Marine Stewardship Council (MSC) Year 2 Surveillance Report

SFSAG North Sea Cod

On behalf of

SFSAG

Prepared by

Control Union Pesca Ltd

February 2020

Authors: **Hugh Jones**
Robin Cook
Sophie des Clers
Mathias Deleau

Control Union Pesca Ltd
56 High Street, Lymington
Hampshire SO41 9AH
United Kingdom
Tel: 01590 613007
Fax: 01590 671573
E-mail: infopesca@controlunion.com
Website: www.cupesca.com

Contents

QA

Role	Signature and date
Originator:	HJ – 03/02/2020
Reviewer:	HE – 04/02/2020
Approver:	TT – 04/02/2020

Glossary

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

1 Executive Summary

This report is the second surveillance audit of the SFSAG North Sea cod fishery undertaken by CU Pesca against the MSC standard (v2.01) and Process (V2.1).

The fishery was certified as sustainable on the 18th July 2017. The fishery was suspended on 24th October 2019 following an expedited audit.

This on-site audit was carried out on the 7th November 2019 by Hugh Jones (Team Leader and Principle 2), Sophie des Clers (Principle 3) Matthias Deleau (traceability) and Robin Cook (Principle 1).

The second surveillance follows the Principle 1 expedited audit on the fishery which published in September 2019 and which found that the fishery could not maintain their MSC certificate. The failure was based on failing PI 1.1.1 (stock status), PI 1.1.2 (Stock Rebuilding) and PI 1.2.4 (Assessment of stock status).

Following the 2nd audit, the assessment team found evidence that non-binding conditions on Principle 2 were considered on target. New information on ETP led to redrafting of rationales but no scoring changes in this component.

For Principle 3 it has been necessary to rescore PI 3.2.3 in order to harmonise with the recent MSC certification of the Joint demersal fisheries in the North Sea and adjacent waters. A new non-binding condition is drafted, for the MCS system to demonstrate an ability to enforce the Landing Obligation (LO) and demonstrate that systematic non-compliance does not occur.

For Principle 1 there was no significant updates from the expedited audit of 2019.

Following consideration of all stakeholders' inputs and new information provided by the client and the relevant stock assessments the fishery assessment team concludes that the fishery remains suspended against the MSC standard.

Principle	Score
Principle 1 – Target Species	<60
Principle 2 – Ecosystem Impacts	85.0
Principle 3 – Management System	90.6

2 Report Details

2.1 Audit information

1	**Fishery name**	
	Scottish Fisheries Sustainable Accreditation Group (SFSAG) North Sea Cod	
2	**Surveillance level and type**	
	Level 6 Year 2 surveillance audit. The anniversary for the fishery is the 18th July each year. As per the stakeholder email sent 24th May 2019 the year 2 surveillance audit has been planned to be delayed until November 2019. This is to align with key dates in the fishery management cycle; November ICES Advice and EU management meetings.	
3	**Surveillance number**	
	1st Surveillance	
	2nd Surveillance	x
	3rd Surveillance	
	4th Surveillance	
	Other (expedited etc)	
4	**team leader**	

Name	Dr Hugh Jones
Areas of responsibility	Team Leader
Competency criteria (Annex PC)	Dr Hugh Jones has a PhD in Ecotoxicology and strong background in marine research including publications and reports on ecotoxicology, environmental risk assessments and fisheries research. Prior to joining CU Pesca he was employed as a fisheries scientist in the development of an empirical harvest strategy for commercial abalone fisheries and fisheries assessments of estuarine bivalves. This included work on population metrics (recruitment, growth), harvest dynamics (catch rates, market selectivity), and the use of fine scale geospatial techniques as performance measures to assess stock sustainability. Dr Jones has completed the required Fishery Team Leader MSC training modules for the new V2.01 Fisheries Certification and V2.1 process requirements. Hugh Jones has >8 years experience of fishing impact on ecosystem dynamics, including ecosystem surveys and in addition has 3 years' experience as P2 assessor with MSC projects . Hugh has published peer review works on the trophic pathways of pelagic food webs and zooplankton abundance in relation to environmental conditions. His work includes

	analysis of water column abiotic and biotic attributes which determine the functional ecology of fish species. He has secured research funding for ecological studies of fish populations in relation to climate change, which consider the coupling between demersal and pelagic pathways.
Conflict of interest in relation to this fishery	CU Pesca have reviewed Hugh's information and found no conflict of interest.
On-site or off-site	On-site It is proposed that Dr Hugh Jones will act as team leader and Principle 2 assessor for this audit and will be responsible for bringing together the work.
CV	Available on request

5 team members

Name	Dr Robin Cook
Areas of responsibility	Principle 1
Competency criteria (Annex PC)	Dr Cook meets the following requirements in Table PC3: 1. Fish stock assessment and Table PC3 2. Fish stock biology / ecology. In a career spanning over 40 years, Robin has gained experience with the following stock assessment techniques: Bayesian age structured assessment models, Bayesian state-space models applied to demersal stocks that include marine mammal predation interactions, Surplus production modelling of mixed species, Extended Survivors Analysis (XSA), Time Series Analysis (TSA), Stock Synthesis, BAM, ADAPT, SAM and related methods. 30 plus years' experience working with the biology and population dynamics of the target or species with similar biology: Robin is an expert in demersal fisheries population dynamics. His expertise has focused on North Atlantic systems, in particular the North Sea gadoid populations. Based on the information above and Robin's CV CU Pesca are confident Robin meets the requirements of Table PC3 for 1. Fish stock assessment and 2. Fish stock biology / ecology.
Conflict of interest in relation to this fishery	CU Pesca have reviewed Robin's information and found no conflict of interest.
On-site or off-site	Off-site
CV	Available on request

Name	Dr Sophie des Clers

Areas of responsibility	Principle 3
Competency criteria (Annex PC)	Principle 3 – management systems. Other such projects of similar involvement include: UK Fisheries/DFFU/Doggerbank saithe, Normandy and Jersey lobster, Scapêche and Compagnie de Pêche de St. Malo – saithe, SARPC Kerguelen & Crozet Toothfish fishery. - 2012: midterm evaluation and Phase II formulation of SmartFish, an EDF project to support an integrated fisheries regional strategy in the 20 member states of the Eastern and Southern Africa and Indian Ocean ACP region - 2012: supporting the formulation of a fisheries and aquaculture policy for the Commonwealth – strengthening fisheries management in ACP states. Caribbean - 2009/10: Socio-economic appraisal of the coastal fisheries sector – team leader in charge of survey design, data analysis, and report. - 2006-07: team leader in a project to strengthen Fisheries Management capacity in ACP countries, as team leader, in charge of both social and environmental aspects. Senegal, Gabon, Mozambique, Uganda, Fiji and New Caledonia. - 2000: Consultant - Integrating Biodiversity and European Fisheries Policy: Rebuilding a healthy and productive ecosystem. EU, FAO. Based on the information above and Sophie's CV CU Pesca are confident she meets the requirements of Table PC3 4. Fishery management and operations
Conflict of interest in relation to this fishery	CU Pesca have reviewed Sophie's information and found no conflict of interest.
On-site or off-site	on-site
CV	Available on request

Name	Dr Mathias Deleau
Areas of responsibility	Traceability
Competency criteria (Annex PC)	Mathias obtained his PhD from the University of Southampton looking at the "impacts of anthropogenic sounds on fish behaviour" following an MSc in Marine Ecology and Environmental Management (Queen Mary University of London) and an MSc in Applied Ethology and Animal Behaviour (Linkoping Universitet – Sweden). A French citizen, he also spent 3 years at the University of Toulouse where he obtained the French equivalent of a BSc in "Biologie des Organismes, Populations and Ecosystemes" (Universite Paul Sabatier – Toulouse).Mathias has a broad knowledge of both freshwater and marine ecosystems and he has been involved in several projects dealing with the conservation and management of various species in addition to fish. For example, he worked on: the Parc Marin International des Bouches de Bonifacio (Corsica - FR) as a field researcher; the Centro Ricerca Delfini (Caprera - IT) on monitoring bottlenose dolphin populations, and finally as a field researcher for Birdlife Malta on storm petrels and shearwaters populations management. He has completed his MSC online training for CoC (2019 version) and Fisheries (v2.0 and v2.1) including Traceability v2.0 and v2.1 module. Based

	on the information above and Mathia's CV CU Pesca are confident he meets the requirements of Table PC3 4. Fishery management and operations
Conflict of interest in relation to this fishery	CU Pesca have reviewed Mathias's information and found no conflict of interest.
On-site or off-site	on-site
CV	Available on request

6	**Audit/review time and location**
	The audit on 7th November 2019 took place in Aberdeen at the offices of the Scottish Fishermen's Federation (SFF). Email contact is available for assessors and the client and conference facilities will be utilised as required on the day as required
7	**Assessment and review activities**
	During the audit, CU Pesca communicated with the client and any relevant stakeholders and used any available up to date information to assess and review; • Any changes to the scientific base of information such as stock assessments and its impact on Principle 1 scoring. • Any changes to the fishery and its management including those to management systems, regulation and relevant personnel assessments; • Any changes to the scientific base of information such as stock; • Any developments or changes within the fishery impact may impact on traceability and the ability to segregate MSC from non-MSC products; • Will review progress against the conditions associated with this fishery. • Harmonization against the other fisheries certified on the MSC program • Any other significant changes in the fishery.

3 Background

3.1 Version details

Table 1. Fisheries programme documents versions

Document	Version number
MSC Fisheries Certification Process	Version 2.1
MSC Fisheries Standard	Version 2.01
MSC General Certification Requirements	Version 2.4.1
MSC Reporting Template	Version 2.01

3.2 Unit(s) of Assessment (UoA)

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

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

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

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

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

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

3.3 Vessel list

Is available here:

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

3.4 Principle 1

3.4.1 Stock Update

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

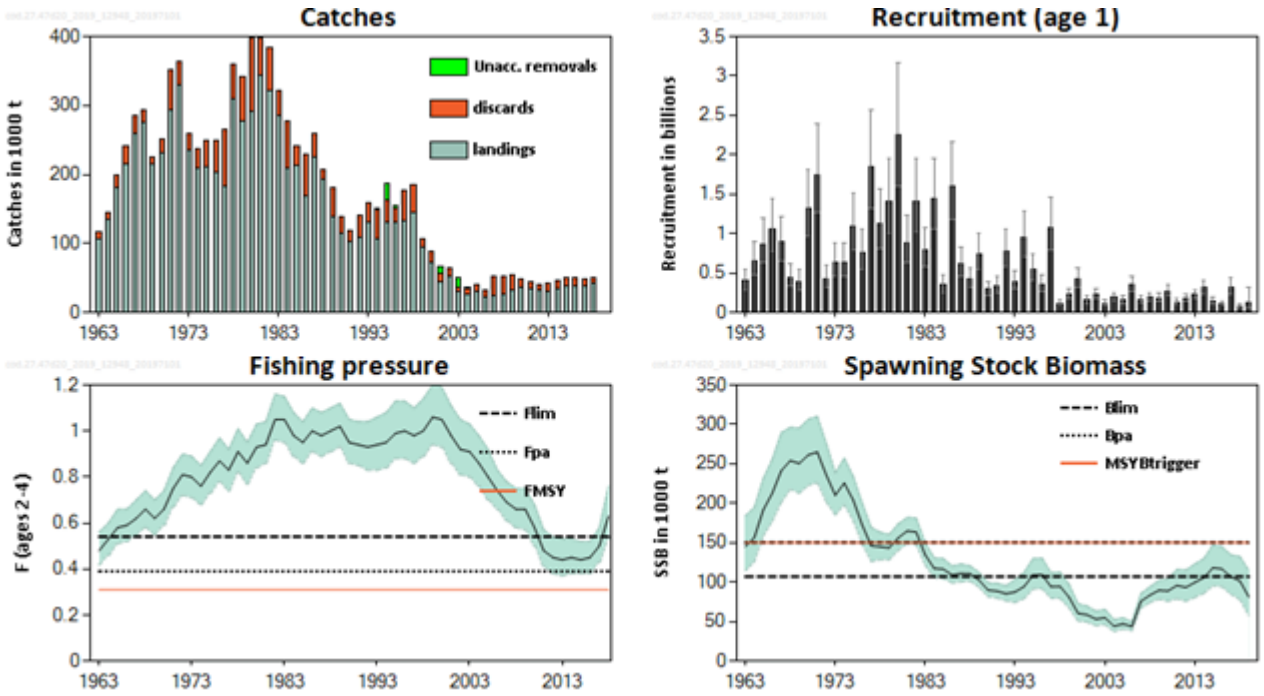


Figure 1. Catches, recruitment, fishing pressure and stock biomass for Cod in Subarea 4, Division 7d, and Subdivision 20. Source: ICES (2019a)**.**

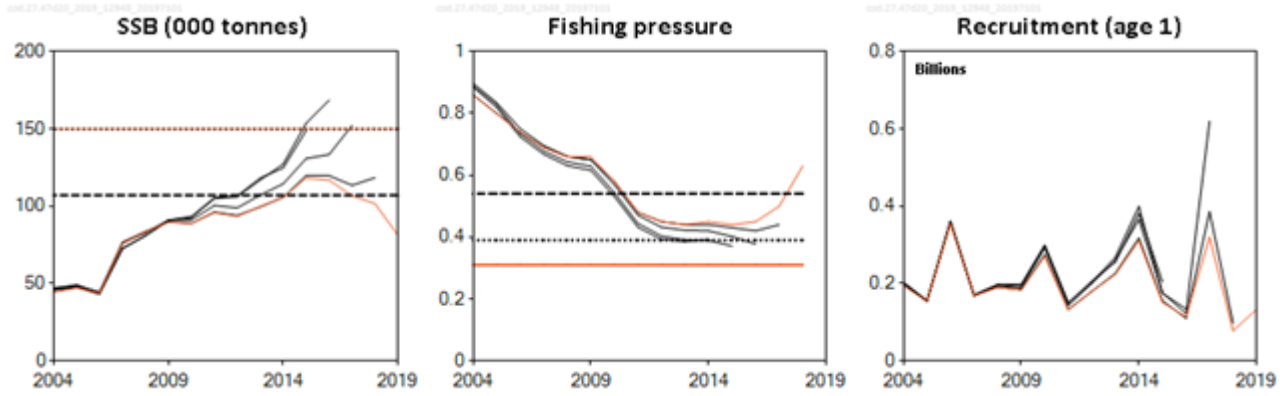


Figure 2. Cod in Subarea 4, Division 7.d, and Subdivision 20. Historical assessment results (final-year recruitment estimates included). Maturity-at-age was re-estimated in 2017, which caused the observed downward revision in SSB in the 2017 assessment. Source: ICES (2019a)**.**

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

Figure 3. State of the stock and fishery relative to reference points. Source: ICES (2019a)**.**

3.4.2 Reference Points

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

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

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

3.4.3 Issues relevant to the ICES advice

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

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

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

3.4.4 Principle 1 overall conclusion

The scoring of principle 1 remains as defined in the expedited audit from 2019 (Jones & Cook 2019).

3.5 Principle 2

3.5.1 Marine Scotland Observer Program

As part of the surveillance audit the assessment team interviewed Elena Balestri, the Scottish Fishermen's Federation (SFF) science policy officer. The observer scheme is an SFF and Marine Scotland joint scheme, with SFF observer scheme now providing 60 % of the observer coverage. All observers are trained using the same documentation and there are currently 10 working within the scheme. The training manual is being updated in 2020. Currently the observer coverage overall for the fleet is equal to 2 %. Whilst observers are on board every haul is sampled with 1 or 2 baskets analysed per haul, as well as background information such as vessel position, gear type, haul length etc. In addition to the baskets that are sampled there are 2 additional levels of measurements. Baskets of discards are recorded and counted (discarding being allowed for non-TAC species) and if ETP species are identified on the hopper these are recorded but at present they cannot be raised to trip level. Mortality levels of ETP are not routinely recorded.

3.5.2 Primary and Secondary species

Marine Scotland provided landings and catch estimate data for the client group for the period 2016 – 2018 as part of this audit (Table 4, Table 5). The data was sub-settable by ICES subarea and gear type (TR1 / TR2). Catch estimates come from the Marine Scotland observer program described above.

Key changes related to Primary species for the UoA are updates to the stock status of North Sea whiting resultant of downgraded stock status estimates in 2019. Summary of all stocks, status and management for all species with greater than 2 % landings separated by stock or functional unit (*Nephrops*) are shown in **Error! Reference source not found.** With the exception of North Sea whiting and North Sea cod there is no updates to scoring required.

Table 4. Client landings and discard estimates for North Sea (subarea 4) fish between 2016-2018 in tonnes. Source Marine Scotland Science. MCRS = Minimum Conservation Reference Size.

Species	Gear combined	Landings	Discards Estimate	% MCRS	Catch Estimate	% Landings	% Catch	Species designation "main","minor" or "target"
Anglerfish	TR1	39033.75	1429	NA	40462.75	8.3	8.2	main
Black Scabbardfish	TR1	0.14	12	NA	12.14	0	0	minor
Black Scabbardfish	TR2	0	9	NA	9	0	0	minor
Blue ling	TR1	14.8	19	NA	33.8	0	0	minor
Blue ling	TR2	0	9	NA	9	0	0	minor
Brill	TR2	1.92	406	NA	407.92	0	1.8	minor
Brill	TR1	66.56	69	NA	134.56	0	0	minor
Cod	TR1	91317.286	2208	1321	93525.286	19.4	18.9	Target
Cod	TR2	446.327	720	696	1166.327	5.3	5	Target
Common Dab	TR2	9.52	1230	NA	1239.52	0.1	5.3	main
Common Dab	TR1	250.3	1176	NA	1426.3	0.1	0.3	minor

Species	Gear combined	Landings	Discards Estimate	% MCRS	Catch Estimate	% Landings	% Catch	Species designation "main","minor" or "target"
Flounder	TR2	0	795	NA	795	0	3.4	minor
Flounder	TR1	0	452	NA	452	0	0.1	minor
Grey Gurnards	TR2	54.7	977	NA	1031.7	0.6	4.4	minor
Grey Gurnards	TR1	948.81	1472	NA	2420.81	0.2	0.5	minor
Haddock	TR1	160780.958	1739	690	162519.958	34.2	32.8	Main
Haddock	TR2	2545.042	861	294	3406.042	30.1	14.6	Main
Hake	TR2	61.83	1007	797	1068.83	0.7	4.6	Minor
Hake	TR1	20652.41	1535	915	22187.41	4.4	4.5	minor
Lemon sole	TR2	247.81	1047	NA	1294.81	2.9	5.6	Main
Lemon sole	TR1	4391	1630	NA	6021	0.9	1.2	minor
Ling	TR2	85.65	653	NA	738.65	1	3.2	minor
Ling	TR1	11298.78	1726	NA	13024.78	2.4	2.6	minor
Megrim	TR2	32.14	787	847	819.14	0.4	3.5	minor
Megrim	TR1	8195.67	1591	911	9786.67	1.7	2	minor
Plaice	TR2	279.749	1261	172	1540.749	3.3	6.6	Main
Plaice	TR1	25557.708	1772	1131	27329.708	5.4	5.5	Main
Pollock	TR1	2505.487	607	68	3112.487	0.5	0.6	minor
Pollock	TR2	0.15	18	NA	18.15	0	0.1	minor
Red mullet	TR2	2.37	429	NA	431.37	0	1.9	minor
Red mullet	TR1	17.92	516	NA	533.92	0	0.1	minor
Saithe	TR1	47398.37	2752	1362	50150.37	10.1	10.1	Main
Saithe	TR2	437.59	785	895	1222.59	5.2	5.3	Main
Sole	TR2	0.17	275	70	275.17	0	1.2	minor
Sole	TR1	39.78	257	NA	296.78	0	0.1	minor
Torsk	TR2	0.24	409	NA	409.24	0	1.8	minor
Torsk	TR1	121.66	1110	NA	1231.66	0	0.2	minor
Turbot	TR2	14.75	191	NA	205.75	0.2	0.9	minor
Turbot	TR1	469.14	53	NA	522.14	0.1	0.1	minor
Whiting	TR2	2267.973	742	578	3009.973	26.8	12.9	Main
Whiting	TR1	53034.183	1657	1347	54691.183	11.3	11.0	Main
Witch Flounder	TR2	388.96	1537	NA	1925.96	4.6	8.3	main

Species	Gear combined	Landings	Discards Estimate	% MCRS	Catch Estimate	% Landings	% Catch	Species designation "main","minor" or "target"
Witch Flounder	TR1	3745.38	1830	NA	5575.38	0.8	1.1	minor

Table 5. Stocks, status and management for all species with greater than 2 % landings separated by stock or functional unit (*Nephrops*).

Stock	Status	Management	Ref.
Haddock 4, 6a	$B>B_{MSYtrigger}$, $F>F_{MSY}$, $<F_{pa}$	EU-Norway management strategy	ICES (2019c)
Saithe 4, 6a	$B>B_{MSYtrigger}$, $F<F_{MSY}$, $<F_{pa}$	EU-Norway management strategy	ICES (2019i)
Plaice 4	$B>> B_{MSYtrigger}$, $F>F_{MSY}$	EU North Sea MAP	ICES (2019h)
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 2019j)
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 2016)
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 (2017c)
Lemon sole 4 7d	F<FMSY	EU North Sea MAP	ICES (2019d)
Dab 4, 3a	$B>B_{MSYtrigger}$, $F<F_{MSY}$	EU North Sea MAP	ICES (2017a)
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 2019e)
FU8 – Firth of Forth	$B>>MSYB_{trigger}$, $F<F_{MSY}$ proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate of 16.3 %	(ICES 2019f)
FU9 – Moray Firth	$B>MSYB_{trigger}$, $F\sim=$ F_{MSY} proxy	MSY approach: Proxy F_{MSY} estimated at harvest rate of 11.8 %	(ICES 2019g)

3.5.3 ETP

Protected, Endangered and Threatened (PET) species data from 2017-2018 was provided by Marine Scotland science from the observer program described in 3.5.1 (Table 6).

The PET data from 2017-2018 (**Error! Reference source not found.**) includes the following species previously identified in the PCR for this fishery (Sieben et al. 2017): Starry ray, common skate complex (inc. blue skate and flapper skate), Norway skate (W. Scotland), spurdog, seals (common and grey), shad and gannet. No longer present in the data are porbeagle shark, Atlantic salmon, Greenland shark, basking shark and guillemot although as they were present in the previous years they remain active scoring elements. New species identified in the most recent data are twaite shad (*Alosa fallax*) (Council

Directive 92/43/EEC - Hab Dir App II), short snouted seahorse (*Hippocampus hippocampus*) (Schedule 5 of the Wildlife and Countryside Act 1981) and harbour porpoise (ASCOBAN). These new species have been scored under ETP rationale in section 4.5.

As per the fishery assessment (Sieben et al. 2017) interactions with Starry ray (*Amblyraja radiata*), blue skate (*Dipturus batis*) and flapper skate (*Dipturus intermedius*) remain the main area of concern for the fishery. Conditions on Performance Indicators 2.3.1, 2.3.2 and 2.3.3 related to these interactions and progress against these is detailed in section 4.5 please refer to Table 9, Table 10, and Table 11

Table 6. Protected, Endangered and Threatened (PET) species data 2017-2018, from Marine Scotland and Scottish Fisherman's Federation observer program.

