I am aware that the assessment for this fishery has a number of conditions attached. Marine Scotland will of course, when appropriate and the outcome is deliverable, endeavour to assist SFSAG with these.

I believe there are a number of approaches that will facilitate this, including; ensuring that relevant data is collected thought the continued joint work of Marine Scotland, SFSAG and Scottish Fishermen's Federation under the independent on-board observer scheme.

At the earliest convenience Marine Scotland will liaise with relevant parties, through the various forums, to seek development of appropriate management plans or the re-evaluation of lapsed plans, for each individual stock.

As we move closer to 2019 and the full implementation of the landing obligation, Marine Scotland will continue to support industry and work towards reducing discards, alleviate choke species risks and ensure the sustainable and rationale utilisation of fish stocks. For example, in the conditions specific mention is given to West of Scotland cod. This is one of Scotland's most significant choke challenges under the landing obligation. Going forward Marine Scotland will continue to work with industry and other relevant parties to ensure plans

Victoria Quay, Edinburgh EH6 6QQ
www.gov.scot/marinescotland

are in place that aid stock recovery, using simple and manageable solutions which enable fishing to continue but control fishing mortality.

The Marine Environment team will continue to work on Scotland's Marine Protected Areas, liaising with stakeholders as appropriate. The protection of endangered, threatened and protected species is of great importance to the Scottish Government. We are committed to continual assessment of the need for unilateral measures by our fleet in the waters that they operate if that is deemed necessary and appropriate to secure and enhance our sustainable and responsible fishing footprint.

Regards

Appendix 5. Stakeholder submissions

Nature of Comment (select all that apply)		Justification Please attach additional pages if necessary.
☒	I wish to alert the assessment team to important changes in the circumstances of this fishery relevant to the MSC certification.	WWF has serious concerns that the landing obligation for North Sea cod, implemented since the certification was awarded, is not subject to effective compliance. In 2016 the Scheveningen Control Experts Group published "Report on Control and Monitoring of the demersal landing obligation: Risk assessment and risk treatment" where it was identified that 8 out of 12 demersal fleet segments had the likelihood of high or very high risk for non-compliance with the Landing Obligation, among them the TR1 and TR2 fleet operating in the North Sea. They identified the two major concerns as illegal discarding and mis-recording of 'legal discards'. Given that the UoC of this fishery are TR1 and TR2 vessels, the comments of the Scheveningen Control Expert Group report are applicable. Link: http://www.nsrac.org/wp-content/uploads/2016/02/Paper-4.1-Report-from-Sch-Control-and-Monitoring-Group-For-Info.pdf WWF participate in the Scottish Discard Steering Group which is the cross-cutting group looking at options for implementation and monitoring of the landings obligation after the full implementation on the 1st January 2019. As far as WWF can ascertain from attending these meetings, as well as from information gained through FOI requests, less than 1% of trips are monitored by independent observers and there are very few, if any, cameras operating in the fishery due to the removal of the additional quota previously used to incentivise camera use. Further details provided in the WWF 'Remote Electronic Monitoring' report. Link: https://www.wwf.org.uk/sites/default/files/2017-10/Remote%20Electronic%20Monitoring%20in%20UK%20Fisheries%20Management_WWF.pdf In addition there is no indication from the Scottish Government that they intend to implement these measures to ensure effective monitoring and compliance with the landings obligation. Furthermore, there is an independent study to investigate the implication of Landing Obligation on fisheries that have been MSC certified. It clearly highlights that certified demersal fisheries, which are similar to the SFSAG North Sea cod, are at high risk of failing the MSC certification requirement standard when the Landing Obligation is implemented. Link: http://fundingfish.eu/wp-content/uploads/2016/12/Implications-of-the-Landing-Obligation-on-MSC-certified-fisheries-in-Europe.pdf

		With the advent of North Sea cod entering the Landing Obligation and the shift of management responsibilities to be able to monitor activities at sea effectively, WWF does not believe >80 score should be scored for this PI. *MEC note that WWF were contacted to confirm which PI this referred to and were informed it was PI 1.1.2b* It is WWF's view that a condition to develop a transparent and effective monitoring mechanism for activities at sea such as 100% independent observer coverage or, more robustly and cost effectively, Remote Electronic Monitoring with CCTV, should be adopted. Recognition of the gaps in the current MCS of this fishery through such a condition could facilitate improvements in the area.

MEC response:

The Scheveningen Control Experts Group report in 2016 is well known and has been presented as a driver for change in the demersal sector since its publication. Since publication of the Scheveningen (2016) report there are a number of important considerations that must be taken into account in order to assess the reports outcomes against the UoA in 2018. Firstly its important to understand the formula for the risk assessment.