Year	Area	Domain	Species Code	Species Common name	Species Scientific name	Number of Individuals	Number of Trips	Observer Trips Total
2017	27.4.a	TR1	TSD	Twaite shad	*Alosa fallax*	1	1	110
2017	27.4.a	TR1	RJR	Starry ray	*Amblyraja radiata*	2725	52	110
2017	27.4.a	TR1	RJB	Blue skate	*Dipturus batis*	61	9	110
2017	27.4.a	TR1	DRJ	Flapper skate	*Dipturus intermedius*	25	5	110
2017	27.4.a	TR1	JAD	Norwegian skate	*Dipturus nidarosiensis*	12	2	110
2017	27.4.a	TR1	HPH	Short snouted seahorse	*Hippocampus hippocampus*	1	1	110
2017	27.4.a	TR1	MVB	Northern gannet	*Morus bassanus*	16	6	110
2017	27.4.a	TR1	SDS	Starry smooth-hound	*Mustelus asterias*	3	1	110
2017	27.4.a	TR1	MYG	Hagfish	*Myxine glutinosa*	20	8	110
2017	27.4.a	TR1	SXX	Seals and sea lions nei	*Otariidae*	1	1	110
2017	27.4.a	TR1	RJC	Thornback ray	*Raja clavata*	179	22	110
2017	27.4.b	TR1	TSD	Twaite shad	*Alosa fallax*	2	1	16
2017	27.4.b	TR1	RJR	Starry ray	*Amblyraja radiata*	79	4	16
2017	27.4.b	TR1	MYG	Hagfish	*Myxine glutinosa*	2	2	16
2017	27.4.b	TR1	RJC	Thornback ray	*Raja clavata*	1	1	16
2017	27.4.b	TR2	RJC	Thornback ray	*Raja clavata*	2	1	45
2018	27.4.a	TR1	SHD	Allis and twaite shads	*Alosa alosa*	6	1	101

Year	Area	Domain	Species Code	Species Common name	Species Scientific name	Number of Individuals	Number of Trips	Observer Trips Total
2018	27.4.a	TR1	RJR	Starry ray	*Amblyraja radiata*	5253	57	101
2018	27.4.a	TR1	RJB	Blue skate	*Dipturus batis*	12	2	101
2018	27.4.a	TR1	DRJ	Flapper skate	*Dipturus intermedius*	4	1	101
2018	27.4.a	TR1	MVB	Northern gannet	*Morus bassanus*	8	2	101
2018	27.4.a	TR1	MYG	Hagfish	*Myxine glutinosa*	22	2	101
2018	27.4.a	TR1	SXX	Seals and sea lions nei	*Otariidae*	1	1	101
2018	27.4.a	TR1	SKA	Raja rays nei	*Raja spp.*	30	1	101
2018	27.4.a	TR1	RJC	Thornback ray	*Raja clavata*	112	10	101
2018	27.4.a	TR1	DGS	Picked dogfish	*Squalus acanthias*	1	1	101
2018	27.4.a	TR2	RJR	Starry ray	*Amblyraja radiata*	123	2	6
2018	27.4.a	TR2	HPH	Short snouted seahorse	*Hippocampus hippocampus*	2	1	6
2018	27.4.a	TR2	PHR	Harbour porpoise	*Phocoena phocoena*	1	1	6
2018	27.4.b	TR1	RJR	Starry ray	*Amblyraja radiata*	1	1	17
2018	27.4.b	TR2	RJR	Starry ray	*Amblyraja radiata*	1	1	40
2018	27.4.b	TR2	PHR	Harbour porpoise	*Phocoena phocoena*	1	1	40
2018	27.4.b	TR2	RJC	Thornback ray	*Raja clavata*	1	1	40

3.5.3.1 Blue skate and flapper skate

In 2019 ICES produced advice for Blue (Common) skate (*Dipturus batis*) and Flapper skate (*Dipturus intermedius*) but could not assess the stock and exploitation status relative to the maximum sustainable yield (MSY) and precautionary approach (PA) reference points (ICES 2019b). They note that the available information does not change the previous perception that the common skate complex is depleted in the North Sea. Available information suggests that flapper skate occurs in the northern parts of the stock area, where it likely merges with the neighbouring population in subareas 6 and 2.

However, whilst catch rates in the surveys are too low to provide a stock size indicator, the consistent occurrence of this species in surveys (NS–IBTS–Q1 and NS–IBTS–Q3) in recent years, 0.054 n h−1 (2011–2018) compared to the 1990s, 0.005 n h−1 (1991–1998) could be indicative of a gradually

improving stock status (ICES 2019b). this impression is shared by SFSAG who note qualitatively that numbers of interactions would appear to be increasing.

No landings of these species is permitted (since 2009). Article 14 1 prohibits retaining on board, transhipment or landing of these species and 14 .2 requires prompt release (COUNCIL REGULATION (EU) 2019/124). ICES are aware therefore that discarding takes place but cannot quantify the corresponding catch. In addition, discard survival, which is likely to occur, has not been estimated.

3.5.3.2 Starry ray

For starry ray (*Amblyraja radiata)*, the 2019 advice continues to show a stock size decline (Figure 4). A zero TAC has been implemented since 2015. In addition, in 2015 the species has been included in the list of prohibited species for fishing, retaining on board, tranship, or landing (EU) 2019/124).

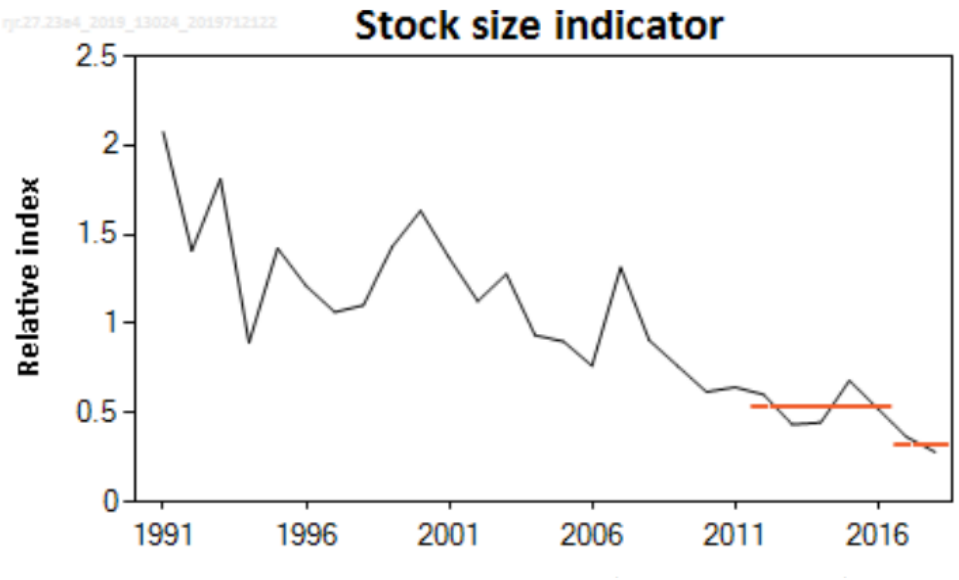


Figure 4. Starry ray in Subareas 2 and 4 and Division 3.a. Average of survey indices of abundance (n h−1, relative to the timeseries mean) from trawl surveys (NS–IBTS–Q1, NS–IBTS–Q3). The horizontal lines show the mean stock indicators for 2017–2018 and 2012–2016. Source

A reconstructed distribution and abundance paper on North Sea skates and sharks, suggest that regime shifts from large skates (common skate) to smaller species (starry ray) may be attributed to (i) fishing, including mechanised beam trawling introduced in the 1960s–1970s, and historical target fisheries for elasmobranchs; (ii) climate change, currently favouring warm-water above cold-water species; and (iii) habitat loss, including potential degradation of coastal and outer estuarine nursery habitats (Sguotti et al. 2016).

The North Sea Advisory Council (NSAC) published a joint paper showcasing a list of collected measures that are currently being applied or considered by organisations in the North Sea (NSAC 2019). Although not directly referencing efforts in Scotland there is a number of similarities between approaches including avoidance of aggregations, spawning areas and gear selectivity.

At a fishery level a current master project is underway to investigate ETP species interactions with the fleet, but no results are yet available. In addition, through the Gear Innovation and Technology Advisory Group (GITAG) a member of the Client group is trialling skate exclusion device on nets.

The client group has for the past couple of years been trialling a voluntary recording scheme with members, but the overall response has not been particularly successful. The client group is now considering a more formal scheme.

At an ICES level and ICES working group on discard survival is forthcoming in 2020.

3.5.3.3 Starry ray and blue / flapper skate analysis

Analysis undertaken by the client group as part of the condition milestones related to starry ray and blue / flapper skate was undertaken in 2019 (Appendix 5). This report comprised of analysis of ICES and Marine Scotland Science (MSS) data and concluded the following:

With five full years of bycatch data from the PETS and bycatch sampling programme (2014-18), 2019 was the first year in which MSS felt that sample sizes might be appropriate to attempt some global analysis of the dataset in relation to skates. The purpose of this analysis was to evaluate whether the data contain information which might help Marine Scotland and/or SFSAG to put in place additional measures to reduce skate bycatch.

In relation to starry ray, the main conclusions of the analyses by ICES and MSS are as follows:

- Survey catch rates remain in decline in the North Sea, having increased throughout the 1980s. The reasons for the increase and subsequent decline are unclear.

- The spatial analysis of starry ray bycatch data do not reveal any clear bycatch hotpots which could form the basis of a protected area. Biomass seems to be highest over a relatively large area in the northern North Sea (east of Shetland) which is not the centre of effort for SFSAG towed gear, although according to ICES the species remains present throughout the North Sea.

- The analysis of starry ray bycatch by season likewise does not reveal any clear pattern that could form the basis of a temporal management measure, although there are some general trends.

- Overall, because catch rates are low and patchy, there are not sufficient data as yet for further analysis of this bycatch data based on other parameters. The data set will continue to improve year by year, but this situation will probably not change over the timeframe of an MSC assessment cycle (5 years). ICES base their analysis on a long survey time series, and therefore the best approach to ongoing management of starry ray would seem to be to take account of ICES' evaluations and follow their recommendations.

In relation to common skate, the main conclusions of the analyses by ICES and MSS, are as follows:

- For the North Sea, although a quantitative analysis of trends is not possible, survey catch rates have increased substantially since the 1990s. For W. Scotland, ICES was not able to present an analysis, although trends in the Celtic Seas region more widely are likewise encouraging.

- The spatial analysis of common skate bycatch data suggests that common skate bycatch in the SFSAG fishery takes place almost entirely around the north and west coasts. Observed bycatch in the North Sea is minimal.

- The species appears to be distributed more widely than originally thought, including in inshore areas. As for starry ray, no spatial or seasonal patterns could be discerned which would support additional robust management measures.

3.5.3.4 Twaite shad

Twaite shad (*Alosa fallax*) is a member of the Clupeidae family and are very difficult to tell apart from the closely related *Alosa alosa* based on external features. Both are listed under Annex II of the EC Habitats & Species Directive meaning that areas are protected to aid their conservation. These areas are rivers beyond the geographical area of the fishery and none of these areas exist in Scotland the nearest being in West Wales[1].

At sea, both species are pelagic and allis shad may occur at depths to 300 m. Both species return to rivers to spawn. Once widely distributed throughout Europe, their populations declined rapidly in the early part of the 20th century due to a combination of overfishing, pollution and habitat fragmentation (ICES 2005; Freyhof 2008; Freyhof & Kottelat 2008).

Twaite shad are listed as 'Least Concern' but populations are reported to be increasing in the North Sea and the Baltic (Freyhof & Kottelat 2008). Generally twaite shad occur more frequently in commercial catches (ICES 2005). In Germany, spawning populations exist in the Elbe and Weser and juveniles are recorded from the Wadden Sea. Although increasing numbers of the species occur in areas of the southern North Sea, detailed quantitative analyses have not been published on spawning stocks of specific North Sea estuaries (Magath & Thiel 2013).

3.5.3.5 Harbour porpoise

The harbour porpoise (*Phocoena phocoena*) is a small cetacean inhabiting continental shelf waters and frequenting shallow bays, estuaries, and tidal channels less than ~200 m depth; it is the dominant marine mammal species in the North Sea, Skagerrak and Kattegat. Harbour porpoises eat a wide range of fish and cephalopods with main prey items varying by region. Small schooling fish (e.g. herring) are important but demersal foraging is characteristic in many areas (IUCN 2007). The species is listed as 'Vulnerable' in Europe by the IUCN but this is noted as being due to the steep decline in Baltic and Black Sea subpopulations whilst there is no evidence to suggest the main North Atlantic population is in decline, with this part of the European population being regarded as of 'Least Concern' (IUCN 2007).

The harbour porpoise is a CITES Appendix II species and is listed in Annex II and IV of the Habitats Directive (92/43/EEC), Annex II of the Bern convention and Annex II of the Bonn convention. Furthermore, it is the flagship species in the "Agreement on the conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas" (ASCOBANS). The agreement seeks to formalise and coordinate conservation efforts for small cetacean species shared between member countries in the ASCOBANS Area through threat management, e.g. bycatch, habitat deterioration, or other anthropogenic disturbances. Given the highly migratory nature of the harbour porpoise, such co-ordinated efforts are necessary to form an effective conservation and management plan (CMP). The CMP formed under ASCOBANS requires all signatories to engage in habitat conservation and management programmes, surveys and research, pollution mitigation and public engagement. Denmark, Germany the Netherlands and Sweden are signatories to the ASCOBANS agreement, which was concluded in 1991 under the auspices of the Convention on Migratory Species (CMS or Bonn Convention) and entered into force in 1994. A number of Natura 2000 sites are designated on account of significant use of the areas by harbour porpoise within the North Sea, Kattegat and Skagerrak (see Figure 5). An additional and extensive pSAC is proposed for designation specifically for harbour

[1] https://sac.jncc.gov.uk/species/S1103/

porpoise in the Southern North Sea between the Kent and Northumberland coasts in UK inshore and offshore waters covering ~37,000 km^2 in depths of 10 m - 75 m (JNCC 2017).

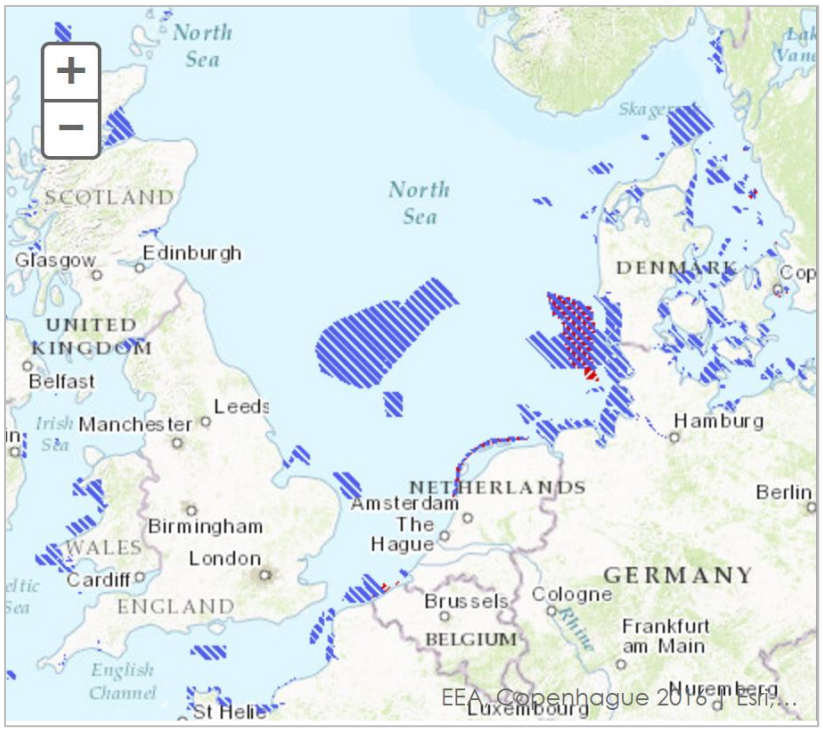


Figure 5. Natura2000 sites within which harbour porpoise is listed as a qualifying designated species. Source: European Environment Agency.

The Small Cetaceans in the European Atlantic and North Seas projects (SCANS I, II and III) have aimed to map distributions in the northeast Atlantic, often focusing on the North Sea (Figure 6 and Figure 7) (Hammond et al. 2017; Hammond 2006). The latest preliminary findings demonstrate a similar distribution to that observed in 2005 although with a continued and increased spread of harbour porpoise into the Channel, initially from the western end and now encompasses the entire Channel, at least in summer (Hammond et al. 2017). The most recent populations estimates for harbour porpoise from the 2016 SCANS III surveys are 345,000 in the North Sea; separate new estimates were not provided for the Channel or the Skagerrak at the time of writing although the report concluded there was no evidence of any change in population size since the initial surveys in 1994 (Hammond et al. 2017).

In 2008, ICES was asked to evaluate the bycatch of harbour porpoises in the Greater North Sea Ecoregion. At the Third Meeting of Parties to ASCOBANS in 2000, a resolution addressed the issue of porpoise bycatch. Resolution No. 3, set a definite limit for incidental bycatch based on advice from the International Whaling Commission (IWC) / ASCOBANS Working Group on harbour porpoises. This defined “unacceptable interactions” as being a total anthropogenic removal >1.7% of the best available population estimate and set an objective of reducing bycatch to <1% of the best available population estimate (ASCOBANS 2000). In 2010 in response to an EC request for advice, ICES stated it was unable to assess the population-level effects of fisheries bycatch for any cetacean species due to insufficient information (ICES 2010). Subsequently, using the SCANS II population estimates, ICES (2015a; 2015b) evaluated that the annual bycatch of harbour porpoises within the North Sea (including the Skagerrak and Eastern Channel) was at 0.88% and in the Kattegat and Belt Seas is at 0.55%. Both figures are below the limit considered to be unsustainable (1.7%) but ICES states that unknown amounts of bias exist in the assessments. Furthermore, a lack of reports from some major

fishing nations (not specified) was cited as compromising the ability of ICES to assess the overall impact.

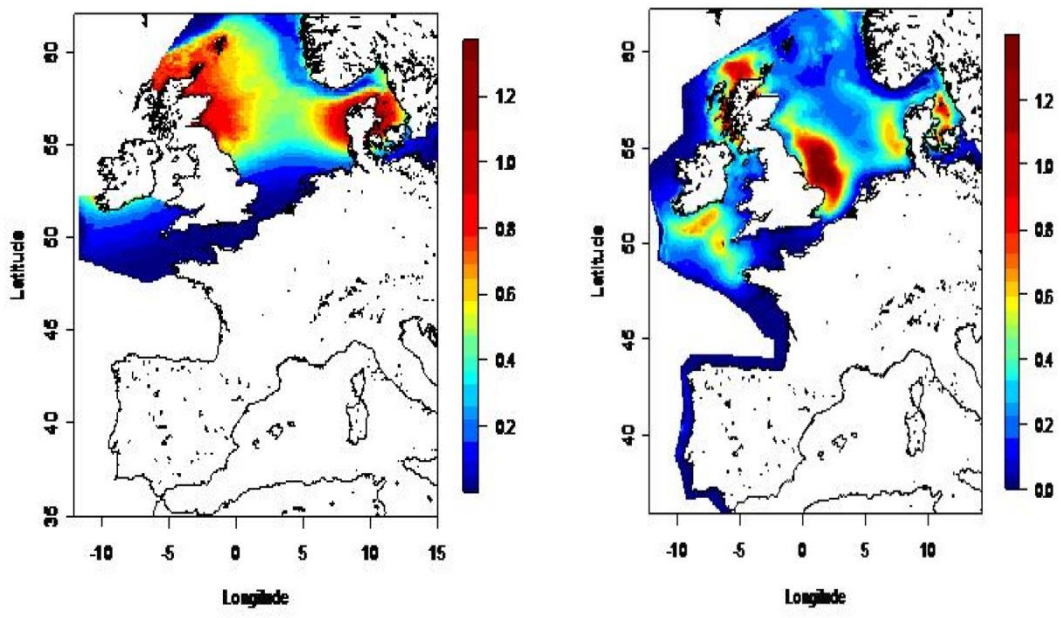


Figure 6: Surface density modelling of harbour porpoise (animals / km^2) in 1995 and 2004 from the SCANS and SCANS II projects respectively. Source: Hammond et al. (2006)**.**

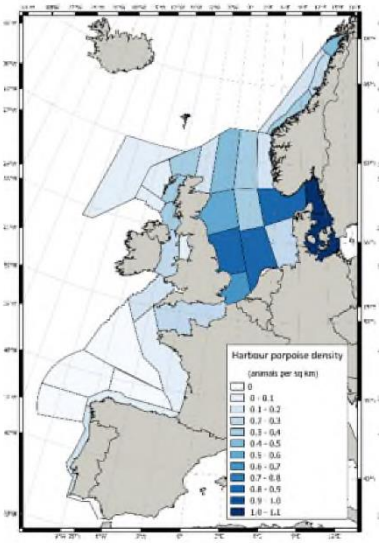


Figure 7: Preliminary results from the SCANS III project of harbour porpoise density (animals / km^2) in 2016. Source: Hammond et al. (2017)**.**

3.5.4 Habitats

Marine Scotland have published a useful recommended Priority Marine Features (PMF)s and existing designations summary table for consultation (Appendix 6). A public scoping consultation took place in summer 2018 on 11 PMFs selected (below) by the government from an original list of ~80.

- Blue mussel beds
- Cold water coral reefs

- Fan mussel aggregations
- Flame shell beds
- Horse mussel beds
- Maerl beds
- Maerl or coarse shell gravel with burrowing sea cucumbers
- Native oysters
- Northern sea fan and sponge communities
- Seagrass beds
- Serpulid aggregations

The primary focus of this consultation was on the management of fisheries in relation to these habitats/ species, however the document did result in the addition of new records to the management zones under the listed PMFs (see Annex 1 (MS 2019b)). Following the public scoping consultation, on 24 Jul 2019, the government released three approaches selected for the Sustainability Appraisal[2]:

- Prohibition of bottom contacting mobile fishing gears within specific zones around records of the 11 PMFs (This is the current preferred policy approach).
- Prohibition of bottom contacting mobile fishing gears within 0.5 nautical miles of land.
- Prohibition of bottom contacting mobile fishing gears within 0.5 nautical miles of land plus any specific zones from approach 1 that are outside the limit.

Consultation with the government by the team as part of the audit process revealed that the sustainability appraisal had been drafted and was being readied for a second public consultation to help determine management measures (pers. Comm. Helen Downie). The timeframe for consulting on management measures for PMFs has not been adhered to and the government have decided to combine this work with Phase 2 of proposed inshore fishery management measures for MPAs. They expect to consult on both sets of measures simultaneously in the near future (2020). There remain no legislated management measures for 16 of the inshore MPAs & SACs, or for the 14 offshore MPAs (including the Fladen ground see below).

3.5.4.1 Fladen ground voluntary exclusion

Prior to the audit the assessment team were presented with evidence from Marine Scotland (David Currie) of the weekly report sent to client as part of the agreement on the voluntary exclusion zone set up for the protection of burrowed mud VMEs (seapens) in the area. In total for the period Friday 9th November 2018 and Sunday 27th October 2019, 99 % of weekly reports were evident. During that period there were 55 reported VMS events (from 34 vessels) consistent with vessels travelling at trawling speed in the voluntary exclusion zone. At the site visit the audit team questioned the client on these occurrences and the following information was provided. For a sample of these events the client showed records of the client group making contact with the skipper /PO of the vessel as per the requirement in the code of conduct related to this closure (Jones & Honneland 2018). As per the code

[2] https://consult.gov.scot/marine-scotland/priority-marine-features/

of conduct, single transgressions are dealt with by letter and a warning that repeat offences will result in removal from the MSC vessel list. The client group reported that after repeated offences one of the vessels had been suspended from the scheme. As part of the scheme the client has found that vessel skippers need a right of reply and chance to provide evidence to the reported event. In addition, the client group points that there has been a rise of incursions present in the data set since the announcement to suspend the fishery. With the ultimate sanction from the scheme exclusion from the certificate and the need for right to reply, the client group is revaluating the terms of the code of conduct. The corresponding update of the progress against condition milestones is provided in Table 12.

3.5.5 Principle 2 summary

Updates on existing conditions are found in Table 9, Table 10, and

Table 11 for starry ray and common skate. The identification of new ETP records in observer data has led to the scoring of these species as elements in this component (Section 4.5) but these do not change the PI scores. An update of the progress against condition milestones related to PI 2.4.2 is provided in Table 12.

3.6 Principle 3

One change since the previous surveillance audit has been the adoption of Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures. This new regulation has been long overdue since the revision of the Common Fisheries Policy (CFP) in 2013 and lays down the technical measures concerning the taking and landing of fisheries resources, as well as the operation of fishing gears and the interaction of fishing activities with marine ecosystems (www.europeansources.info). It aims at enabling achievement of the key objectives of the CFP, including the landing obligation, by facilitating regionalised approaches and by simplifying rules; overall however, there are few changes to fishing practices, particularly for the UoA fleet, which had already been implementing some of the new simplified measures (such as a baseline mesh size of at least 120 mm).

As foreseen during the previous annual surveillance audit (Jones & Honneland 2018), as it was coming into full force in 2019, the Landing Obligation (LO) has posed new challenges for the management of the fishery. In order to harmonise the scores with the recently MSC-certified Joint EU demersal fisheries in the North Sea (Sieben et al. 2019), it has been necessary to rescore PI 3.2.3. A condition is introduced, that concerns both SI 3.2.3a and SI 3.2.3d.

Regarding SI 3.2.3a, although a monitoring, control and surveillance (MCS) system is in place, which is expected to be effective in its ability to enforce relevant management measures, strategies and/or rules, it appears that it has been severely challenged by the LO, which has resulted in continued discards at sea despite the provision of additional landing quota.

This would amount to some systematic non-compliance (SI 3.2.3d) with the LO. The risk and extent of non-compliance in the fishery was discussed at length with representatives of Marine Scotland Compliance during the site visit. Marine Scotland Compliance is presently undertaking a comprehensive analysis of their evidence base regarding demersal fisheries. Until this analysis is available and taking into account the European management system's inability to effectively monitor this measure, the team considered that the evidence base available is currently too weak to assume a different level of compliance in this fishery.

Finally, in preparation for Brexit, Marine Scotland issued a Fisheries Management Policy discussion paper (MS 2019a), that paves the way to a transition from the CFP.

3.6.1 Principle 3 overall conclusion

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

3.7 Traceability

No changes to the systems in place from Jones et al. (2018).

4 Results

4.1 Surveillance results overview

4.1.1 Total Allowable Catch (TAC) and Catch Data

The TAC and catch data for the UoA are shown in Table 7.

Table 7. TAC and Catch Data

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

4.1.2 Summary of conditions

Table 8. Summary of conditions.

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

Condition number	Condition	Performance Indicator (PI)	Status	PI original score	PI revised score
6	Within 4 years show a rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time.	1.1.2	FAIL	80	<60
7	Within 4 years show evidence that the harvest strategy is achieving its objectives.	1.2.1	New	85	75
8	Within 4 years show that the HCRs are robust to the main uncertainties and available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	1.2.2	New		65
9	Within 4 years show that the assessment identifies major sources of uncertainty.	1.2.4	FAIL	100	<60
10	Within 4 years* provide evidence that the MCS-system has demonstrated an ability to enforce relevant the Landing Obligation (LO). It should also be demonstrated that systematic non-compliance does not occur.	3.2.3	NEW	95	65

4.1.3 Recommendations

None

4.2 Conditions

All conditions are non-binding following the suspension of the certificate 24th Oct 2019.

Table 9. Condition 1.

Performance Indicator	2.3.1
Score	65
Justification	From PCR (Sieben et al. 2017): Scoring Issue b (SG80): Known direct effects of the UoA are highly likely to not hinder recovery of ETP species. Starry ray ICES notes that although the species is widespread in the central and northern North Sea, the survey abundance index has been decreasing continuously since the 1990s. ICES advise no targeted fishery and measures to reduce bycatch. The species is almost entirely discarded, and neither total discards nor discard survival can be quantified. Total interactions with this species recorded in the PETS data was 102 individuals (100 dead) in 152 trips. In terms of the regulatory requirements, the species is always discarded (according to ICES, recorded landings in total for the whole area of IIa, IIIa and IV are ~300 kg), but according to the PETS data, individuals are usually dead on arrival on board, or in some cases injured (these have been classified as 'dead' in Table 10), so it is not clear that the requirement to discard promptly has much effect for this species. The team noted that while the average interaction rate was ~2 individuals every 3 trips, in practice interactions are patchy (e.g. 40 of the 100 dead individuals came from one

	tow, all the 2015 interactions came in the period Sept-Dec). The team concluded that since regulatory requirements are being met following ICES advice, direct impacts could be evaluated (qualitatively) as 'unlikely' to hinder recovery (SG60 met). It is at least possible, however, that the fishery could do more, perhaps by evaluating the areas or conditions under which large quantities of the species are caught together, and/or the circumstances in which the individuals are brought on board in good or bad condition – i.e. it was possible to do more to avoid fishing or killing these individuals. On this basis, the team considered that SG80 was not fully met. Common skate ICES evaluates the whole species complex together, although they note that most/all of these in the North Sea are D. intermedia. ICES considers that the species (complex) is depleted, although stock abundance and trends are unknown (survey catch rates are too low to allow an abundance index). ICES advice is the same as for starry ray. The PETS data record the three species separately, and likewise estimate that most of the interactions are with D. intermedia. From the 152 trips observed in 2014 and 2015, interactions were as follows: D. intermedia: 15 alive, 31 dead D. batis: 7 alive, 4 dead D. flossada: 2 alive, 3 dead The team considered that the scoring outcome is the same for this species as for starry ray.
Condition	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 2 and 3) Year 5 – fishery can demonstrate that its impact on common skate and starry ray (IV) is not hindering the recovery of the stock.
Consultation on condition	SFSAG has primary responsibility for implementing this action plan but will provide opportunity for stakeholder input from third parties such as research institutions (e.g. Marine Scotland Science)
Progress on Condition (Year 1)	SFSAG have produced an updated skate and ray handbook and released a SFSAG mitigation strategy document in 2017- 2018. There is evidence of data analysis of skate and ray capture and response in the form of 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.
Progress on Condition (Year 2)	The skates and ray report (appendix 4) details the provisional review of fishery impact on both species. For starry ray: There is no evidence that the North Sea stock is recovering, but it is also unclear that direct fishing effort is the main problem. It is clear that the North Sea ecosystem is changing fast and unpredictably in response to a range of drivers, including fluctuating fishing effort and climate change. A spatial analysis of bycatch suggests that the core area of starry ray population in the northern North Sea is away from the centre of SFSAG fishing effort for both TR1 and

	TR2 vessels – for TR2 vessels in particular the overlap is minimal. Spatial and seasonal analysis do not point to additional management measures that SFSAG could put in place. Because of low and patchy bycatch rates, a long and comprehensive time series is likely required to evaluate whether further management is needed and if so what; this analysis is best carried out via participation of MSS in ICES, with the fishing following ICES recommendations. For common skate: The spatial analysis suggests that bycatch of common skate is not an issue for the North Sea UoCs. For the UoCs covering both NS and WC areas, the centre of effort tends to be more in the North Sea, so for these UoCs also, more effort would be directed in areas where common skate does not occur (although this needs to be verified for individual UoCs). For the west coast, there is no direct information about population trends, although a wider analysis of trends around the UK is tentatively encouraging. There may be Scottish survey data not yet integrated into ICES' analysis which could help with this (unclear at present). The spatial analysis also suggests that common skate is relatively widely distributed around the north and west of Scotland, and is not extirpated in inshore areas in this region (unlike elsewhere in the UK). The data do not suggest any new management measures, and the best approach most likely is to continue to follow ICES recommendations.
Status	On Target
Additional information	UoA suspended condition is non-binding.

Table 10. Condition 2.

Performance Indicator	2.3.2
Score	70
Justification	From PCR (Sieben et al. 2017): Scoring Issue c (SG80): There is an objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved. For the ray species (starry ray and common skate), since the measures are aligned with ICES advice, they can be considered 'likely to work'. The team did not consider, however, that there is currently an objective basis for confidence that they will work. This is problematic, in as much as a reduction in bycatch rates could be attributed either to the measures working, or to a reduction in the population. For starry ray, however, the survey index suggests that the overall situation with the population remains of concern, and ICES state that the common skate species are depleted (although they do not provide data). On this basis, SG80 is not met.
Condition	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 1 and 3. The fishery should put in place within three years a strategy for common skate and starry ray in IV, to ensure that bycatch is not hindering the recovery of the stock.

Milestones	To be implemented alongside Conditions 1 and 3 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.
Consultation on condition	SFSAG has primary responsibility for implementing this action plan but will provide opportunity for stakeholder input from third parties such as research institutions (e.g. Marine Scotland Science)
Progress on Condition (Year 1)	SFSAG have produced an updated skate and ray handbook and released a SFSAG mitigation strategy document in 2017- 2018. There is evidence of data analysis of skate and ray capture and response in the form of the instigation of a voluntary recording programme for TR 1 vessels in Subarea 6b. Requests to Marine Scotland for spatial and temporal analysis of interactions and the convening of a ICES working group to evaluate the stocks of key skate species will be important elements for the fishery to meet the milestone in year 5 of assessing the impact on stock.
Progress on Condition (Year 2)	The skates and ray report (appendix 4) details the provisional review of fishery impact on both species. For starry ray: There is no evidence that the North Sea stock is recovering, but it is also unclear that direct fishing effort is the main problem. It is clear that the North Sea ecosystem is changing fast and unpredictably in response to a range of drivers, including fluctuating fishing effort and climate change. A spatial analysis of bycatch suggests that the core area of starry ray population in the northern North Sea is away from the centre of SFSAG fishing effort for both TR1 and TR2 vessels – for TR2 vessels in particular the overlap is minimal. Spatial and seasonal analysis do not point to additional management measures that SFSAG could put in place. Because of low and patchy bycatch rates, a long and comprehensive time series is likely required to evaluate whether further management is needed and if so what; this analysis is best carried out via participation of MSS in ICES, with the fishing following ICES recommendations. For common skate: The spatial analysis suggests that bycatch of common skate is not an issue for the North Sea UoCs. For the UoCs covering both NS and WC areas, the centre of effort tends to be more in the North Sea, so for these UoCs also, more effort would be directed in areas where common skate does not occur (although this needs to be verified for individual UoCs). For the west coast, there is no direct information about population trends, although a wider analysis of trends around the UK is tentatively encouraging. There may be Scottish survey data not yet integrated into ICES' analysis which could help with this (unclear at present). The spatial analysis also suggests that common skate is relatively widely distributed around the north and west of Scotland and is not extirpated in inshore areas in this region (unlike elsewhere in the UK). The data do not suggest any new management measures, and the best approach most likely is to continue to follow ICES recommendations.
Status	On Target
Additional information	UoA suspended condition is non-binding.

Table 11. Condition 3.

Performance Indicator	2.3.3
Score	70
Justification	From PCR (Sieben et al. 2017): Scoring Issue a (SG80): Some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. Information about interactions with this fishery comes from the PET scheme, which covered 47 trips in 2014, and 105 trips in 2015. It is not possible to scale these data up to provide accurate estimates for the entire fleet, so estimates of mortality of PET species remain qualitative rather than quantitative. In terms of evaluating stock status for these species, spurdog and porbeagle have a quantitative stock assessment, grey seal a periodic survey, starry ray a survey abundance index and the common skate species nothing. For allis shad, the main centre of population is western France where the species is surveyed as it passes river impoundments (fish ladders etc.). Overall, SG60 is met (qualitative estimate of fishery-related mortality from PET data). SG80 is met for spurdog, porbeagle, grey seal and allis shad since the overall status or trend in stock status can be evaluated quantitatively, and mortality rates from the PET trips are low enough to be able to infer with confidence that the impact of the fleet on the population is ~negligible. For common skate, SG60 is not met because of a lack of population-level data, while for starry ray, SG80 is not met because the impact of the fleet may be non-neglible, and cannot be assessed quantitatively, because the PET data cannot be scaled up to fleet level. SG100 is not met for any species, because the PET data cannot be scaled up to the whole fleet.
Condition	There needs to be sufficient information available such that the impact of this fishery on common skate and starry ray can be quantitatively estimated, and hence it can be determined whether the fishery may be a threat to the recovery of the starry ray population and the common skate complex. This requires, as a minimum, a fleet-wide estimate of bycatch of starry ray and common skate, as well as some basis by which population-level trends can be evaluated for common skate (noting that ICES considers that existing data are insufficient for this purpose).
Milestones	To be implemented alongside Conditions 1 and 2 Year 1 – Assessment of data gaps, data collection strategy Year 2 – Start of data collection Years 3 and on – Ongoing data collection, data analysis Initiate discussion with other organisations e.g. Seafish, with a view to identifying the most appropriate project management method. Distribute identification cards and user manuals.
Consultation on condition	SFSAG has primary responsibility for implementing this action plan but will provide opportunity for stakeholder input from third parties such as research institutions (e.g. Marine Scotland Science)
Progress on Condition (Year 1)	SFSAG have produced an updated skate and ray handbook and released a SFSAG mitigation strategy document in 2017- 2018. There is evidence of data analysis of skate and ray capture and response in the form of the instigation of a voluntary recording programme for TR 1 vessels in Subarea 6b. Requests to Marine Scotland for spatial and temporal analysis of interactions and the convening of a ICES working group to evaluate the stocks of key skate species will be important elements for the fishery to meet the milestone in year 5 of assessing the impact on stock.
Progress on Condition (Year 2)	The skates and ray report (appendix 4) details the provisional review of fishery impact on both species.

	Data on skate bycatch has now been collected by MSS since 2014, under the PETS programme and also as part of their general bycatch sampling by observers. In 2019, there were therefore 5 full years of data available, and MSS felt for the first time that it might be appropriate to attempt some wider analysis of these data in relation to skates. The analysis (summarised above) has not revealed any clear management options which are not already in place. It also shows that MSS was correct in their caution about drawing interpretations from these data too early, since when data are broken down by vessel size, gear type or time period, sample sizes in some categories remain low resulting in very wide error bars. Although increasing observer coverage is a challenge with the resources available, the problem is not only scientific effort but also the extremely patchy distribution of bycatch in space and time, which results in a low signal to noise ratio and low statistical power. Based on feasible levels of sampling, it will be a longer timeframe than an MSC assessment cycle before these data can be used for management of skates in a way that is sufficiently useful to rival the long time series now available from surveys.
Status	On Target
Additional information	UoA suspended condition is non-binding.

Table 12. Condition 4.

Performance Indicator	2.4.2
Score	75
Justification	From Jones & Honneland (2018): The management requirements are not yet in place; there is thus nothing formal for the UoA to comply with as yet. Other SFSAG fisheries are certified (saithe, haddock) but these are essentially the same mixed fishery, hence there are no additional requirements coming from this source. Likewise, other MSC-certified fisheries operate in the same area under the same regulatory framework; there are no additional requirements in place for these fleets which are not in place for the Scottish fleet. Looking at compliance more widely, there are areas outside the North Sea which are closed to fishing for habitat protection (e.g. Darwin mounds), as well as areas of the North Sea which are closed for other reasons (e.g. high densities of juvenile cod), whether temporarily or quasi-permanently. These closures are well-enforced by VMS ('quantitative evidence') and widely respected by this fleet and others. There is thus no reason to suppose that closures or other management measures put in place under the NCMPA system would not be complied with. Given the issues in 1st year of the certification program with the implementation of the SFSAG voluntary closure of the Fladen ground evidence of compliance of the fleet with the voluntary code is limited to May 2018 only. Analysis of compliance during this time showed that three vessels entered the area and SFSAG responded by contacting the vessel owners and POs responsible using the method outlines in the SFSAG Fladen Ground Process and communications to vessels (Appendix 5). The assessment team considered this sufficient evidence of compliance with the management requirements to meet SG60, but due to the limited time frame of the operation and the lack of active management in year 1 SG80 is not met.
Condition	The fishery needs to provide quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs.
Milestones	Year 2: Establish a data log of incidences of non-compliance with the SFSAG voluntary closed area in the Fladen ground and for each incident provide evidence of this being

	handled through the SFSAG process associated with this closure (SFSAG Fladen Ground Process and communications to vessels) (Score: 75). Year 3: Provide annual summaries from the years 2 and 3 years of the fishery showing all reports of where non-compliance with the closed area occurred and how it was handled through the closure process. (Score: 80)
Consultation on condition	SFSAG has primary responsibility for implementing this action plan but have an agreement with Marine Scotland compliance to monitor this geo-fence and report annually on it. (Jones & Honneland 2018)
Progress on Condition Year 2	Prior to the audit the assessment team were presented with evidence from Marine Scotland (David Currie) of the weekly report sent to client as part of the agreement on the voluntary exclusion zone set up for the protection of burrowed mud VMEs (seapens) in the area. In total for the period Friday 9th November 2018 and Sunday 27th October 2019, 99 % of weekly reports were evident. During that period there were 55 reported VMS events (from 34 vessels) consistent with vessels travelling at trawling speed in the voluntary exclusion zone. At the site visit the audit team questioned the client on these occurrences and the following information was provided. For a sample of these events the client showed records of the client group making contact with the skipper /PO of the vessel as per the requirement in the code of conduct related to this closure (Jones & Honneland 2018). As per the code of conduct, single transgressions are dealt with by letter and a warning that repeat offences will result in removal from the MSC vessel list. The client group reported that after repeated offences one of the vessels had been suspended from the scheme. As part of the scheme the client has found that vessel skippers are in need of a right of reply and chance to provide evidence to the reported event. In addition, the client group points that there has been a rise of incursions present in the data set since the announcement to suspend the fishery. With the ultimate sanction from the scheme exclusion from the certificate and the need for right to reply, the client group is revaluating the terms of the code of conduct.
Status	On target
Additional information	UoA suspended condition is non-binding.

Table 13. Condition 5.

Performance Indicator	1.1.1
Score	60
Justification	From Jones & Honneland (2018): Scoring issue a (SG80): It is highly likely that the stock is above the PRI. The 95 % confidence interval for the SSB in 2018 is estimated to be 90,333 – 155,154 tonnes (ICES 2108). Assuming a lognormal distribution, the probability that the current SSB (118,387) exceeds Blim of 107,000 is 0.77 (77 %) which meets SG60. Inspection of the stock-recruitment data for the years ICES uses for MSY calculations (1988 onwards) suggests the lower bound of the current SSB estimate (90,333t) is above biomass values when recruitment is lowest (Figure 3). For this stock Blim is defined on the most recent biomass that produced above average recruitment (in 1996) rather than the point of impaired recruitment. Recent recruitment in this stock has typically been lower than historical values and it is possible that the productivity of the stock has declined in response to environmental change. There is evidence, for example, that recruitment in cod declines with increasing temperature (Cook and Heath, 2005, Beaugrand et al 2003, O'Brien et al 2000). Hence there is some doubt about the current definition of the PRI. Notwithstanding this, the assessment team took the precautionary approach and treated Blim to be a proxy for PRI. On this precautionary basis it cannot be considered that the stock is highly likely to be above Blim (as proxy for PRI) (> 80 % probability) and SG80 is not met. Note: scoring issue b also scored less than 80; however, for this scoring issue, PI 1.1.2 was triggered.
Condition	Within 4 years provide evidence that it is highly likely that the stock is above the point at which recruitment would be impaired (PRI)[1]. [1] This deadline is after the end of the current period of certification (17 Jul 2022). CU Pesca consider that attaining the SG80 standard will take at least 4 years. This time period is consistent with that set for the other fisheries this certificate is being harmonised with. This situation therefore meets the "exceptional circumstances" anticipated in FCRv2.0 at 7.11.1.3.a.i
Milestones	Year 1: Not applicable as this condition is raised after that surveillance Year 2: Evidence that the client is working with ICES, the relevant national authorities, and the EU on identifying measures required to rebuild the stock to a level that is highly likely to be above the PRI. Score: 60 Year 3: Evidence that the measures are being developed. Score 60. Year 4: Evidence that the measures have been implemented and that the stock is rebuilding to a level that is highly likely to be above the PRI. Score SG60 at end of certificate Year 1 of reassessment: Evidence that the stock has rebuilt to a level that is highly likely to be above the PRI. Score: 80.
Consultation on condition	The clients will continue to liaise with scientists at Marine Scotland and within the wider ICES community through the North Sea Advisory Council (NSAC) (and other fora) where they can lobby effectively without needing input from third parties. (Jones & Honneland 2018)

Progress on Condition (expedited audit 2019)	As per Scoring table 1. PI 1.1.1 – Stock status from (Jones & Cook 2019) the stock status has declined below PRI and therefore the fishery no longer meets SG60. Fishery is suspended
Progress on Condition Year 2	As per expedited audit 2019 above
Status	UoA suspended condition is non-binding.

Table 14. Condition 6.

Performance Indicator	1.1.2
Score	<60
Justification	SIa Article 2 of the reformed EU Regulation on the Common Fisheries Policy states that stocks, including North Sea cod, must be restored and maintained above biomass levels capable of producing maximum sustainable yield at the latest by 2020. The stock was subject to a recovery plan set out in EU 2008. This aimed to reduce F to 0.4 and achieve a minimum SSB of 150,000 tonnes. The 2017 ICES assessment indicated that rebuilding targets had been achieved with point estimates of SSB = 167,711 tonnes and F = 0.35. As a consequence, some of the controls in the recovery plan were abandoned, notably effort controls. However, the 2018 assessment revised the SSB downward to 118,387t and F upward to 0.44. The 2019 assessment shows the stock is now declining with F increasing to twice the F_{MSY} value and restoration of the stock to MSY is not possible by 2020. Further as no additional rebuilding time frame has been agreed SG60 is not met. SIb Annual assessments are carried out to evaluate stock status and the effects of management interventions and these have the capacity to show whether any rebuilding targets are met, hence SG60 is met. However, the most recent ICES assessment indicates that although the stock rebuilt above B_{lim} from the lowest value in 2006 the current stock trajectory is downward with SSB below B_{lim}. F has increased above F_{MSY} and hence there is evidence that the stock is not rebuilding and SG80 is not met.
Condition	Within 4 years show a rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time.
Milestones	Year 1 (Dec. 2020) - Key stakeholders to have agreed and implemented a reduction in the TAC consistent with scientific advice, and discussions on other measures to protect the stock are underway. Client to report back to CAB the outcome at next surveillance Score <60 Year 2 (Dec. 2021) - Additional measures to protect the stock are agreed and implemented. Stock assessment is benchmarked and rebuilding projections under different scenarios are available (see Action 3). Client to report back to CAB the outcome at next surveillance Score 60 -80 Year 3 (Dec. 2022) - Decisions on the TAC and other measures are consistent with scientific advice on rebuilding to MSY within the required timeframe. Client to report back to CAB the outcome at next surveillance Score 60 -80 Year 4 (Dec. 2023 - Decisions are taken following the agreed long-term management plan (see Conditions below). Client to report back to CAB the outcome at next surveillance Score 60 -80
Consultation on condition	See corrective action plan 4.3.1

Progress on Condition (expedited audit 2019)	N/A fishery suspended
Progress on Condition (Year 2)	N/A fishery suspended
Status	UoA suspended condition is non-binding.

Table 15. Condition 7.