The risk analysis is based on two components:

1. Likelihood
    a. Level of occurrence of discards in the segments for the species concerned
    b. - Mixed / single species fisheries with presence of by-catch of low commercial value species
    c. - Concentration of catches below MCRS / non-marketable sizes
    d. - Type of discard exemptions (not applicable here)

    and consideration is given to:
    e. Degree of technical measures in place (gear selectivity, seasonal closures)
    f. - Degree of social pressure (level of policy legitimacy, level of non-compliant behaviour of others, personal reputation)
2. Impact
    a. Stock status: done in accordance with the CFP detailed reference points(e.g. SSB < B_{lim} and F > F_{lim} for stock outside safe biological limits).
    b. Volume of catches by fleet segment for a given species in relation to total stock TAC (or total catches reported).

Secondly the context of the report must be viewed with regard the to data period for which the report was based:

- The discard matrix per gear segment comprises of data collected between 2010 – 2012 which is now six years out of date.
- The discard rate data is more recent (2013 - 2014) but may still be considered old in the context of fleets such as SFSAG, where gear developments and fleet dynamics (real time reporting) have made significant improvements to the fishery (see descriptions in section 2.1.1). Therefore, the assigned discard trigger levels for TR1 and TR2 gears (high >15%) may no longer apply across all of the UoA.
- Stock status of stocks used in the impact analysis are no longer applicable to key species. E.g. cod (to which this stakeholder comment relates) and saithe are above $MSYB_{trigger}$ in 2017, compared to below $MSYB_{trigger}$ in the report. Therefore, the impact rating is no longer valid.

Thirdly the report is based on gear types (TR1 and TR2) typical of the EU and therefore cannot account for:

- Interspecies flexibility, avoidance measures, Quota swaps, Internal Member States' quota allocation/management, Inter-annual quota flexibilities – "banking and borrowing" used by MS and POs. These are variable annually and by PO, therefore the 'tool box' employed by individual PO's cannot be directly reflected by an umbrella 'gear type'

Finally, the LO to which this document was designed to assess is still not in full force (this occurs January 2019) therefore the risk associated and the performance of the UoA against it cannot be assessed fully at present.

Based on the above the team believe the applicability of the risk levels associated by gear types is limited and no longer directly applicable to the UoA. However, the assessment team agree that the two major risks identified for the exercise; Illegal discarding and mis-recording of "legal discards" are still the main concerns associated with the LO and that effective compliance and comprehensive coverage of the LO (in its annual, sea-basin defined form) remains the key question. This is addressed by the team under Principle 3.

The WWFs participation in the Scottish Discard Steering Group is a valuable asset in ensuring the LO is effectively enforced within Scotland. WWF is correct that ~1 % of trips are monitored by independent observers (Marshall, Wiff, and Cornulier, 2017), but the assessment team also add that from this data MS have been able to uplift this to model fleet catches with sufficient certainty to be used in ICES stock assessments.

The FDF fleet in Scotland has declined in recent times, although why individual vessels withdraw is unknown the lack of incentive (extra quota) is likely a contributing factor. It worth noting that CEFAS is currently seeking English flagged vessels for similar exercises with these incentives.

The intent of the Scottish government regarding the future full implementation of the LO has not been established and is possibly linked to the uncertainty in the Brexit negotiations and whether the CFP and LO will continue to be applied. At present it would appear there is a likely a two-year interim period where this will be so.

The assessment team questioned Marine Scotland compliance on their record of LO compliance and level of enforcement at the site visit. In 2017 there were three cases of breaches of the LO abought about by the authorities. When asked about gaps in surveillance Marine Scotland did not recognize this and held the belief that their current MCS for this fishery, is sufficient to meet legal requirements. With regard to Remote Enforcement Monitoring (REM) Marine Scotland noted that this option is being explored along with others including modelling solutions and novel ideas such as the use of drones, but as yet nothing was decided.

The introduction of the LO in full in 2019 will require full harmonization of all EU fisheries. In anticipation of such a harmonization, the team has decided to reduce the score for SI 3.2.3a (see revised scoring table in Appendices 2) since it can no longer be concluded that the enforcement system is sufficiently comprehensive for the context of the fishery. A condition has so far not been introduced, however, since the requirement for an SG 80 score is that a monitoring, control and surveillance system is in place that has demonstrated an ability to enforce relevant management measures, strategies and/or rules, which is the case here.

With regard to Principle 1 the implication of the landing obligation (discard estimations) for saithe haddock and cod in the ICES stock assessment is not yet realised as the LO only applied to these species in 2017, and therefore the inclusion of the LO will only transfer into the stock assessments in 2018. Complications exist for haddock in that the stock extends beyond the boundaries of sea basin (North Sea, W. Scotland, Skagerrak) where different LO regimes apply. In 2018 the TAC arrangements for each of the North Sea stocks will also be impacted by the implementation of the inaugural MAP (EU, 2018).