Performance Indicator	1.2.1
Score	75
Justification	SIa MSC defines a harvest strategy as 'the combination of monitoring, stock assessment, harvest control rules and management actions, which may include an Management Plan (MP) or an MP (implicit) and be tested by MSE' (MSC – MSCI Vocabulary v1.1). Until recently the harvest strategy was intended to recover the stock above B_{pa}. Currently, the strategy is to harvest the stock in a manner consistent with MSY. This is achieved through a variety of management tools that include TACs, minimum mesh size regulations, restrictions on discarding (the EU landing obligation) and measures to limit fleet capacity through licensing systems. The EU–Norway management strategy was updated in December 2008. The EU has adopted a long-term plan with the same aims (EU management plan 2008). ICES evaluated the EU–Norway management strategy in 2009 and concluded that it was in accordance with the precautionary approach if implemented and enforced adequately. The strategy responds to stock status by reducing fishing mortality in proportion to the size of the SSB when it falls below B_{pa}. The management strategy was considered by ICES to switch from the recovery phase to the long-term phase in 2013. Changes to the stock assessment and reference points in 2015 and 2017 imply a need to re-evaluate the management strategy to ascertain if it can still be considered precautionary under the new stock perception. An EU multiannual management plan (MAP) has been proposed for this stock (EC 2016). This plan is not adopted by Norway, thus, not used as the basis of the advice for this shared stock. ICES was requested by the EC to provide advice based on the MSY approach and to include the MAP as a catch option. There is no agreed management plan between the EU and Norway and the stock is below B_{lim}. The 2019 ICES advice for 2020 implies the stock would recover to B_{lim} by 2021 and follows the MSY HCR. The advised catch limit corresponds to a reduction of F below F_{MSY}. Thus the harvest strategy can be considered responsive to the state of the stock and expected to achieve management objectives provided the advised catch is followed. However, The TAC for 2019 was set above the ICES advice that corresponds to the HCR and as there is no agreed management for 2020, hence the elements of the HS can not be considered to work together to achieve the objectives and SG80 is not met. SIb ICES assessments prior to 2018 have shown a long-term decline in F and increase SSB since 2006 which suggest the perceived improvement is robust to analytical error and that management measures were effective until recently (2018), hence SG60 is met. The most recent assessment indicates that management targets articulated in the 2008 recovery plan have yet to be reached and that the stock is now in decline with F increasing. This indicates recent management has not been effective and SG80 is not met. The harvest strategy has not been fully evaluated in the light of changes to reference points which means SG100 is not met.

Condition	Within 4 years show evidence that the harvest strategy is achieving its objectives.
Milestones	Year 1 No milestones – see conditions 1.1.1 and 1.1.2 milestones. Client to report back to CAB the outcome of those mielstones. Score 60-80 Year 2 Improved stock assessment available, projections show rebuilding time under difference scenarios. Client to report back to CAB the outcome at next surveillance Score 60-80. Year 3 Long-term management plan agreed which provides for stock rebuilding to the MSY level within a maximum of 14 years. Client to report back to CAB the outcome at next surveillance Score 60-80. Year 4 Tools in place to implement long-term plan; data or projections show they are able to achieve the intended exploitation rates. Client to report back to CAB the outcome at next surveillance Score 80.
Consultation on condition	See corrective action plan 4.3.1
Progress on Condition (expedited audit 2019)	N/A fishery suspended
Progress on Condition (Year 2)	N/A fishery suspended
Status	UoA suspended condition is non-binding.

Table 16. Condition 8.

Performance Indicator	1.2.2
Score	60
Justification	SIa - The current HCR used by ICES for advice is in place and has been used in EU -NOR meetings for setting exploitation rate. When the biomass falls below B_{pa} the fishing mortality is reduced in proportion to the biomass. The HCR has been evaluated by ICES and is considered to be consistent with the precautionary approach. Recent ICES assessments have shown recovery toward the desired minimum biomass when applying the rule as F reduced and biomass increased, so SG60 is met. The 2019 assessment estimates a recent decline in SSB and increase in F which has resulted in the ICES advice to reduce F below F_{MSY}. In 2018 the stock advice recommended a lower TAC but the HCR was not fully implemented so the rule is no longer considered well-defined and SG80 is not met. Changes to the stock assessment in 2018 and reference points in 2015 and 2017 imply a need to re-evaluate the management strategy to ascertain if it can still be considered precautionary under the new stock perception. Hence SG100 is not met. SIb HCRs have been evaluated considering uncertainties in the observations, stock assessments and implementation error and were thought to be robust. However, significant changes to the assessments in recent years have demonstrated that assessment uncertainty is not adequately accounted for and therefore the HCRs cannot be robust to these and SG80 is not met. The ecological role of the stock is not considered in these evaluations and hence SG100 is not met. SIc The two main tools for implementing the HCR are Total Allowable Catches (TACs) and effort control measures. These are set according to ICES advice based on annual assessments. Fishing mortality as estimated from ICES assessments up to 2018, e.g. ICES

	(2019a), shows a long term decline towards the target fishing mortality which suggests these measures may contribute to controlling exploitation. In many countries decommissioning schemes have also reduced fleet size and are likely to be an important factor in reducing exploitation rate, hence SG60 is met. The most recent TAC setting (2018) shows a HCR that was not fully implemented and the 2019 stock assessment estimates an increase in F despite the application of the HCR tools thus indicates that the current measures in use have not been fully effective and SG80 is not met.
Condition	Within 4 years show that the HCRs are robust to the main uncertainties and available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.
Milestones	Year 1 (Dec. 2020) - Key stakeholders to have agreed and implemented a reduction in the TAC consistent with scientific advice, and discussions on other measures to protect the stock are underway. Client to report back to CAB the outcome at next surveillance Score <60 Year 2 (Dec. 2021) - Additional measures to protect the stock are agreed and implemented. Stock assessment is benchmarked and rebuilding projections under different scenarios are available (see Action 3). Client to report back to CAB the outcome at next surveillance Score 60 -80 Year 3 (Dec. 2022) - Decisions on the TAC and other measures are consistent with scientific advice on rebuilding to MSY within the required timeframe. Client to report back to CAB the outcome at next surveillance Score 60 -80 Year 4 (Dec. 2023 - Decisions are taken following the agreed long-term management plan (see Conditions below). Client to report back to CAB the outcome at next surveillance Score 60 -80
Consultation on condition	See corrective action plan 4.3.1
Progress on Condition (expedited audit 2019)	N/A fishery suspended
Progress on Condition (Year 2)	N/A fishery suspended
Status	UoA suspended condition is non-binding.

Table 17. Condition 9.

Performance Indicator	1.2.4
Score	<60
Justification	SIc The assessment uses a state-space age structured model (SAM) that estimates both measurement and process error. These errors are taken into account in evaluating status in relation to reference points. The reference points themselves take into account estimation error, process error and structural uncertainty in the stock recruitment relationship. However, the assessment shows consistent retrospective bias which has not been taken into account. Successive assessments show repeated upward revision in F and downward revision in SSB and is a major source of uncertainty that is not taken into account. SG60 is not met.
Condition	Within 4 years show that the assessment identifies major sources of uncertainty.
Milestones	Year 1 Planning / data preparation meeting to be held and reported back to CAB at surveillance. Score <60

	Year 2 Benchmarking completed, retrospective bias eliminated / improved, reference points re-estimated. Reported back to CAB at surveillance. Score 60-80 Year 3 Proposed long-term management plan evaluated for consistency with precautionary approach. Score 80.
Consultation on condition	N/A fishery suspended
Progress on Condition (expedited audit 2019)	N/A fishery suspended
Progress on Condition (Year 2)	N/A fishery suspended
Status	UoA suspended condition is non-binding.

Table 18. Condition 10. NEW at this audit

Performance Indicator	**PI 3.2.3 Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.**
Score	65
Rationale	Scoring issue 3.2.3a (SG80) A monitoring, control and surveillance **system** has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules. Evaluation Table for PI 3.2.3 – Compliance and enforcement for the full rationale. An extract is provided below: A monitoring, control and surveillance system has been implemented in the fishery. However, it cannot be concluded that the system has demonstrated a ability to enforce relevant management measures, strategies and rules. With the introduction of the LO, it can no longer be concluded that the enforcement system is sufficiently comprehensive for the context of the fishery. The implementation of the LO poses a major challenge to the control authorities of the member states. The team therefore concludes that SG80 is not met. Given that monitoring, control and surveillance systems exist, that they are implemented in the fishery and there is a reasonable expectation that they are effective, the team has agreed on SG60. Scoring issue 3.2.3c (SG80) **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. The fishery has in place a system for monitoring, control and surveillance, including physical checks of fishing operations, catch and gear, as well as a sanctioning system. While the enforcement system as a whole is considered to be somewhat comprehensive, the prioritization of landing control comes at the expense of at-sea inspections. Not only is the number of at-sea inspections considerably lower than the number of landing controls; anecdotal evidence from the site visit also suggests that the at-sea inspections are less thorough. Specifically, with regards to the implementation of the Landing Obligation there is concern about ongoing non-compliance, although the assessment team could find no evidence that this is indeed the case. Taking into account the management system's inability to effectively monitor this measure, the team considered that the evidence base available is currently too weak for SG80 to be met. Therefore, the team concludes that only SG60 is met. Scoring issue 3.2.3d (SG80) There is no evidence of systematic non-compliance. The intent behind the phrase 'no evidence of systematic non-compliance' is that there is simultaneously adequate evidence to assess the compliance of the fishery and no evidence of infringements that occur regularly (MSC interpretations log). Although the team would like to point out that the issues with the Landing Obligation to date are indicate a high or very high risk of widespread systemic non-compliance with the LO, there is no concrete evidence so far that there is in fact widespread systemic non-compliance with the LO. However, given a precautionary outlook, we have concluded that this guidepost is not met.

Performance Indicator	PI 3.2.3 Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.
Condition	Evidence should be provided that the MCS system has demonstrated an ability to enforce relevant management measures, strategies and rules, key among which is the Landing Obligation (LO). It should also be evident that fishers comply with the management system under assessment, by providing information of importance to the effective management of the fishery and compliance with the LO, thereby demonstrating that systematic non-compliance does not occur. * *This deadline is after the end of the current period of certification (2022). CU Pesca consider that attaining the SG80 standard will take at least 4 years. This time period is consistent with that set for the other fisheries this certificate is being harmonised with. This situation therefore meets the "exceptional circumstances" anticipated in FCP v2.1 at 7.18.1.5b.i 7.11.1.3.a.i
Milestones	Year 3: The client group must present a detailed plan to: 1) Demonstrate that the monitoring, control and surveillance mechanisms work together to enforce relevant management measures, strategies and/or rules, key amongst which is the LO; 2) Provide evidence that the relevant management measures, strategies and/or rules (key amongst which is the LO) are complied with, or if necessary, that compliance with will be improved within the certification period. Though the plan will likely be developed in collaboration with national authorities, it does not need to rely on the national authorities for implementation. The client should nevertheless detail how they will engage with their respective authorities on implementation and improvement of the monitoring, control and surveillance mechanisms pertaining to the LO. (**Score: 70**). Year 4: The client group has implemented the plan and analysed the data for a meaningful segment of the fleet collected, demonstrating both compliance and the MCS system's ability to enforce measures, strategies and/or rules (key amongst which is the LO). Each client will provide evidence from national authorities of monitoring, control and surveillance mechanisms, particularly with a focus on the implementation of the LO, and provide evidence of discussions on approaches to implementation and improvement of the MCS mechanisms pertaining to the LO (**Score: 75**). Year 1 (reassessment): The client group has implemented the plan for a significant portion of the fleet and analysed the data collected. Each client will provide evidence from national authorities of monitoring, control and surveillance mechanisms, particularly with a focus on the implementation of the LO, and provide evidence of discussions on approaches to on implementation and improvement of the MCS mechanisms pertaining to the LO. Where compliance has been deemed inadequate previously, the fleet has shown improved compliance with the LO. (**Score: 75**). Year 2 (reassessment): At the surveillance audit, the client group has implemented the plan fully and is judged to be compliant with the requirements of the LO, based on implementation of the plan and evidence from national authorities of monitoring, control and surveillance mechanisms. (**Score: 80**).
Client action plan	Years here represent years from 2019 onwards. Year 1: The client will present a plan describing how the relevant MCS mechanisms work together to enforce relevant management measures, strategies and/or rules, particularly with a focus on the LO. We will work actively with Marine Scotland and DEFRA and will provide evidence of these activities and meetings at yearly audits to show progress. Further to this the client will seek to ensure a party from either MS or DEFRA can be available (either in person or remotely), so the audit team can raise any specific concerns and be assured that the MCS mechanisms are working together to enforce the LO. Further to national discussions, we will continue to work with the NSAC, and, through it, the Scheveningen Group. Any discussions on MCS and the LO in these forums will also be presented at the audit. The client will provide evidence of compliance with the relevant management measures, strategies and/or rules and improvements, if relevant, throughout the certification period. The

Performance Indicator	PI 3.2.3 Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.
	clients will seek to provide an overview on the number of infringements and sanctions of the LO from the Unit of Certification. Further to this, the clients will include any general national control reports from authorities and explore methods to further show the extent of (non)compliance. Independent observers and REM are already used within the fishery, and, if possible and relevant, we will report on any indications of lack of compliance that these provide. The client will investigate the feasibility of the use of logged discards to illustrate compliance and report on this in, the plan. Furthermore, current and planned projects on monitoring and reducing discards in general will be explored and reported upon, for example: any relevant gear development projects and/or measures; charging a dedicated discard consultant with gathering data or helping fishermen with ways to reduce unwanted bycatch and discards (for example GITAG, The Discard Action Group, FMAC and the LO Forum)review the progress and results from the REM fleet. All of these considerations for the different methods will be reviewed and presented in the information put forward by the clients. Further to this, the plan will include a specific section on measures taken, should any general non-compliance for the LO be detected for a member vessel. One approach to be considered is reviewing and amending the client Code of Conduct and including a sanction annex in relation to serious infringements. SFSAG already have Codes in place for example relating to the Fladens area and further Codes could be considered. Year 2: As for year 1, the client will describe how MCS mechanisms work together to enforce the LO, and we will work actively with Marine Scotland and DEFRA and provide evidence of these activities and meetings at yearly audits to show progress. As described in year 1, the clients will seek to ensure participation from Marine Scotland at the annual audit. We will also continue to discuss the MCS of the LO in international fora. At the audit, the client will show progress of the plan as described in year 1, detailing how these data have been obtained and analysed. Both through cooperation with the authorities, and the data analysis, we will demonstrate both compliance and the MCS system's ability to enforce measures, strategies and/or rules Year 3: As for the previous years, the client will describe how MCS mechanisms work together to enforce the LO, and we will work actively with Marine Scotland and DEFRA and provide evidence of these activities and meetings at yearly audits to show progress. As described in year 1, the clients will seek to ensure participation from Marine Scotland at the annual audit. We will also continue to discuss the MCS of the LO in international fora. If compliance has been deemed inadequate previously, the fleet will show improved compliance with the LO and reporting on any necessary measures by the organisations within the client group themselves and/or further discussions with authorities will be given. Year 4: As for the previous years, the client will describe how MCS mechanisms work together to enforce the LO, and we will work actively with Marine Scotland and DEFRA and provide evidence of these activities and meetings at yearly audits to show progress. As described in year 1, the clients will seek to ensure participation from Marine Scotland at the annual audit. We will also continue to discuss the MCS of the LO in international fora. At the audit, the clients will describe how the actions described in year 1 have been implemented and how the clients are judged to be compliant with the requirements of the LO. Both through cooperation with the authorities, and data analysis, we will be demonstrating both compliance and the MCS system's ability to enforce measures, strategies and/or rules of the LO. To this end, the client will provide evidence from Marine Scotland of MCS mechanisms, particularly with a focus on the implementation of the LO. If compliance has been deemed inadequate previously, the fleet will show improved compliance with the LO and reporting on any necessary measures by

Performance Indicator	PI 3.2.3 Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.
	the organisations within the client group themselves and/or further discussions with authorities to ensure that any general non(compliance) is not within the Units of Certification.
Consultation on condition	**From:** Elaine.Douse@gov.scot <Elaine.Douse@gov.scot> on behalf of Allan.Gibb@gov.scot <Allan.Gibb@gov.scot> **Sent:** Wednesday, January 22, 2020 2:49:22 PM **To:** Mike Park <mike@swfpa.com> **Cc:** Allan.Gibb@gov.scot <Allan.Gibb@gov.scot> **Subject:** Scottish industry action plan - North Sea Cod and Whiting Mike This email is by way of confirmation that Marine Scotland, is fully supportive of all efforts being made around ensuring sustainable catch levels for North Sea cod and whiting. We are happy to work with industry and support this initiative as closely as we can to aid in successful delivery of objectives. Regards Allan Gibb Head of Sea Fisheries Division marine scotland: Fisheries Policy Scottish Government 1B (South) Mail Point 2 Victoria Quay. Edinburgh, EH6 6QQ Tel : 0044 (0)131 244 4981 Fax: 0044 (0)131 244 6474 Mobile: 0044 (0)7920477514 Email : Allan.Gibb@gov.scot gov.scot
Additional information	NOTE: this condition formed part of the FIP for North sea Cod and whiting hence the reference provided by Allan Gibb above.

4.3 Client action plan

As per GCR 7.4.3e - The client provided a documented corrective action plan for addressing the cause of suspension, which was acceptable to the CAB as being able to address the cause(s) for suspension, and this was published on the MSC website. This corrective action plan relates to PIs 1.1.1, 1.1.2 and 1.2.4. A letter of support is also provided below.

The client action plan for the new condition 10 on PI 3.2.3 is included in Table 18 above.

4.3.1 FIP Action Plan for NS cod

Action #	ACTION 1 – Rebuild the cod stock above the PRI
Stock	North Sea cod
MSC PI	1.1.1a – The stock has a low probability of recruitment overfishing

	1.1.2 – Where the stock is reduced, there is evidence of rebuilding within a specified timeframe
IPG (FIP objectives):	• An interim rebuilding timeframe for North Sea cod is specified which brings the stock above the PRI in the shortest feasible timeframe. • Evidence such as stock assessment projections suggest that the agreed harvest strategy will be able to rebuild the stock within the rebuilding timeframe.
Background and notes:	• Action 1 focuses on short-term emergency action to recover the stock above the PRI, before the stock assessment is benchmarked (which has a fixed timetable). Action 2 below focuses on putting in place a robust harvest strategy in the longer term to maintain the stock at a level consistent with MSY. • Milestones are consistent with ICES' timetable for benchmarking of the North Sea cod stock assessment (i.e. data preparation late 2020, benchmarking early 2021). • For Action 1, the rebuilding timeframe refers to short-term rebuilding to the PRI (Blim) and hence it is an interim rebuilding timeframe.
Priority	high
Milestones:	
Year 1 (Dec. 2020)	Key stakeholders (EU, Norway, UK if not EU) have agreed and implemented a reduction in the TAC consistent with scientific advice, and discussions on other measures to protect the stock are underway.
Year 2 (Dec. 2021)	Additional measures to protect the stock are agreed and implemented (e.g. time/area closures, selectivity measures or other). Stock assessment is benchmarked and rebuilding projections under different scenarios are available (see Action 3).
Year 3 (Dec. 2022)	Decisions on the TAC and other measures are consistent with scientific advice on rebuilding to MSY within the required timeframe.
Year 4 (Dec. 2023)	Decisions are taken following the agreed long-term management plan (see Action 2).

Actions and sub-actions		**Lead organisation**	**Other organisations involved**	**End date**
1.1	Work with European and UK partners to influence EU/Norway decision-making on TAC for 2020			
1.1.1	Work with Marine Scotland and DEFRA to provide input into the Scheveningen Group submission to the Commission on the 2020 TAC.	Marine Scotland / DEFRA	SFSAG member organisations	31 Dec. 2019
1.1.2	Work with industry partners in Europe to put forward a joint proposal on the TAC for 2020.	SFSAG members	European cross-industry cod group	31 Dec. 2019
1.1.3	Work with Scottish stakeholders to put forward a joint proposal on the TAC for	FMAC	Marine Scotland / DEFRA	31 Dec. 2019

	2020, based on projections provided by MSS.			
1.2	Work with European and UK partners to agree additional measures for 2020			
1.2.1	Evaluate options for additional measures with SFSAG members (e.g. seasonal closures, juvenile closures, RTCs, move-on rules, identification of sensitive areas, selectivity measures, other as appropriate), considering effectiveness and enforceability	SFSAG	SFSAG member organisations, Marine Scotland	Feb. 2020
1.2.2	Work with Scottish stakeholders to put forward joint proposals for options on additional measures (as above).	FMAC	Marine Scotland / DEFRA	Feb. 2020
1.2.3	Work with industry partners in Europe to put forward a joint proposal on additional measures for 2020.	SFSAG members	European cross-industry cod group	March 2020
1.2.4	Work with Marine Scotland and DEFRA to provide input into the Schveningen Group submission to the Commission on additional measures for 2020.	Marine Scotland / DEFRA	SFSAG member organisations	March 2020
1.3	Work with European and UK partners to ensure that an appropriate interim rebuilding timeframe to bring stock above Blim / PRI is agreed			
1.3.1	Work with Marine Scotland and DEFRA to provide input to the Scheveningen Group on interim rebuilding target (interim because prior to benchmarking of stock assessment and because objective is PRI not MSY).	Marine Scotland / DEFRA	SFSAG member organisations	31 Jan. 2020
1.3.2	Work with EU industry partners to put forward a joint submission to the Commission on interim rebuilding target.	SFSAG members	European cross-industry cod group	31 Jan. 2020
1.3.3	Work with Scottish stakeholders to put forward a joint proposal on interim rebuilding target, based on projections provided by MSS.	FMAC	Marine Scotland / DEFRA	31 Jan. 2020
1.4	Work with European and UK partners to agree TAC and additional measures for 2021 consistent with the interim rebuilding target			
1.4.1	Work with Marine Scotland and DEFRA to provide input into the Scheveningen Group submission to the Commission on the 2021 TAC and additional measures, as in 1.1.1 and 1.2.4 above.	SFSAG, FMAC, Marine Scotland, DEFRA	EU cross-industry cod group, other industry partners, NGOs	Y2 Q1

1.4.2	Work with industry partners in Europe to put forward a joint proposal on the TAC and additional measures for 2021, as in 1.1.2 and 1.2.3 above.	SFSAG members	European cross-industry cod group	Y2 Q1
1.4.3	Work with Scottish stakeholders and DEFRA to put forward a joint proposal on the TAC and additional measures for 2021, based on projections provided by MSS.	Marine Scotland, DEFRA	SFSAG member organisations	Y2 Q1
1.5	Evaluate based on the revised stock assessment whether the agreed TAC and additional measures are sufficient to rebuild the stock above the PRI; if not, put forward proposals for further short-term action			
1.5.1	Evaluate based on revised stock assessment and projections whether the TACs and additional measures to date are consistent with the agreed rebuilding target	MSS	SFSAG, FMAC, Marine Scotland	Y2 Q2 or when stock assessment available
1.5.2	Repeat process in 1.4 as required for 2022, depending on process with long-term management plan (Action 2 below), ensuring that TACs and additional measures are consistent with the agreed rebuilding target under the new stock assessment and projections	SFSAG, FMAC, Marine Scotland, DEFRA	EU cross-industry cod group, other industry partners, MSS, NGOs	Y3 Q1

Action #	**ACTION 2 – Long-term management plan for North Sea cod**
Stock	North Sea cod
MSC PI	1.1.1b – The stock is at a level which maintains high productivity 1.1.2 – Where the stock is reduced, there is evidence of rebuilding within a specified timeframe 1.2.1 – There is a robust and precautionary harvest strategy in place 1.2.2 – There are well defined and effective harvest control rules (HCRs) in place
IPG (FIP objectives):	• A rebuilding timeframe for North Sea cod is specified which rebuilds the stock to a level consistent with MSY within a maximum of 14 years. • A harvest strategy is in place in which the elements work together to achieve management goals (consistent with MSY). • Evidence suggests that the strategy is achieving or able to achieve these management goals. • There is a well-defined HCR in place which is implemented in full. • The HCR has been evaluated with respect to uncertainty and found to be robust. • The tools used to implement the HCR are able to achieve the intended exploitation rates.
Background and notes:	• Action 1 above addresses the short-term requirements to rebuild the stock above the PRI. Action 2 addresses the broader long-term harvest strategy. This division is required because a long-term harvest strategy requires

	benchmarking of the stock assessment (see Action 3), which is not due to take place until 2021. Since this is a pre-requisite for Action 2, there are no milestones in Year 1. • MSC does not require a formal management plan (i.e. a document called 'plan') – an agreed management approach such as the MSY approach is also consistent with MSC requirements. • For Action 2, the rebuilding timeframe refers to rebuilding to a level consistent with MSY (above Btrigger), consistent with MSC requirements as specified in PI 1.1.2.
Priority	high
Milestones:	
Year 1	No milestones – see Action 1 and Action 3
Year 2	Improved stock assessment available, projections show rebuilding time under difference scenarios
Year 3	Long-term management plan agreed which provides for stock rebuilding to the MSY level within a maximum of 14 years
Year 4	Tools in place to implement long-term plan; data or projections show they are able to achieve the intended exploitation rates

Activities and sub-activities		**Lead organisation**	**Other organisations involved**	**End date**
2.1	Work with European and UK partners to agree an appropriate rebuilding timeframe to bring stock to a level consistent with MSY			
2.1.1	Work with MSS to evaluate timeframes of rebuilding to above Btrigger under different management scenarios, to inform decision-making about long-term stock rebuilding	MSS	SFSAG, Marine Scotland, ICES	Y2 Q2
2.1.2	Work with Marine Scotland and DEFRA to provide input to the Scheveningen Group on a rebuilding timeframe to MSY (above Btrigger), consistent with MSC requirements.	Marine Scotland / DEFRA	SFSAG member organisations	Y2 Q3
2.1.3	Work with EU industry partners to put forward a joint submission to the Commission on the rebuilding timeframe.	SFSAG members	European cross-industry cod group	Y2 Q3
2.1.4	Work with Scottish stakeholders to put forward a joint proposal on the rebuilding timeframe, based on projections provided by MSS.	FMAC	Marine Scotland / DEFRA	Y2 Q3
2.2	Work with partners to push for a review of long-term management plan based on the revised stock assessment when available			

2.2.1	Work with Marine Scotland and DEFRA to ask Scheveningen Group and Commission to request review of long-term management plan for cod, based on revised stock assessment when available; ensuring that reference points, TAC calculations, TAC constraints and other measures are consistent with the rebuilding target	Marine Scotland, DEFRA	SFSAG and member organisations, ICES	Y2 Q4
2.2.2	Work with EU industry partners and Scottish and UK stakeholders to put forward joint submissions on the long-term management plan for cod, if required.	Cross-industry cod group, FMAC	SFSAG member organisations, Marine Scotland, DEFRA, ICES	Y2 Q4
2.3	Work with partners to support changes to the management plan (reference points, approach to TAC, additional measures or other) to ensure that the stock able to rebuild on the agreed timeframe			
2.3.1	Depending on the outcome of the review work with partners as in 2.2 above to put forward proposals for revision of the long-term management plan to be consistent with the agreed rebuilding timeframe	As 2.2	As 2.2	Y3 Q1
2.4	Ensure that decision-making follows the long-term management plan as revised above			
2.4.1	Continue from Y3 to work with partners as in 2.2 above to ensure that management decision-making (within the UK, within the EU and EU/Norway or EU/Norway/UK) follows the revised long-term management plan and is consistent with the rebuilding timeframe.	As 2.2	As 2.2	Y3 ongoing
2.5	Continue to work on the development and evaluation of additional measures for cod management			
2.5.1	Continue research work on selectivity with Scottish industry via GITAG	GITAG	SFSAG members, Marine Scotland	Y1 ongoing
2.5.2	Continue other research work on selectivity with UK industry, via Fishery-Science Partnerships	SFSAG members, CEFAS	Marine Scotland, MMO	Y1 ongoing
2.5.3	Continue support for data collection (observers and other as required) and other support to MSS as required to evaluate implementation of management measures	SFF, MSS	SFSAG	Y1 ongoing

Action #	**ACTION 3 – Improve the stock assessment for North Sea cod**
Stock	North Sea cod

MSC PI	1.2.4 – There is an adequate assessment of the stock status
IPG (FIP objectives):	The stock assessment has been revised such that it no longer shows strong retrospective bias providing a strong source of uncertainty; the stock assessment and estimates of reference points are robust and provide a basis for a long-term management plan.
Background and notes:	The benchmarking of the stock assessment is a pre-requisite for Action 2 (long-term management plan; above), since previously estimates of stock status and trends were biased, and the reference points need to be re-estimated for a robust long-term management plan.
Priority	high
Milestones:	
Year 1	Planning / data preparation meeting held
Year 2	Benchmarking completed, retrospective bias eliminated / improved, reference points re-estimated
Year 3	Proposed long-term management plan evaluated for consistency with precautionary approach

Activities and sub-activities		**Lead organisation**	**Other organisations involved**	**End date**
3.1	Support the process of data preparation and benchmarking			
3.1.1	Continue providing support to data collection on discards via SFF observer programme	SFF	MSS, SFSAG members	Y1 ongoing
3.1.2	Support MSS with supplementary data collection from the fishery as required to ensure that the data required for the stock assessment is available	MSS	SFSAG	Y2 Q1
3.2	Work with partners to ensure that the benchmarking takes place as scheduled at latest			
3.2.1	Work with Marine Scotland and DEFRA to ask the Scheveningen Group to underline the importance of benchmarking the cod stock assessment in their submissions to the Commission	Marine Scotland, DEFRA	other Scheveningen Group members, ICES	Y1 Q4
3.2.2	Continue to liaise with MSS to emphasise importance of benchmarking and timetable	SFSAG	MSS, ICES	Y1 Q4
3.3	Ensure that stock rebuilding projections are available which show rebuilding time to a level consistent with MSY under various management scenarios			
3.3.1	Request projections from ICES or MSS once revised stock assessment model is available	SFSAG	MSS, ICES	Y2 Q2

3.3.2	Use projections to inform work on rebuilding timetable and revision of long-term management plan (see Action 2)	See Action 2	See Action 2	See Action 2
3.4	Ensure that ICES is requested to evaluate the proposed long-term management plan for consistency with the rebuilding timeframe			
3.4.1	See Action 2 – 2.2	See Action 2	See Action 2	See Action 2

From: Elaine.Douse@gov.scot <Elaine.Douse@gov.scot> on behalf of Allan.Gibb@gov.scot <Allan.Gibb@gov.scot>
Sent: Wednesday, January 22, 2020 2:49:22 PM
To: Mike Park <mike@swfpa.com>
Cc: Allan.Gibb@gov.scot <Allan.Gibb@gov.scot>
Subject: Scottish industry action plan - North Sea Cod and Whiting

Mike

This email is by way of confirmation that Marine Scotland, is fully supportive of all efforts being made around ensuring sustainable catch levels for North Sea cod and whiting.

We are happy to work with industry and support this initiative as closely as we can to aid in successful delivery of objectives.

Regards

Allan Gibb
Head of Sea Fisheries Division
marine scotland: Fisheries Policy
Scottish Government 1B (South) Mail Point 2
Victoria Quay. Edinburgh, EH6 6QQ

Tel : 0044 (0)131 244 4981
Fax: 0044 (0)131 244 6474
Mobile: 0044 (0)7920477514
Email : Allan.Gibb@gov.scot
gov.scot

4.4 Principle level scores

Yellow colouration reflects a lowering of score at this audit, whilst red indicates a FAIL at SG60.

Table 19. Principle level scores

Principle	Score
Principle 1 – Target Species	<60
Principle 2 – Ecosystem Impacts	85.0
Principle 3 – Management System	90.6

Table 20. Performance Indicator scores

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

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
	Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.25	90
			3.2.2	Decision making processes	0.25	100
			3.2.3	Compliance & enforcement	0.25	65
			3.2.4	Monitoring & management performance evaluation	0.25	90

4.5 Rescored Performance Indicators

Evaluation Table for PI 2.3.1 – ETP species outcome

This PI is redrafted on the basis of the changes to ETP records and the recording of new species following the latest data. New text added at this audit is shown in underlined script all other text remains as per the PCR (Sieben et al. 2017)

PI 2.3.1		**The UoA meets national and international requirements for the protection of ETP species** **The UoA does not hinder recovery of ETP species**		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guidepost	Where national and/or international requirements set limits for ETP species, the effects of the UoA on the population/stock are known and **likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, the **combined effects of the MSC UoAs** on the population/stock are known and **highly likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a **high degree of certainty** that the **combined effects of the MSC UoAs** are within these limits.
	Met?	Y - all	Y - all	N - all
	Justification	The ETP species potentially interacting with this fishery are: • elasmobranchs protected in the North Sea under EU Regulation 2016/72 (starry ray, common skate complex, porbeagle, spurdog • grey seals protected under the Marine (Scotland) Act • allis shad protected under Schedule 5 of the Wildlife and Countryside Act The regulations state that the species may not be landed (elasmobranchs) or deliberately killed (the other species; except under licence in the case of grey seals; but this has no bearing on the fishery). The team discussed whether this constitutes 'limits' for these species (i.e. limits of zero). Essentially, in this case, the PI is asking whether the fishery is likely to be acting within the requirements of the law as far as these species are concerned. The PET data (Table 6) suggest that interactions with these species are rare (more details given below); training is provided in handling and identification. On this basis, the effects of this fishery were considered to be highly likely to be within the limits of the law. The assessors checked the MSC website for any other North Sea fisheries being assessed under the FCR v2.0. With the exception of the Norway sandeel, pout and North Sea sprat fishery (entered assessment December 2016 – no information on ETP species was available at the time of writing), this is the only MSC UoA evaluated under version 2.0. The question of combined effects therefore does not apply. SG80 is met but except for the fully-documented vessels and trips with observers there is not a high degree of certainty, so SG100 is not met in full.		

		Harbour Porpoise: ICES cites set nets as the biggest risk to regional porpoise populations. The number of interactions with the SFSAG fleet is limited to two individuals (in 2018 – TR2 gear) from 5 years worth of observer data at approximately 2 % of all trips. ICES states the percentage fishing mortality over the Greater North Sea Ecoregion for porpoise is <1.7 % as a level stipulated by ASCOBANS as the maximum acceptable total mortality from all activities above which a management response would be required to limit the mortality to which the population is subjected. ICES (2015e, 2015f) evaluated that the annual bycatch of harbour porpoises within the North Sea (including the Skagerrak and Eastern Channel) (all fisheries) was at 0.88 % even accounting for some potential bias the assessment team considers it highly unlikely that this estimate would increase by 100 % and exceed the 1.7% limit. SG60 and SG80 are met. Due to uncertainty in the estimate and date of the assessment by ICES 2015 SG100 is not met. Twaite shad: CB3.11.4 Where there are no requirements for protection and rebuilding, provided through national legislation or binding international agreements defined in CB3.11.1, the team shall not score the first element in SG 2.3.1, which refers to such requirements. Seahorse: CB3.11.4 Where there are no requirements for protection and rebuilding, provided through national legislation or binding international agreements defined in CB3.11.1, the team shall not score the first element in SG 2.3.1, which refers to such requirements.		
b	Direct effects			
	Guidepost	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Known direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	Met?	Y	Y – porbeagle, spurdog, seal, shad, porpoise, seahorse N – starry ray, common skate	Y – porbeagle, seal N – starry ray, common skate, spurdog, porpoise, seahorse, shad
	Justification	The key data source for the evaluation of ETP species impacts for this fishery is the PETS bycatch recording scheme data provided by Marine Scotland Science, covering 110 trips in 2014 and 2015. The scheme was considered by the team to be representative of the fishery and that the effects of the fishery are therefore considered to be known. Porbeagle ICES consider that porbeagle stock status is unknown. The advice is the fishing mortality should be minimised and no targeted fisheries permitted. Recent landings are negligible, so discard mortality is the main fishery-related impact. The PETS data record only one interaction with a porbeagle, released alive. On this basis, the team considered that there is a 'high degree of confidence' that that the fishery is not having significant detrimental effects on porbeagle – SG100 is met for this species. Starry ray ICES notes that although the species is widespread in the central and northern North Sea, the survey abundance index has been decreasing continuously since the 1990s. ICES advise no targeted fishery and measures to reduce bycatch. The species is almost entirely discarded, and neither total discards nor discard survival can be quantified. Total interactions with this species recorded in the PETS data was 102 individuals (100 dead) in 152 trips. In terms of the regulatory requirements, the species is always discarded (according to ICES, recorded landings in total for		

		the whole area of IIa, IIIa and IV are ~300 kg), but according to the PETS data, individuals are usually dead on arrival on board, or in some cases injured (these have been classified as 'dead'**Error! Reference source not found.**), so it is not clear that the requirement to discard promptly has much effect for this species. The team noted that while the average interaction rate was ~2 individuals every 3 trips, in practice interactions are patchy (e.g. 40 of the 100 dead individuals came from one tow, all the 2015 interactions came in the period Sept-Dec). The team concluded that since regulatory requirements are being met following ICES advice, direct impacts could be evaluated (qualitatively) as 'unlikely' to hinder recovery (SG60 met). It is at least possible, however, that the fishery could do more, perhaps by evaluating the areas or conditions under which large quantities of the species are caught together, and/or the circumstances in which the individuals are brought on board in good or bad condition – i.e. it was possible to do more to avoid fishing or killing these individuals. On this basis, the team considered that SG80 was not fully met. Common skate ICES evaluates the whole species complex together, although they note that most/all of these in the North Sea are *D. intermedia*. ICES considers that the species (complex) is depleted, although stock abundance and trends are unknown (survey catch rates are too low to allow an abundance index). ICES advice is the same as for starry ray. The PETS data record the three species separately, and likewise estimate that most of the interactions are with *D. intermedia*. From the 152 trips observed in 2014 and 2015, interactions were as follows: *D. intermedia*: 15 alive, 31 dead *D. batis*: 7 alive, 4 dead *D. flossada*: 2 alive, 3 dead The team considered that the scoring outcome is the same for this species as for starry ray. Spurdog Although the stock is still well below $B_{trigger}$, the harvest rate has dropped to well below the proxy MSY level and ICES considers that there are signs of recovery of the biomass in recent years. Since the overall fishing mortality is apparently at an appropriate level, the fishery is highly unlikely to hinder recovery of this stock. SG80 is met. There is not, however, a high degree of confidence, since the stock biomass is still low and recovery has only just started. SG100 is not met. Grey seal Grey seals are protected under the Marine (Scotland) Act 2010, and may not be killed, except with a licence or to alleviate suffering. The PET dataset includes interactions with two grey seals, one alive and one dead (which was most likely killed by interaction with the fishing gear, according to the notes made by the observer). Scientific advice on seal populations in the UK is provided by the Special Committee on Seals, which is hosted by the Sea Mammal Research Unit at St. Andrews University. The 2015 advice is the same as for 2014: it estimated the total UK population of grey seals at 111,600 animals in 2013; an increase from 2009 (estimated ~99,000). The population has increased around the North Sea in recent years, and is stable elsewhere. New survey data and advice is due to be presented in 2016, but was not yet available at time of

		writing. On this basis, the team considered that although total mortality for the whole fleet cannot be estimated from the data available, there is a high degree of confidence that it will have no impact on the grey seal population; SG100 is met. Allis shad The PET data includes one allis shad (dead) for 2015 and none for 2014. IUCN report that the population in France is 'large' and the species is ranked as 'least concern' on the red list. On this basis, the team likewise concluded that there can be a high degree of confidence that this fishery is not having any significant impact on the population, for which the northern North Sea is and has always been at the edge of its range in any case (Scharbert et al., 2011; Freyhof and Kottelat, 2008). SG100 is met. Note: This analysis is harmonised with the SFSAG haddock fishery (MEC, 2016), which uses the same data, except that PET trips from Sept-Dec 2015 have been added here. The new data results in allis shad being added to the list of ETP species here but does not change the outcome in any substantive way. <u>Harbour porpoise: As mentioned above in SI(a) for harbour porpoise, the estimate of fishing related mortality in the Greater North Sea Ecoregion is 0.88% which is well below <1.7% as stipulated by ASCOBANS and suggests the UoAs are highly unlikely to hinder ETP recovery. As ICES acknowledges there are some data reliability issues with the estimates there is not a high degree of confidence in the estimate so whilst SG80 is met, SG100 is not met.</u> <u>Twaite shad: Observer data show low catches no other available data sets record the species as present. The shad population is increasing in the region so it is highly unlikely the fisheries will hinder population recovery, therefore SG60 and SG80 is met. SG100 is not met as a lack of recent stock assessments means there cannot be a high degree of confidence in this assertion although data available (STECF and catch data) do also show zero encounters.</u> Seahorse: Observer data show low catches (1 trip record, 2 interactions in 5 years). The population is widespread down to the English Channel and Bay of Biscay, (based on genetics, (Woodall et al. 2011) and predominately based in nearshore seagrass beds (Woodall et al. 2017) where the fishery does not operate therefore it is highly unlikely the UoAs will hinder population recovery, SG60 and SG80 is met. SG100 is not met as a lack of stock assessments means there cannot be a high degree of confidence in this assertion although data available (STECF and catch data) do also show zero encounters.		
c	Indirect effects			
	Guidepost		Indirect effects have been considered and are thought to be **highly likely** to not create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?		Y – all	N - all
	Justification	The team considered that indirect effects are unlikely (e.g. ghost fishing, noise disturbance etc.) and so considered that SG80 was met. SG100 is not met because there is not a 'high degree of confidence' about indirect effects.		

References	EU (2016) Marine (Scotland) Act (2010) Wildlife and Countryside Act 1981 (Schedule 5) ICES, 2016l ICES (2015i, j and k) SMRU (2015) Scharbert et al. (2011) Freyhoff and Kottelat (2008) MEC (2016)
Score porbeagle	**85**
Score starry ray	**75**
Score common skate complex	**75**
Score grey seal	**85**
Score shads	**80**
Score spurdog	**80**
Score harbour porpoise	**80**
Score seahorse	**80**
OVERALL PERFORMANCE INDICATOR SCORE:	**75**
CONDITION NUMBER (if relevant):	**1**

Evaluation Table for PI 2.3.2 – ETP species management strategy

This PI is redrafted on the basis of the changes to ETP records and the recording of new species following the latest data. New text added at this audit is shown in underlined script all other text remains as per the PCR (Sieben et al. 2017)

PI 2.3.2		**The UoA has in place precautionary management strategies designed to:** • **meet national and international requirements;** • **ensure the UoA does not hinder recovery of ETP species.** **Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.**		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guidepost	There are **measures** in place that minimise the UoA-related mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
	Met?	Y	Y	N
	Justification	Note: Either Scoring Issue a or b is scored here. This SI need not be scored if <u>there are no</u> requirements for protection or rebuilding provided through national ETP legislation or international agreements. Either this scoring issue is scored or the one below. According to advice from MSC (email from Stephanie Good, 16/9/16), the 'requirements for protection and rebuilding' can be any national or international requirements for protection and rebuilding, such as requirements not to target, safe handling practices, codes of conduct etc.; they are not the same as the 'limits' in 2.3.1 scoring issue a above. On this basis, this scoring issue applies here (and presumably to all ETP species or they would not qualify as 'protected' and hence as ETP.) ICES provide advice on all four elasmobranch species (summarised in 2.3.1 above), which is in summary to avoid catching where possible. The requirements, as set out in EU (2016) are i) not to target, have on board or land; and ii) if brought on board alive to handle following best practice and to discard as soon as possible (or in the case of spurdog, a zero TAC – i.e. do not land). On this basis, the team considered that this constitutes a strategy for managing the impact of fisheries (in general, including this one) on these stocks. They include measures to minimise mortality (no		

		targeting, avoid bycatch, carefully handling if taken alive), and are designed to reduce the fishery impact to the lowest practicable level. Hence SG80 is met. In relation to SG100, the team did not consider that these measures constitute a 'comprehensive strategy' because, as discussed above, it seems as if additional measures are possible and could be explored, at least for the rays. In relation to grey seal, the Marine (Scotland) Act 2010 bans the killing of grey seals without a licence, as well as the disturbance of seals at haul-out sites. Seal populations are surveyed annually by the Sea Mammal Research Unit of St. Andrews University, and are known to be increasing. Interactions with grey seals in the fishery are reported to be rare and it is clear that the fishery is not having a detrimental impact on the population. The team considered that on this basis, that the Scottish / UK strategy for protecting grey seals was the most appropriate level at which to have a strategy (rather than in the fishery directly), hence SG80 is met. Since there are no formal measures in the fishery directly, however, SG100 is not met. The situation is similar for allis and Twaite shad, in that it is clear that the fishery is not having any significant impact (see analysis in 2.3.1); there is a strategy in place in general to protect UK populations (monitoring, a ban on recreational and commercial fishing, some work on removing barriers to migration) but nothing specific to this fishery (because it is not required). SG80 is met but SG100 is not. For harbour porpoise, a draft management plan in development through the HELCOM agreement and pinger trials are regularly undertaken to try to reduce bycatch levels. On a regional level, ASCOBANS has a harbour porpoise recovery plan with a set limit for human-induced mortality (which includes fishing mortality, among other causes) of 1.7% of the population estimate; under the plan a management response must be triggered if total mortality is estimated to be above this threshold. Details of the SCANS surveys and ASCOBANS recovery plans for harbour porpoise are described in section 3.5.3.5. Germany has also protected an important harbour porpoise breeding area. For twaite shad, seahorses, harbour porpoise, encounters are very rare, and the fishing technique and/or geographic / depth overlap with the ETP stocks, along with the monitoring (PET and discard data collection) can be considered a strategy which is being successful in avoiding impacts. SG80 is met. This is not, however, a formal 'comprehensive strategy' – SG100 is not met.		
b	Management strategy in place (alternative)			
	Guidepost	There are **measures** in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **strategy** in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **comprehensive strategy** in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species
	Met?	Not relevant	Not relevant	Not relevant
	Justification	[Scoring issue need not be scored if there are requirements for protection or rebuilding provided through national ETP legislation or international agreements.] See scoring issue a		
	Management strategy evaluation			

c	**Guidepost**	The measures are **considered likely** to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/species).	There is an **objective basis for confidence** that the measures/strategy will work, based on **information** directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis** supports **high confidence** that the strategy will work.
	Met?	Y	Y – porbeagle, spurdog, grey seal, allis shad N – common skate, starry ray	Y – porbeagle, grey seal, allis and twaite shad N – common skate, starry ray, spurdog
	Justification	For porbeagle, grey seal and allis twaite shad, seahorse and harbour porpoise quantitative data (the PET data) give an objective basis for confidence that interactions with this fishery are very low. SG60 and SG80 are met. Scientific advice for porbeagle and grey seal (ICES, SMRU) confirm that the population trend is increasing; for allis and twaite shad, this fishery is not operating anywhere near the core population areas (welsh coasts and Southern England).Therefore providing a high confidence the strategy will work SG100 is met. For seahorse and harbour porpoise population trends and spatial overlap with the fishery are not in sufficient resolution to provide high confidence SG100 not met For spurdog, interactions are more significant, but ICES advice shows that fishing mortality is $<<F_{MSY}$ (proxy), and that biomass is starting to recover. There is therefore an objective basis for confidence that the strategy for spurdog is working. SG80 is met. As noted, above, although there is a 'quantitative analysis' as required for SG100, the biomass needs to make more progress towards the trigger reference point before there is 'high confidence' that it is working – SG100 is not met. For the ray species, since the measures are aligned with ICES advice, they can be considered 'likely to work'. The team did not consider, however, that there is currently an objective basis for confidence that they will work. This is problematic, in as much as a reduction in bycatch rates could be attributed either to the measures working, or to a reduction in the population. For starry ray, however, the survey index suggests that the overall situation with the population remains of concern, and ICES state that the common skate species are depleted (although they do not provide data). On this basis, SG80 is not met.		
d	Management strategy implementation			
	Guidepost		There is some **evidence** that the measures/strategy is being implemented successfully.	There is **clear evidence** that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b).
	Met?		Y	N
	Justification	For the elasmobranchs, the regulatory requirements are being implemented in this fishery (no targeting, no landings, good handling practices when alive). SFF have reportedly provided ray identification charts and training in handling, although some identification issues appear to remain; distinguishing the ray species is not always very easy. SG80 is therefore met. For other ETP species (grey seal and allis twaite shad, seahorse and harbour porpoise), the 'strategy' in relation to this fishery is the fishing method, which results in interactions being rare – the PET data provide		

		evidence of this, so SG80 is met. SG100 is not met for any of the species because there is only direct information about discard rates and mortality from a subset of trips (those with observers), and discard mortality is not quantified, although it is assumed to be high particularly for sharks.		
e	Review of alternative measures to minimize mortality of ETP species			
	Guidepost	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	Y	Y	N – grey seals Y – other ETP species
	Justification	The ongoing review and improvement of management in relation to discards is described in detail in the rationale for PI 2.1.2e – this also applies to all the species here except grey seal. The GITAG group meets annual to discuss and evaluate new gear and technologies related to the UoA and bycatch species (amongst other gear development objectives e.g. efficiency) https://www.sff.co.uk/gitag/. SG60, SG80 and SG100 is met. For grey seals, the SMRU advice (annual) includes an assessment of seal bycatch in commercial fisheries (mainly in static net fisheries); they have a unit dedicated to monitoring and evaluating bycatch of all marine mammal species in fisheries, as well as from fish farms, turbines etc. This includes a review of, and recommendations on, measures such as pingers to reduce mortality in applicable situations (not this fishery). On this basis, and given that interactions with grey seals are very low according to observer data, the team concluded that this was sufficient for SG80 to be met. Note this scoring has been harmonised with the SFSAG haddock (MEC, 2016) and saithe (MEP, 2013) fisheries.		
References	EU Regulation 2016/72 Marine (Scotland) Act 2010 SMRU, 2015. MEC (2016) MEP (2013) ICES, 2016l			
Score porbeagle				**90**
Score starry ray				**75**
Score common skate complex				**75**

Score grey seal	**85**
Score shads	**90**
Score spurdog	**85**
Score harbour porpoise	**85**
Score seahorse	**85**
OVERALL PERFORMANCE INDICATOR SCORE:	**75**
CONDITION NUMBER (if relevant):	**2**

Evaluation Table for PI 2.3.3 – ETP species information

This PI is redrafted on the basis of the changes to ETP records and the recording of new species following the latest data. New text added at this audit is shown in underlined script all other text remains as per the PCR (Sieben et al. 2017)

PI 2.3.3		**Relevant information is collected to support the management of UoA impacts on ETP species, including:** • **Information for the development of the management strategy;** • **Information to assess the effectiveness of the management strategy; and** • **Information to determine the outcome status of ETP species.**		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guidepost	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Qualitative information is **adequate to estimate productivity and susceptibility** attributes for ETP species.	Some quantitative information is **adequate to assess** the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	Met?	Y	Y – spurdog, porbeagle, grey seal, shad (allis and twaite), seahorse, harbour porpoise N – common skate, starry ray	N
	Justification	Information about interactions with this fishery comes from the PET scheme, which covered 47 trips in 2014, 105 trips in 2015, 110 in 2017 and 101 in 2018. It is not possible to scale these data up to provide accurate estimates for the entire fleet, so estimates of mortality of PET species remain qualitative rather than quantitative. In reference to a number of the ETP species (twaite shad, seahorses, harbour porpoise) scaling is impossible due to the infrequency of encounters. In terms of evaluating stock status for these species, spurdog and porbeagle have a quantitative stock assessment, grey seal a periodic survey, starry ray a survey abundance index and the common skate species nothing. For allis shad, the main centre of population is western France where the species is surveyed as it passes river impoundments (fish ladders etc.), whilst for twaite shad the population centers in the UK are in Wales and Southern England.		

		Overall, SG60 is met for all species (qualitative estimate of fishery-related mortality from PET data). SG80 is met for spurdog, porbeagle, grey seal, seahorse and allis and twaite shad since mortality rates from the PET trips are low enough to be able to infer with confidence that the impact of the fleet on the population is ~negligible. For all but seahorse the overall status or trend in stock status can be evaluated quantitatively or the UoA overlap with the population is minor. For harbour porpoise there is quantitative information that UoA and fishing mortality for this epcies in the North Sea are below 'unacceptable interactions" as being a total anthropogenic removal >1.7%. SG80 met For common skate, SG80 is not met because of a lack of population-level data, while for starry ray, SG80 is not met because the impact of the fleet may be non-negligible, and cannot be assessed quantitative, because the PET data cannot be scaled up to fleet level. SG100 is not met for any species, because the PET data cannot be scaled up to the whole fleet.		
b	Information adequacy for management strategy			
	Guidepost	Information is adequate to support **measures** to manage the impacts on ETP species.	Information is adequate to measure trends and support a **strategy** to manage impacts on ETP species.	Information is adequate to support a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives.
	Met?	Y	Y	N
	Justification	As argued in 2.3.2 scoring issue a) there is a strategy in place for all the ETP species. The strategy does not particularly rely on gathering information – rather on minimising any fisheries impacts (or in the case of grey seal and allis/twaite shad, impacts from direct killing and disturbance or from freshwater pollution and barriers to migration, which are more of a concern for these species than fisheries interactions); however, trends can be measured at least qualitatively from the PET data (as well as from other sources of information as described in scoring issue a, except for common skate). On this basis, SG80 is met. In relation to SG100, since there has not been argued to be a 'comprehensive strategy' for any of the species (see 2.3.2a) it cannot be met.		
References	ICES (2015i, j and k) ICES, 2016l SMRU (2015) Freyhoff and Kottelat (2008)			
Score porbeagle				**80**
Score starry ray				**70**
Score common skate complex				**70**

Score grey seal	**80**
Score allis and twaite shad	**80**
Score spurdog	**80**
Score harbour porpoise	**80**
Score seahorse	**80**
OVERALL PERFORMANCE INDICATOR SCORE:	**75**
CONDITION NUMBER (if relevant):	**3**

Evaluation Table for PI 3.2.3 – Compliance and enforcement

This PI is rescored on the basis of the changes to information on the landing obligation, to harmonise scores with the Joint demersal fisheries in the North Sea and adjacent waters (Sieben et al. 2019)**. New text from this audit is shown in underlined script** (Sieben et al. 2017)**.**

PI 3.2.3		**Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.**		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guidepost	Monitoring, control and surveillance **mechanisms** exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance **system** has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A **comprehensive** monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Y	N	N
	Justification	Monitoring, control and surveillance (MCS) in the fishery is taken care of by Marine Scotland Compliance, in collaboration with enforcement authorities at UK and EU level (including the European Fisheries Control Agency) and exchange of information with relevant authorities in other states, including the Norwegian Directorate of Fisheries. All these agencies operate on the basis of a risk-based framework, identifying where enforcement resources can be best put to use at any time in order to optimize compliance. The EU system for fisheries control is laid out in the Control Regulation, which entered into force on 1 January 2010. The Regulation applies to all activities covered by the CFP carried out on the territory of member states or in EU waters, and by EU fishing vessels or nationals of a member state (Art. 2). It requires all member states to adopt appropriate measures, allocate adequate financial, human and technical resources and set up all administrative and technical structures necessary for ensuring control, inspection and enforcement of activities under the CFP (Art. 5). The Regulation contains Titles ('sections' above chapter level) on, among other things, access to waters and resources (Title III), control of fisheries (Title IV), control of marketing (Title V), surveillance (Title VI), inspections and proceedings (Title VII), enforcement (Title VIII) and common control programmes (Title IX). Among the substantial requirements are that member states operate a vessel monitoring system (VMS) and an automatic identification system (AIS), to be generally applied by vessels above 12 and 15 meters, respectively (Art. 9, 10), and that they make the use of fishing logbooks mandatory for all vessels above 10 meters (Art. 14) and electronic logbook for all vessels above 12 meters (Art. 15). The Regulation also introduces an obligation of member states to employ real-time closure of fisheries (Art. 51-54). Further, member states are obliged to carry out monitoring of fishing activities by inspection vessels or surveillance aircraft (Art. 71) and physical inspections of fishing vessels (Art. 74-77); in addition to national inspectors, a pool of Community inspectors shall also be set up (Art. 79). Procedures are established for situations where infringements are detected (Art. 82-88),		

		including enhanced follow-up when infringements are serious, such as mis recording of catches of more than 500 kg or 10 % of what is reported in the logbook (Art. 84). Further, provisions are given for proceedings (Art. 85-88) and sanctions (Art. 90-93) (see PI 3.2.3 b) below). The EU adopted the EU Regulation to prevent, deter and eliminate illegal, unreported and unregulated fishing (IUU) (Council Regulation (EC) No 1005/2008), which entered into force on 1 January 2010. It requires that "Each Member State shall take appropriate measures, in accordance with Community law, to ensure the effectiveness of that system". The MCS North Sea Joint Deployment Plan (JDP) has been in operation since 2007 with the participation of Belgium, Denmark, France, Germany, Ireland, the Netherlands, Sweden and the UK, who collaborate through activities that are carried out each year, on a permanent basis (EFCA 2019). In addition, Scotland has its own Fisheries patrol vessels and aircrafts, deployed according to its specific real-time MCS risk-assessments (confidential documents), which take full account of the risks specific to the LO implementation (Marine Scotland Compliance, site visit pers. comm.) Marine Scotland Compliance carries out the UK's EU responsibilities for fisheries monitoring, control and surveillance in Scotland. It has 19 offices across the country and operates three surveillance vessels and two aircraft. In accordance with EU legislation, it takes care of information gathering through VMS (through the Marine Monitoring Centre) and electronic logbooks, and carries out all other obligations conferred upon Scotland, according the detailed reporting and control requirements in EU legislation to prevent, deter and eliminate illegal, unreported and unregulated fishing (IUU fishing). A Registration of Buyers and Sellers (RBS) Scheme has been fully operational in Scotland since 2005 and requires all buyers and sellers of first sale fish to be registered, and all auction sites of first sale fish and shellfish to be designated. All relevant regulations and information on enforcement activities are available on Marine Scotland's website. A landing obligation was introduced in the fishery in 2017. Marine Scotland has a strategy for the use of marine patrol vessel and surveillance aircraft to monitor the discard ban. The enforcement body has also announced that it will initially be pragmatic in its enforcement, recognizing that there needs to be a period of learning and adjustment when the ban takes effect. It is too early to evaluate whether the enforcement system will be comprehensive enough to generally detect violations of the discard ban, and it is the opinion of the assessment team that the fishery cannot be 'penalized' in the form of reduced scoring at this point for any lacking ability in the future to enforce the discard ban. Part of the UoA fishery takes place in the Norwegian EEZ, where MCS is a shared responsibility between the Directorate of Fisheries, the Coast Guard and regional sales organizations. The Directorate of Fisheries keeps track of how much fish is taken of the quotas of different vessels, vessel groups or other states at any given time, based on reports from the fishing fleet. Fishing vessels are required to have VMS and electronic logbooks, and real-time data are forwarded to the Directorate of Fisheries. The self-reported catch data can be checked at sales operations through the sales organizations, which have monopoly on first-hand sale of fish in Norway, and through physical checks performed by the sales organizations and the Directorate of Fisheries in port, and by the Coast Guard at sea. When Scottish vessels land in other European ports, they are subject to the NEAFC port state control scheme, which requires that the port state checks whether the landed fish is covered by a legal quota, and physically inspect a certain percentage of the catch. There is also an extensive exchange of information (including inspection and landing data) among the national enforcement authorities around the Northeast Atlantic. Hence, the fishery has a comprehensive and transparent system for monitoring, control and surveillance, and there are a number of possibilities for enforcement authorities to physically check whether the data provided by fishers through self-reporting are indeed correct. In addition, VMS data enables control of whether area restrictions are observed. SG100 is met. A monitoring, control and surveillance system has been implemented in the fishery. However, despite the efforts made within EU to establish a comprehensive MCS system with clearly identified high and very high risks (EFCA 2018), the present control density in EU waters appears not dissuasive

		enough to conclude that the system has demonstrated an ability to enforce LO-specific management measures, strategies and rules; see also SI 3.2.3c below. With regards to discards and the landing obligation (LO), Regulation (EU) 2015/812 mentions the following: As discards constitute a substantial waste and affect negatively the sustainable exploitation of marine organisms and marine ecosystems, and as compliance by operators with the landing obligation is essential for its success, infringements of the landing obligation should be categorised as serious under Regulation (EC) No 1224/2009. The landing obligation represents a fundamental change for operators. Accordingly, it is appropriate to postpone for 2 years the application of the rules on serious infringements as regards infringements of that type. With the introduction of the LO, it can no longer be concluded that the enforcement system is sufficiently comprehensive for the context of the fishery. The implementation of the LO poses a major challenge to the control authorities of all member states. With the introduction of the final LO provisions, and until information is available that demonstrate otherwise, it can no longer be concluded that the enforcement system is sufficiently comprehensive for the context of the fishery. The team therefore concludes that SG80 is not met. Given that monitoring, control and surveillance systems exist, that they are implemented in the fishery and there is a reasonable expectation that they are effective, the team has agreed on SG60.		
b	Sanctions			
	Guidepost	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	Y
	Justification	In accordance with the EU Control Regulation, member States are required to ensure that appropriate measures are systematically taken when violations of fishing regulations are detected, including administrative action or criminal proceedings, in order to provide effective deterrence (Art. 89). For serious infringements, a point system is to be applied (Art. 92), whereby fishermen are given a specified number of points for different kinds of violations. When a specific number of points is reached, the fishing licence shall be automatically suspended for a period of at least two months, increasing with repeated violations. In addition to the point system, a graduated system of penalties is used at national level in Scotland, ranging from oral advice to advisory letter, official written warning, various forms of statutory notices (such as revocation and suspension notices), financial administrative penalties (up to £10,000), other material enforcement measures (such as seizure and disposal of fish) and formal prosecution. Fixed penalty levels for different types of offences are publicly available; e.g. the lowest level of infringements leads to a penalty of £250 for a first-time offence and £500 the second time, while the case is referred to prosecution if the violation is repeated a second time. In Norway, statutory authority for the use of sanctions in the event of infringements of fisheries regulations is given in Chapters 11 and 12 of the Marine Resources Act. Intentional or negligent violations are punished with fines or prison up to one year (§§ 60–63), while infringements committed with gross intent or negligence may be punished with prison up to six years. In the judgment of the seriousness of the infringement, the economic gain of the violation, among other things, is to be taken into consideration (§ 64). Alternatively, catch, gear, vessels or other properties can be confiscated (§ 65).		

		The Norwegian enforcement agencies use a graduated sanctioning system, with sanctions ranging from oral warnings, written warnings and administrative fines to formal prosecution. If the fishers do not accept the fines issued by the enforcement or prosecution authority, the case goes to court. The decision of a lower-level court can then be appealed to higher-level courts. The comprehensive enforcement system (see PI 3.2.3 a)) combined with the high level of compliance (see PI 3.2.3 c)) makes it reasonable to conclude that the system provides effective deterrence. SG100 is met.		
c	Compliance			
	Guidepost	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	N	N
	Justification	According to Marine Scotland Compliance, the level of compliance is high in the fishery under assessment. In correspondence with the assessment team, they report that there were no enforcement issues with Scottish and UK administered fishing vessels the last couple of years concerning the fisheries under assessment specifically. They have given priority to the fishing areas where catches have been highest, and last-haul analysis inspections have regularly been carried out. All prosecuted cases for the last decade are listed on the website of Marine Scotland Compliance. An average of eight cases have been prosecuted each year for the entire Scottish fisheries sector. The total number of inspections in 2016 was 4,588, so the share of inspections resulting in prosecution is miniscule. Few infringements are of a serious nature. The five cases prosecuted in 2015 were related to the failure to comply with e-log requirements (fined £2,000), failure to submit sales notes (fined £350), retention of skate after a closure (admonished), retention of ling after a closure (fined £4,000) and retention of mackerel after a closure (fined £3,000). As mentioned under SI 3.2.3 a) above, a landing obligation was introduced in the fishery in 2017, and Marine Scotland has a strategy for the use of marine patrol vessel and surveillance aircraft to monitor the discard ban. The enforcement body has also announced that it will initially be pragmatic in its enforcement, recognizing that there needs to be a period of learning and adjustment when the ban takes effect. It is too early to evaluate whether the discard ban will generally will complied with, and it is the opinion of the assessment team that the fishery cannot be 'penalized' in the form of reduced scoring at this point for any future reduction in the general level of compliance. The level of compliance is reported to be high also in Norwegian waters. In 2016, the Norwegian Coast Guard carried out 1569 inspections at sea. 74 inspections (4.7 %) resulted in a fine or prosecution. Under the data exchange arrangements with other states, bilaterally and under the NEAFC control and enforcement scheme, Scottish enforcement authorities have not been informed of any violations committed by the UoA fishers in waters outside EU jurisdiction. As follows from PI 3.2.3 a) and b) above, the fishery has in place a comprehensive system for monitoring, control and surveillance, including physical checks of fishing operations, catch and gear, as well as a fine-meshed sanctioning system. In addition to these coercive compliance mechanism, various		

		forms of norm-, legitimacy- and communication-related mechanisms have proved effective to deliver compliance in other fisheries. In the fishery under assessment, there might be a degree of social control in the relatively small Scottish fishing communities, and the high level of user-group involvement (see PI 3.1.2 above) may provide regulations with a degree of legitimacy that increases fishermen's inclination to comply with them. The same applies to the relationship between fishermen and enforcement officers, which is reported to be good. Inspectors are trained to approach the fishermen in as forthcoming a manner as possible – starting from the position that they are in compliance with regulations – and interfering with the fishing activities as little as possible (see codes of conduct and strategies referenced below). Importantly, they perceive themselves as having a guidance-providing and not only a policing role towards the fishing fleet. The MSC Fisheries Standard does not give any specific guidance as to what level of compliance is required to conclude that fishers 'comply with the management system under assessment'. Nor would that be reasonable since the absence of infringements in inspection statistics might as well imply that inspectors are not competent (or willing) enough to detect non-compliance, or that they focus attention on those parts of the fishery where compliance is highest; cf. the note on risk-based control under SI 3.2.3 a). Hence, compliance statistics can only give an indication, and must be seen in relation to other factors, such as the comprehensiveness of the enforcement system, the legitimacy of the management system as such, assumptions on the reliability of data provided by the enforcement authorities and other anecdotal evidence of compliance. It is the qualitative judgment of the assessment team that the requirement that fishers 'comply with the management system' is met in this fishery – this does not imply that infringements never take place (which is probably not the case in any fishery), but that most rules are generally respected. The requirement that fishers provide information of importance to the effective management of the fishery is also met. So the question remains whether fishers are 'generally thought to comply' (required for a 60 score), whether 'some evidence exists' that they comply (required for an 80 score), or whether there is 'a high degree of confidence' that they comply (required for a 100 score). Clearly *some evidence exists*, through statements by Marine Scotland Compliance, so SG 80 is met. However, ICES' assumption about misreporting of cod West of Scotland, and seal predation issues mentioned in section 2.4.2 of the report, raises a level of doubt that leads to the conclusion that there is not necessarily *a high degree of confidence* that fishers generally comply, so SG 100 is not met. Specifically, with regards to the implementation of the Landing Obligation concern has been expressed in e.g. recent STECF reports and by stakeholders about ongoing non-compliance, resulting in demersal fisheries being identified as the "EU's fisheries with the highest risk of non-compliance" in 2018 (EFCA 2018), albeit with a higher risk in the North Sea than in Western Waters (ICES Division VIb) where this fishery operates. Marine Scotland Compliance is presently undertaking a comprehensive analysis of their evidence base regarding demersal fisheries. Until this analysis is available, and taking into account the European management system's inability to effectively monitor this measure, the team considered that the evidence base available is currently too weak for SG80 to be met. Therefore, the team concludes that only SG60 is met.		
d	Systematic non-compliance			
	Guidepost		There is no evidence of systematic non-compliance.	
	Met?		N	

	Justification	According to Marine Scotland Compliance and the Norwegian Coast Guard, there is no evidence of systematic non-compliance in the fishery. It is worth noting when asked specifically about the potential area misreporting and seal predation issues mentioned under SI 3.2.3 c) above, MS compliance opinion on claims of misreporting are given in section 3.6. The intent behind the phrase 'no evidence of systematic non-compliance' is that there is simultaneously adequate evidence to assess the compliance of the fishery and no evidence of infringements that occur regularly (MSC interpretations log). Although the team would like to point out that the issues with the Landing Obligation to date indicate a high or very high risk of widespread systemic non-compliance with the LO, there is no concrete evidence so far that there is in fact widespread systemic non-compliance with the LO. However, given a precautionary outlook, we have concluded that this guidepost is not met.
References		Code of conduct: Fishing Vessel Inspections at Sea, Marine Management Organisation and Royal Navy. Code of conduct: Fishing Vessel Inspections in Harbour, Marine Management Organisation and Royal Navy. COMMISSION REGULATION (EC) No 1010/2009 of 22 October 2009 laying down detailed rules for the implementation of Council Regulation (EC) No 1005/2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing. COUNCIL REGULATION (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1300/2008, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006. EFCA, 2019. Annual report for the year 2018, 192p. (https://www.efca.europa.eu/sites/default/files/EFCA%20Annual%20Report%20for%20year%202018.pdf) EFCA (2019) Quarterly reports 1 to 3 for the year 2019, from https://www.efca.europa.eu/sites/default/files/atoms/files/2019_JDP_WW_9M%20WEB%20REP.pdf Email correspondence with Marine Scotland Compliance and the Norwegian Coast Guard. Financial Administrative Penalties for Fisheries Offences, Marine Management Organisation. Hønneland, G., Making Fishery Agreements Work, Cheltenham: Edward Elgar, 2013. Marine Management Organisation Compliance and Enforcement Strategy. Marine Resources Act of the Kingdom of Norway,), LOV-2008-06-06-37, 2008. NEAFC Scheme of Control and Enforcement, London: NEAFC, updated as per 9 February 2017 (https://www.neafc.org/scheme). REGULATIONS COMMISSION IMPLEMENTING REGULATION (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy. Sieben et al. (2019) Marine Stewardship Council (MSC) Public Certification Report – Principle 3 - Joint demersal fisheries in the North Sea and adjacent waters. Control Union October 2019. 103p.

	STECF website: https://stecf.jrc.ec.europa.eu/reports Website of Marine Scotland Compliance (http://www.gov.scot/Topics/marine/Compliance and http://www.gov.scot/Topics/marine/Sea-Fisheries/discards/demersal).
OVERALL PERFORMANCE INDICATOR SCORE:	**65**
CONDITION NUMBER (if relevant):	**10**

5 References

ASCOBANS, 2000. 3rd Session of the Meeting of Parties, Bristol, United Kingdom, 26 – 28 July 2000. Resolution No. 3 - Incidental Take of Small Cetaceans. Available at: http://www.ascobans.org/en/meeting/MOP3.

EFCA, 2018. *Annual Report for the year 2018*, European Fisheries Control Agency. Available at: https://www.efca.europa.eu/sites/default/files/EFCA%20Annual%20Report%20for%20year%202018.pdf).

EFCA, 2019. *Quarterly reports 1 to 3 for the year 2019*, European Fisheries Control Agency. Available at: https://www.efca.europa.eu/sites/default/files/atoms/files/2019_JDP_WW_9M%20WEB%20REP.pdf.

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. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32008R1342.

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).

Freyhof, J., 2008. *Alosa alosa. The IUCN Red List of Threatened Species 2008: e.T903A13091067.*, IUCN. Available at: http://www.iucnredlist.org/details/903/1.

Freyhof, J. & Kottelat, M., 2008. *Chelon labrosus*, The IUCN Red List of Threatened Species.

Hammond, P., 2006. *Small Cetaceans in the European Atlantic and North Sea (SCANS-II)*, SCANS. Available at: http://biology.st-andrews.ac.uk/scans2/inner-finalReport.html.

Hammond et al., 2017. *Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys*, SCANS. Available at: https://synergy.st-andrews.ac.uk/scans3/2017/05/01/first-results-are-in/.

Hislop, J.R.G., 1996. Changes in North Sea gadoid stocks. *ICES Journal of Marine Science*, 53, pp.1146–1156.

ICES, 2016. *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. Available at: http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/ang-ivvi.pdf.

ICES, 2019a. *Cod (Gadus morhua) in Subarea 4, Division 7.d and Subdivision 3.a.20 (North Sea, eastern English Channel, Skagerrak)*, ICES Advice on fishing opportunities, catch, and effort Greater North Sea and Celtic Seas ecoregions. 28th June 2019.

ICES, 2019b. *Common skate complex (Blue skate [Dipturus batis] and flapper skate [Dipturus intermedius]) in Subarea 4 and Division 3.a (North Sea, Skagerrak, and Kattegat)*, ICES Advice on fishing opportunities, catch, and effort Greater North Sea ecoregion Published 4 October 2019.

ICES, 2017a. *Dab (Limanda limanda) in Subarea IV and Division IIIa (North Sea, Skagerrak and Kattegat)*, ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. June 2017. Available at: http://ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/dab.27.3a4.pdf.

ICES, 2010. *EC request on cetacean bycatch Regulation 812/2004, Item 2*, ICES, Special request Advice, May 2010. Available at: http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2010/Special%20Requests/EC%20cetacean%20bycatch%20regulation%202.pdf.

ICES, 2019c. *Haddock (Melanogrammus aeglefinus) in Division 6.b (Rockall)*, ICES Advice on fishing opportunities, catch, and effort, Celtic Seas and Oceanic Northeast Atlantic ecoregions, Published 30 September 2019. Available at: http://ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/had.27.6b.pdf.

ICES, 2019d. *Lemon sole (Microstomus kitt) in Subarea 4 and divisions 3.a and 7.d (North Sea, Skagerrak and Kattegat, eastern English Channel)*, ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea ecoregion Published 28 June 2019 Version 2: 3 September 2019.

ICES, 2019e. *Norway lobster (Nephrops norvegicus) in Division 4.a, Functional Unit 7 (northern North Sea, Fladen Ground)*,

ICES, 2019f. *Norway lobster (Nephrops norvegicus) in Division 4.b, Functional Unit 8 (central North Sea, Firth of Forth)*,

ICES, 2019g. *Norway lobster (Nephrops norvegicus) in Division 4.b, Functional Unit 9 (central North Sea, Moray Firth)*,

ICES, 2019h. *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 Version 2: 09 November 2019.

ICES, 2015a. *Report of the Benchmark Workshop on Plaice (WKPLE), 23–27 February 2015*, ICES Headquarters, Copenhagen, Denmark. ICES CM 2015ACOM:33. 200 pp.

ICES, 2005. *Report of the study group on the status of diadromous fish species (SGSDFS)*, ICES DIADROMOUS FISH COMMITTEE, ICES CM 2005/I:02, Ref. ACFM, ACE, G. Available at: http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/dfc/2005/sgsdfs/SGSDFS05.pdf.

ICES, 2015b. *Report of the Working Group for the Celtic Seas Ecoregion (WGCSE) 12-21 May 2015, ICES Headquarters, Copenhagen, Denmark.*, ICES.

ICES, 2017b. *Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK)*, ICES, 26 April-5 May 2017, Copenhagen, Denmark. ICES CM 2017/ACOM:21. Available at: http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2

017/WGNSSK/01%20WGNSSK%20-%20Report%20of%20the%20Working%20Group%20on%20the%20Assessment%20of%20Demersal%20Stocks%20in%20the%20North%20Sea%20and%20Skagerrak%20(WGNSSK).pdf.

ICES, 2019i. *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 28 June 2019. Available at: http://ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/pok.27.3a46_June.pdf.

ICES, 2019j. *Whiting (Merlangius merlangus) in Subarea 4 and Division 7.d (North Sea and eastern English Channel)*, ICES, ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion Published 28 June 2019.

ICES, 2017c. *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. Available at: http://ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/wit.27.3a47d.pdf.

IUCN, 2007. *Phocoena phocoena. The IUCN Red List of Threatened Species 2007: e.T17027A6734714. Species account by IUCN SSC Cetacean Specialist Group; regional assessment by European Mammal Assessment team.*, IUCN. Available at: http://www.iucnredlist.org/details/17027/1.

JNCC, 2017. *SAC Selection Assessment: Southern North Sea. January, 2017.*, Joint Nature Conservation Committee, UK. Available at: http://jncc.defra.gov.uk/page-7243.

Jones, H. & Cook, R., 2019. *Marine Stewardship Council (MSC) Expedited Audit Report - SFSAG North Sea cod*, Control Union Pesca. Lymington, Hants. Available at: https://fisheries.msc.org/en/fisheries/scottish-fisheries-sustainable-accreditation-group-sfsag-north-sea-cod/@@assessments.

Jones, H. & Honneland, G., 2018. *Marine Stewardship Council (MSC) 1st Annual Surveillance Report - SFSAG North Sea cod*, ME Certification. Lymington, Hants. Available at: https://fisheries.msc.org/en/fisheries/scottish-fisheries-sustainable-accreditation-group-sfsag-north-sea-cod/@@assessments.

Magath & Thiel, R., 2013. Stock recovery, spawning period and spawning area expansion of the twaite shad Alosa fallax in the Elbe estuary, southern North Sea. *Endangered Species Research*, 20, pp.109–119.

MS, 2019a. *Future of Fisheries Management in Scotland: National Discussion Paper*, Marine Scotland, for the Scottish Government. Available at: https://www.gov.scot/publications/national-discussion-paper-future-fisheries-management-scotland/pages/1/.

MS, 2019b. *Marine Scotland - Improving protection given to Priority Marine Features - Response to Scoping Consultation*, Marine Scotland.

NSAC, 2019. *NSAC Advice Ref. 03-1819 NSAC Advice on Best Practices for Avoidance, Selectivity, and Survival of Skates and Rays to the Scheveningen Regional Group*, North Sea Advisory Council.

Sguotti, C. et al., 2016. Distribution of skates and sharks in the North Sea: 112 years of change. *Global Change Biology*, 22(8), pp.2729–2743. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/gcb.13316.

Sieben, C. et al., 2019. *Marine Stewardship Council (MSC) Final Report – Principle 3 Joint demersal fisheries in the North Sea and adjacent waters. On behalf of The Danish Fishermen's Producers' Organisation (DFPO), The Swedish Fisherman's Producer Organisation (SFPO), The Erzeugergemeinschaft-nordsee (EZG) and Coöperatieve Visserij Organisatie (CVO)*, Marine Stewardship Council (MSC), Prepared by Control Union Pesca Ltd.

Sieben, C. et al., 2017. *MSC Public Certifcation Report SFSAG North Sea Cod Fishery*, Marine Stewardship Council. Available at: https://fisheries.msc.org/en/fisheries/scottish-fisheries-sustainable-accreditation-group-sfsag-north-sea-haddock/@@assessments.

Woodall, L.C. et al., 2017. A synthesis of European seahorse taxonomy, population structure, and habitat use as a basis for assessment, monitoring and conservation. *Marine Biology*, 165(1), p.19. Available at: https://doi.org/10.1007/s00227-017-3274-y.

Woodall, L.C., Koldewey, H.J. & Shaw, P.W., 2011. Historical and contemporary population genetic connectivity of the European short-snouted seahorse Hippocampus hippocampus and implications for management. *Journal of Fish Biology*, 78(6), pp.1738–1756. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1095-8649.2011.02974.x.

6 Appendices

Appendix 1 Evaluation processes and techniques

Appendix 1.1 Site visits

The fishery was certified as sustainable on the 18th July 2017. This audit took place on 7th November 2019 following the Year1 audit in July 2018, an expedited audit of Principle 1 in November 2018 and a second expedited audit in September 2019. This audit was conducted against FCP 2.1 of the MSC standard and GCR 2.3.

Appendix 1.2 Stakeholder participation

The Expedited Audit was announced on 26th July 2019 with stakeholders informed on the 29th July 2019. The individuals contacted during the site visit, their roles and type of consultation on the fishery are listed in Table 21.

Table 21. List of attendees from the site meeting.

Name	Position	Type of consultation
Hugh Jones	Team Leader, P2 expert	Meeting chair
Sophie des Clers	P3 expert	NA
Robin Cook	P1 expert	NA
Mathias Deleau	Traceability	NA
Jennifer Mouat	Client Representative	Overall progress of the fishery
Mike Park	SFSAG chair	Overall progress of the fishery
Elena Balestri	SFF science policy officer	Observer program
Gordon Hart	Marine Scotland Compliance	Current status of the fishery with regard to compliance
John Mills	Marine Scotland Compliance	Current status of the fishery with regard to compliance.
Jane MacPherson	Marine Scotland Compliance	Current status of the fishery with regard to compliance

Appendix 2 Stakeholder Input

Updates on Priority Marine Features from Scottish Government.

From: Helen.Downie@gov.scot <Helen.Downie@gov.scot>

Sent: 17 October 2019 16:36

To: Hugh Jones <hjones@controlunion.com>

Subject: RE: 3045_2932_3143_STAKEHODLER_Updates on Priority Marine Features

Hi Hugh

Thanks for getting in touch. The sustainability appraisal has been drafted and is currently being readied for a second public consultation to help us determine management measures. Unfortunately the timeframe for consulting on management measures for PMFs has slipped due to competing work pressures. We have combined this work with Phase 2 of proposed inshore fishery management measures for MPAs, and expect to consult on both sets of measures simultaneously in the near future.

Feel free to get in touch if you require any further information.

Regards

Helen

Provision of Fladen Ground reports

From: David.Currie@gov.scot <David.Currie@gov.scot>

Sent: 31 October 2019 12:49

To: Hugh Jones <hjones@controlunion.com>

Cc: Gordon.Hart@gov.scot; sdesclers@gmail.com

Subject: 3045_3143_2932_FladenGrounds_MSC_alarm_system_Surveillance_Audit

Good Afternoon Hugh,

Please see attached to this email the 'Central Fladens Code Area reports' that Peter Rusinak and myself send over to Jennifer Mowat on a weekly basis.

The attached reports cover between Friday 9th November 2018 and Sunday 27th October 2019.

I can confirm that going forward, we will continue to provide Jennifer with these reports each Monday Morning.

Should you require any further information or assistance then please do not hesitate to contact me.

Kind regards,

David Currie

Administration Assistant

Marine Scotland Compliance - Surveillance & Enforcement Branch

marinescotland

| a: Scottish Government | Area 1A North | Victoria Quay | Edinburgh | EH6 6QQ | t: 0131 244 2286 | e:david.currie@gov.scot

.

Appendix 2.1 Written Submissions

Appendix 3 Revised Surveillance Program

Table 22. Fishery surveillance programme.

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

Table 23. Timing of surveillance audit.

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
3	April 2017	April 2020	none

Table 24. Surveillance level rationale.

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

Appendix 4 Harmonised fishery assessments

Table 25. Overlapping fisheries principle 1

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

Table 26. Overlapping fisheries Principle 3 (including partial overlap)

Fishery name	Principle	Date certified	Status	CAB
SFSAG Rockall Haddock	P3	July 2017	Certified	CUP
SFSAG Northern Demersal Stocks	P3	Oct 2010	Certified	CUP
Joint demersal fisheries in the North Sea and adjacent waters	P3	Oct 2019	Certified	CUP
Scapeche, Euronor and Compagnie des Peches St Malo saithe	P3	Mar 2010	Certified	CUP
UK Fisheries/ DFFU/Doggerbank Group saithe	P3	January 2011	Certified	CUP
Norway North Sea Demersals	P3	June 2018	Certified	DNV-GL
Cornish Hake gillnet	P3	June 2015	Certified	LR
Ekofish Group-North Sea twin rigged otter trawl plaice	P3	June 2009	Certified	LR
Osprey Trawlers North Sea twin-rigged plaice	P3	September 2010	Certified	LR
Germany North Sea saithe trawl	P3	October 2008	Certified	LR

Table 27. Overlapping fisheries

Supporting information
CU Pesca contacted the overlapping fisheries on 1st July to announce the intent to raise an expedited audit. CABs for the overlapping fisheries responded that they would also consider the need for expedited audits. Further emails 9th July confirmed all CABs intended to launch expedited audits. CU Pesca emailed the other CABs on 5th August confirming the site visit had taken place and providing them with draft scores. LR provided similar scoring on 12th August. DNV-GL provided initial scores higher than LR and CU Pesca but after review reduced scores to those proposed by CU Pesca and LR on 19th August. Prior to the surveillance audit CU Pesca confirmed the surveillance with the other fisheries and following the audit confirmed that no scoring changes related to Principle 1 were required. P3 - Following the publication of the PCR for Joint Demersal Fishery in Autumn 2019, CU Pesca conducted internal and external harmonisation discussions and agreed that the score of PI 3.2.3 needed harmonisation for fisheries where inspection and observer coverage was insufficient to rule out conformity with the Landing Obligation. As MCS and application of the LO is directed at the Member State level and the level of

MCS on a fleet is fleet dependent complete harmonisation on the scoring of PI 3.2.3 is not warranted and should be considered on a case by case level at the next audit of the fishery in question. This was also conveyed to each of the other CABs with relevant fisheries and agreed. Exceptional circumstances apply (PB1.3.6.1).	
Was either FCP v2.1 Annex PB1.3.3.4 or PB1.3.4.5 applied when harmonising?	No
Date of harmonisation meeting	Not required harmonisation completed via email
If applicable, describe the meeting outcome	
Agreement found among teams and lowest score adopted.	

Scoring differences

N/A

Table 28. Rationale for scoring differences

If applicable, explain and justify any difference in scoring and rationale for the relevant Performance Indicators (FCP v2.1 Annex PB1.3.6)
N/A
If exceptional circumstances apply, outline the situation and whether there is agreement between or among teams on this determination
As per PB1.3.6.1 - Differences in outcomes with respect to evaluation, scoring, and conditions of the overlapping assessments shall only occur when a team has identified exceptional circumstances, such as the UoAs being demonstrably different. For PI 3.2.3 and the application of the Landing Obligation there is demonstrably different approaches applied by Member States in the implementation and provision of the LO within their jurisdiction. Monitoring Control Surveillance, sanctions and assessment of risk by fishery, with respect to the LO, is directed at the Member State level and is not governed by the EU directly. Further the level of enforcement / risk and level of compliance of a fleet (UoA) is variable within a Member State dependent on a large number of factors (observer rates, at sea boardings, gear types, areas of operation etc). Complete harmonisation on the scoring of PI 3.2.3 is not therefore possible or warranted. These jurisdictional differences and fishery specific differences will result in different outcomes with respect to PI 3.2.3 and scoring of this PI can only be considered on a case by case level.

Appendix 5 Skate and Ray analysis

Skates: Update on status and work to address conditions on MSC northern demersals certificate

3 January 2020

1. Introduction

The SFSAG haddock fishery was first certified in October 2010 and recertified in May 2016, with additional target species added in July 2018 after a scope extension (CUPesca 2016, 2018a). At re-certification, the fishery acquired three new conditions relating to bycatch of two species of skate: common skate (*Dipturus batis/intermedia* species complex) in all areas and starry ray (*Amblyraja radiata*) in the North Sea, following changes in perception of stock status, EU regulation and availability of bycatch data. The conditions relate to PIs 2.3.1 (ETP species outcome), 2.3.2 (ETP species management) and 2.3.3 (ETP species information).

At the most recent surveillance audit (Year 2, June 2018; CUPesca 2018b) all three conditions were audited as 'on target' with the Client Action Plan and CAB milestones. This report presents progress made in Year 3 of the conditions, with the objective of providing the necessary information to the CAB for the Year 3 audit, which is currently underway.

2. Year 3 milestones and Client Action Plan

The condition milestones set by the CAB, and the relevant parts of the Client Action Plan for Year 3, are summarised in Table 29.

Table 29. Milestones and Client Action Plan for Year 3, for conditions raised on common skate and starry ray (North Sea) in the re-assessment of SFSAG haddock (CUPesca 2016)

Condition	PI	Y3 milestones	Y3 CAP
2	2.3.1	Evaluate species bycatch data in relation to management targets to ensure that there is an objective basis that the strategy will work and adjust strategy as appropriate.	Data collection and assessment of fishery impact. Review of management options to reduce fishery impact on starry ray and common skate as required. Determine which management options can provide objective basis for confidence that the strategy – if required - will work.
3	2.3.2	Review options for management strategy for starry ray and common skate bycatch reduction (noting that it should provide an objective basis for confidence that it will work).	Data collection and assessment of fishery impact. Review of management options to reduce fishery impact on starry ray and common skate as required. Determine which management options can provide objective basis for confidence that the strategy – if required - will work.
4	2.3.3	Analysis of bycatch data demonstrates that the fishery does not pose a threat to the recovery of the common skate complex.	Data collection and assessment of fishery impact. Review of management options to reduce fishery impact on starry ray and common skate as required. Determine which management options can provide objective basis for confidence that the strategy – if required - will work.

3. Most recent available data on stock status

In 2019, ICES provided advice on both species for the North Sea, but no advice on common skate in Subarea 6. Common skate was, however, considered in the ICES Working Group report (WGEF) in 2018 (the most recent report available) in the chapter on the Celtic Seas. All the information evaluated by ICES (2019 advice and 2018 WGEF; ICES 2019a, 2019b, 2018) on stock status is summarised below.

3.1 Starry ray – North Sea

ICES advice for 2019 notes that the stock size indicator (taken from the North Sea ITBS Q1 and Q3 surveys) has declined continuously since 1991 and recommends zero landings on a precautionary basis. The regulations apply this advice, since landing starry ray from the North Sea is forbidden.

WGEF evaluated a longer time series of abundance indices taken from the IBTS surveys, North Sea beam trawl surveys (BTS) and Channel groundfish surveys (CGFS). The IBTS, which has the longest time series starting in ~1980, suggests that the decline from the early 1990s was preceded by a large increase in biomass during the 1980s, and current biomass may be approximately similar to that seen at the start of this time series in ~1980. The drivers behind these trends are unclear, since overall demersal fishing effort in the North Sea reached its peak in the mid-1980s (Daan et al. 2005); the same time as the biomass of starry ray was apparently increasing sharply. WGEF put forward a range of hypotheses, including environmental conditions, multi-species and fisheries interactions and improved species identification – noting that a similar pattern is seen in some other skate species in the North Sea (cuckoo ray and spotted ray) (ICES 2018). They wisely decline, however, to draw any conclusions.

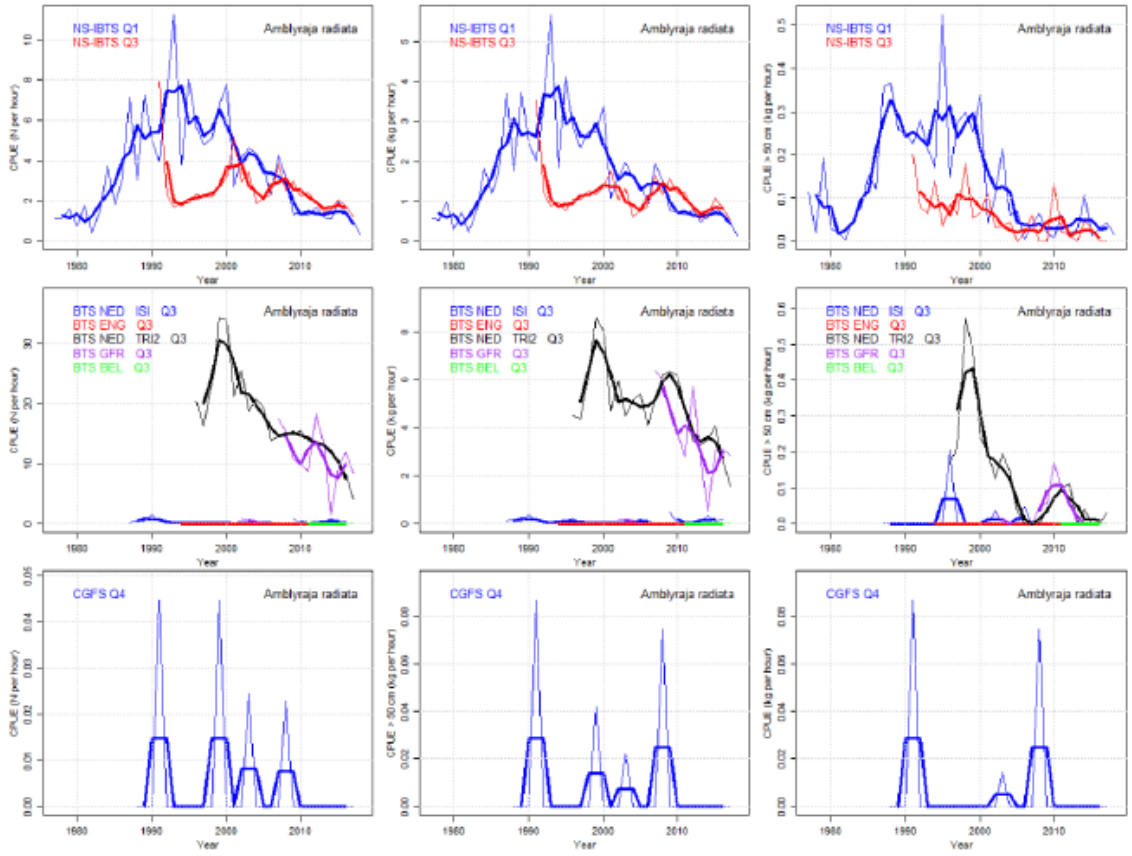


Figure 8. Starry ray North Sea: Left column: abundance index (number/hr); Middle column: biomass index (kg/hr); Right column: exploitable biomass (kg/hr). Top line: ITBS survey – blue=Q1, red=Q3; Middle line: BTS – black=Netherlands, purple=Germany (other surveys less relevant); Bottom line: CGFS (intermittant). Thin lines=annual data, thicker lines=3-year running means. Figure 15.6.1 in WGEF report, ICES 2018.

3.2 Common skate – North Sea

NB: While it was previously thought that the common skate species complex was made up of three species (*Dipturus batis, D. intermedia*[3] and *D. flossada*) it now seems that ICES consider that there are only two species: *D. batis* and *D. intermedia*; *D. flossada* is considered a synonym for *D. batis*. According to WGEF, while the species distributions are uncertain, the species in the NW North Sea and NW Scotland is thought to be *D. intermedia*. The distribution of *D. batis* is 'unclear'; this may have been the species which was common in the southern North Sea historically and is now largely extirpated, it also seems to occur at Rockall (with *D. intermedia*) and in the Celtic Sea and further south (ICES 2018 p.372, p.453, p.465). So in practice, this fishery may only interact with one species of common skate. However, the Marine Scotland PETS data continues to record interactions with both species. It is clear that species discrimination remains a work in progress and on this basis it makes sense to continue to consider this bycatch as 'common skate' for management purposes for the moment.

ICES advice for common skate in the North Sea (ICES 2019b) states the following:

Fishery-independent trawl surveys provide the longest time-series of species-specific information. Whilst catch rates in the surveys are too low to provide a stock size indicator, the consistent occurrence of this species in surveys (NS–IBTS–Q1 and NS–IBTS–Q3) in recent years, 0.054 n h^{-1} (2011–2018) compared to the 1990s, 0.005 n h^{-1} (1991–1998) could be indicative of a gradually improving stock status.

ICES are understandably cautious given that survey catch rates are too low for quantitative analysis, but it is worth emphasising that catch rates have increased by an order of magnitude in the 2010s relative to the 1990s. The data (time series from 1980-date) are shown in Figure 9.

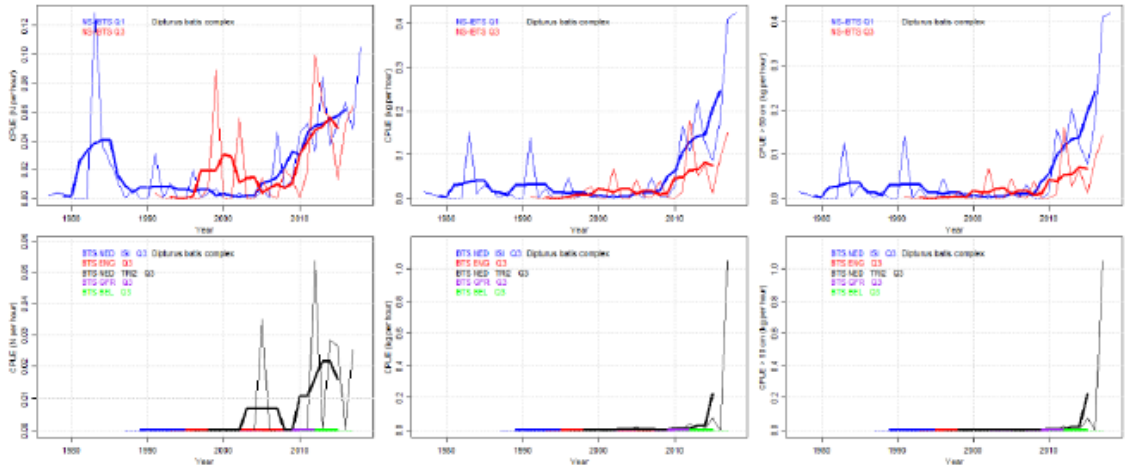


Figure 9. Common skate North Sea: Left column: abundance index (number/hr); Middle column: biomass index (kg/hr); Right column: exploitable biomass (kg/hr). Top line: ITBS survey – blue=Q1, red=Q3; Bottom

[3] It also seems that no-one (including ICES) can agree on whether it is 'intermedius' or 'intermedia' – WGEF uses *D. intermedius* in the North Sea chapter of their report and *D. intermedia* in the Celtic Sea chapter. Ask a latin scholar or take your pick.

line: BTS – black=Netherlands (other surveys less relevant). Thin lines=annual data, thicker lines=3-year running means. Figure 15.6.5 in WGEF report, ICES 2018.

3.3 Common skate – W. Scotland

The information provided in ICES (2018) for Celtic Seas common skate suggests a gradual recovery in the wider Celtic Seas area (e.g. Irish Groundfish Survey, Spanish Porcupine Bank Groundfish Survey); however, no data are presented covering Division 6a specifically. There is a Scottish West Coast Groundfish Survey which covers the relevant area, but since there were no WGEF / Celtic Sea participants from Scotland, these data were not analysed for skates.

4. Spatial analysis of bycatch

Note: This and the following section evaluate a series of plots produced by Marine Scotland Science from their PETS and bycatch sampling data. Where the figures are small, they are pasted in here. Where the figures are very large (e.g. comprising several plots), they are provided as a separate file, labelled with their figure number and caption.

4.1 Starry ray – TR1

The overall mapping of starry ray bycatch per trip for TR1 gear (2014-18 all years combined) is shown in Figure 10. The species appears to be distributed largely in the northern North Sea, between Shetland and Norway, with the exception of a few apparent hotspots elsewhere. Inspection of the maps by year (Figure 11 – see separate file), however, suggest that these 'hotspots' are probably not real – for example the apparent high density in rectangle 50E6 is driven by one sampled trip in 2014 with high catch; other years show low catch or zero sampling in this rectangle. Even the apparent core area for high bycatch rates (E. of Shetland) is driven largely by sampling from 2015 (and to a lesser extent 2016), although there is consistently some starry ray bycatch observed in this area.

A comparison with a plot of total TR1 fishing effort (trips) over the same time period (Figure 12) suggests that there is limited overlap between the areas of highest TR1 effort and the area of highest starry ray bycatch rates. It is possible, therefore, that the current distribution of starry ray is influenced by past TR1 fishing effort (particularly since effort was higher in the past) – although as noted by WGEF, the dynamics of this species in the North Sea are not open to easy interpretation. Nowadays, however, it appears as if the apparent main core area of population in the northern North Sea is not subject to such high levels of fishing effort as elsewhere in the North Sea.

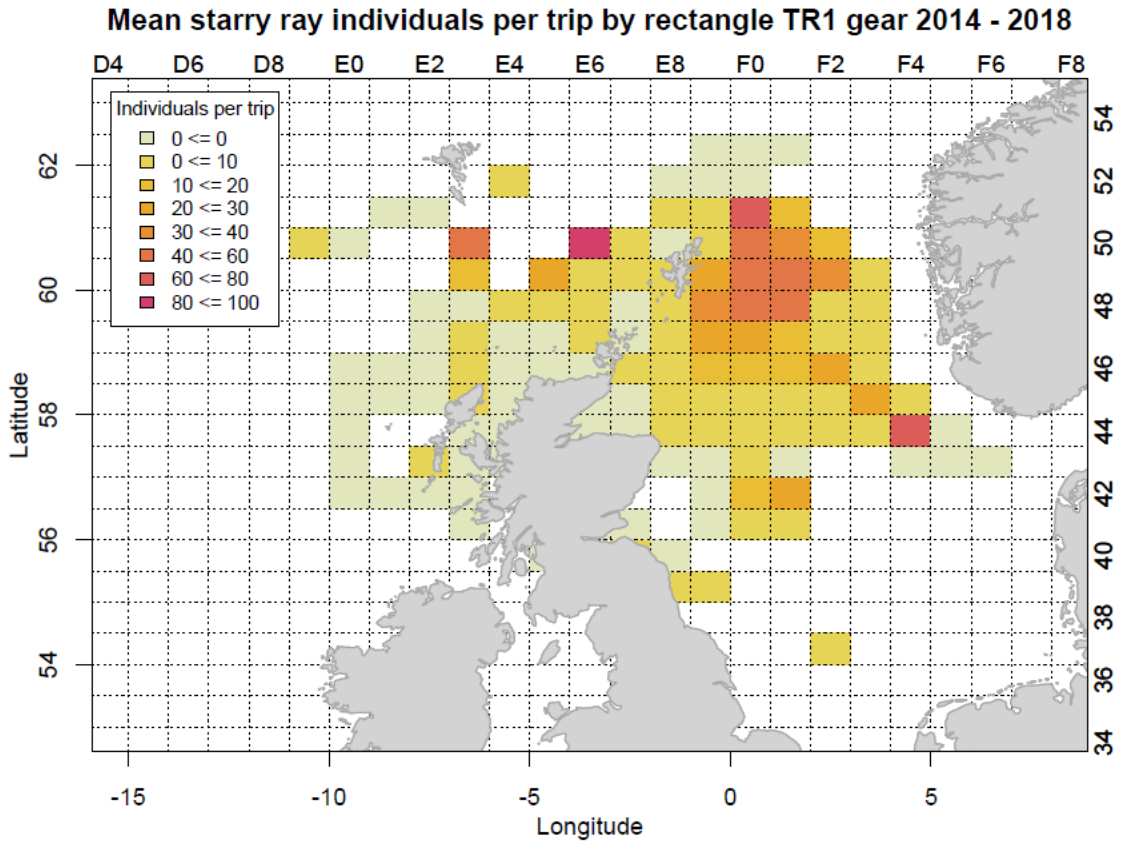


Figure 10. Bycatch of starry ray in TR1 gear, 2014-18, by ICES rectangle. Figure provided by Marine Scotland Science.

Figure 11. Starry ray individuals observed in TR1 gear, 2014-2018 (each year individually) – see appendix

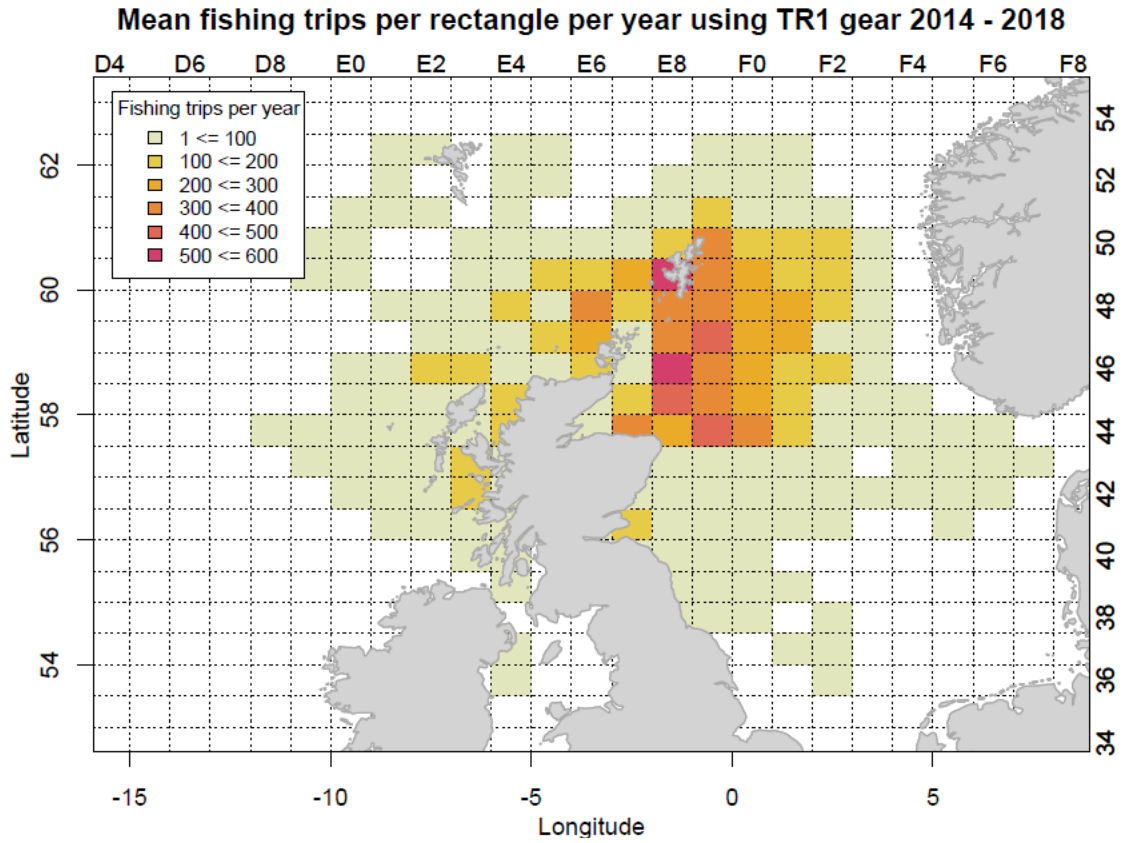


Figure 12. Fishing effort (fishing trips) by TR1 gear, 2014-18. Figure provided by Marine Scotland Science.

4.2 Starry ray – TR2

A similar exercise for TR2 gears is less informative, because both fishing and sampling effort is more patchy for these gears. The map of bycatch per trip for all years combined (Figure 13) is a composite of the individual years (Figure 14 – see separate file) since sampling has by chance concentrated in different areas in different years. As far as it is possible to draw conclusions, it appears that while TR2 effort (Figure 15) is concentrated around the coast, bycatch rates are higher offshore.

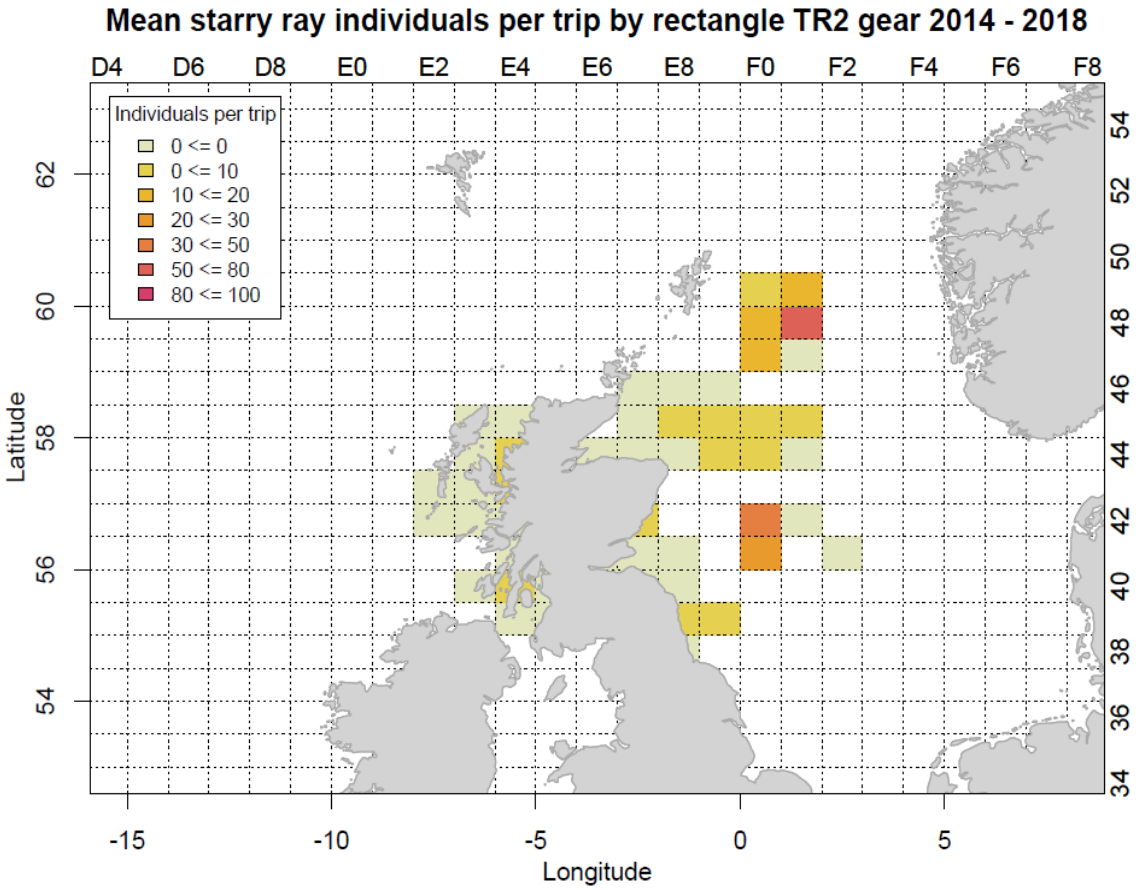


Figure 13. Bycatch of starry ray in TR2 gear, 2014-18, by ICES rectangle. Figure provided by Marine Scotland Science.

Figure 14. Starry ray individuals observed in TR2 gear, 2014-2018 (each year individually) – see appendix

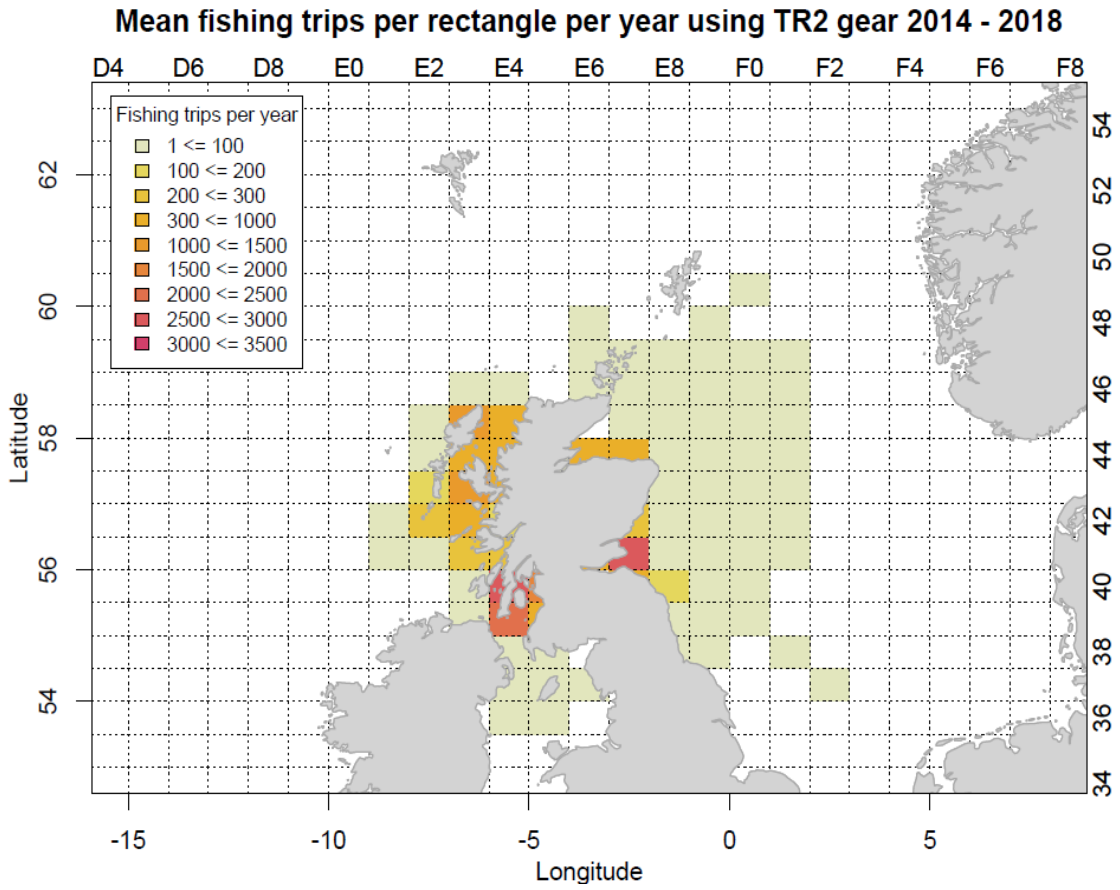


Figure 15. Fishing effort (fishing trips) by TR2 gear, 2014-18. Figure provided by Marine Scotland Science.

4.3 Common skate – TR1

The overall mapping for common skate bycatch rates for TR1 gear (2014-18, all years combined) is shown in Figure 16. Again, it is important to be cautious in the interpretation of apparent 'hotspots' of bycatch. The mapping for individual years (Figure 17 – see separate file) shows that the 'hotspot' to the west of St. Kilda (column E0) is a function of a trip with high bycatch in 2014, while the 'hotspot' on the south coast of Mull (41E1) comes from one sample only, in 2015. These are therefore most likely a function of sampling rather than genuine hotspots. There does seem to be an area of consistent bycatch off the north coast (west of Orkney). A comparison of the spatial pattern of bycatch with overall TR1 fishing effort (Figure 12 above) suggests that the main centre of fishing effort is displaced from the area of highest common skate bycatch. There is, surprisingly, not particularly good evidence that common skate has been extirpated from coastal areas in favour of deeper areas which are less heavily fished – which has been the common narrative. Although some years (2014) potentially show this pattern, other years do not, and the species is still clearly present in coastal areas on the west coast (Figure 16, Figure 17 – see separate file).

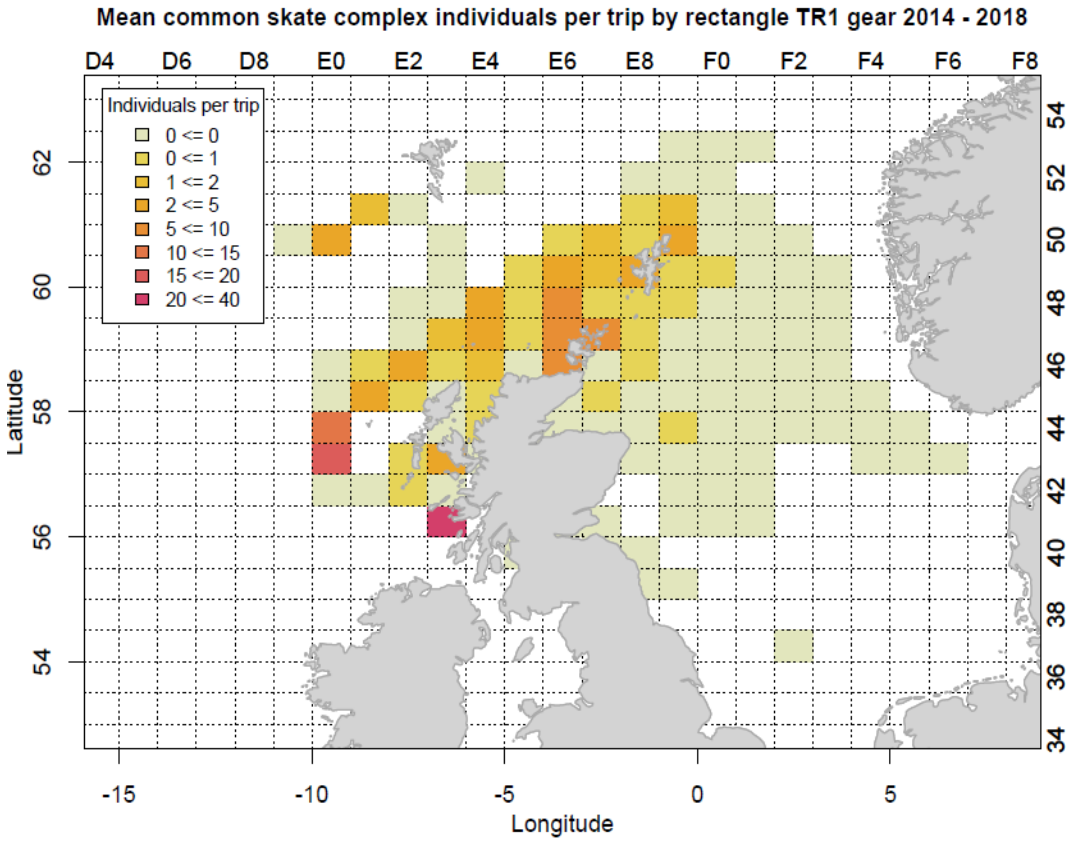


Figure 16. Bycatch of common skate in TR1 gear, 2014-18, by ICES rectangle. Figure provided by Marine Scotland Science.

Figure 17. Common skate individuals observed in TR1 gear, 2014-2018 (each year individually) – see appendix.

Common skate – TR2

The overall mapping for common skate bycatch rates for TR2 gear (2014-18, all years combined) is shown in Figure 18. The only functional units concerned by common skate bycatch are on the west coast (this is confirmed by the inspection of each year individually; see Figure 19 in separate file). It is again not possible to identify any particular hotspots – the species appears to be present throughout the west coast in coastal waters. It may be more present further north than in the area of highest TR2 effort (around Kintyre; Figure 15).

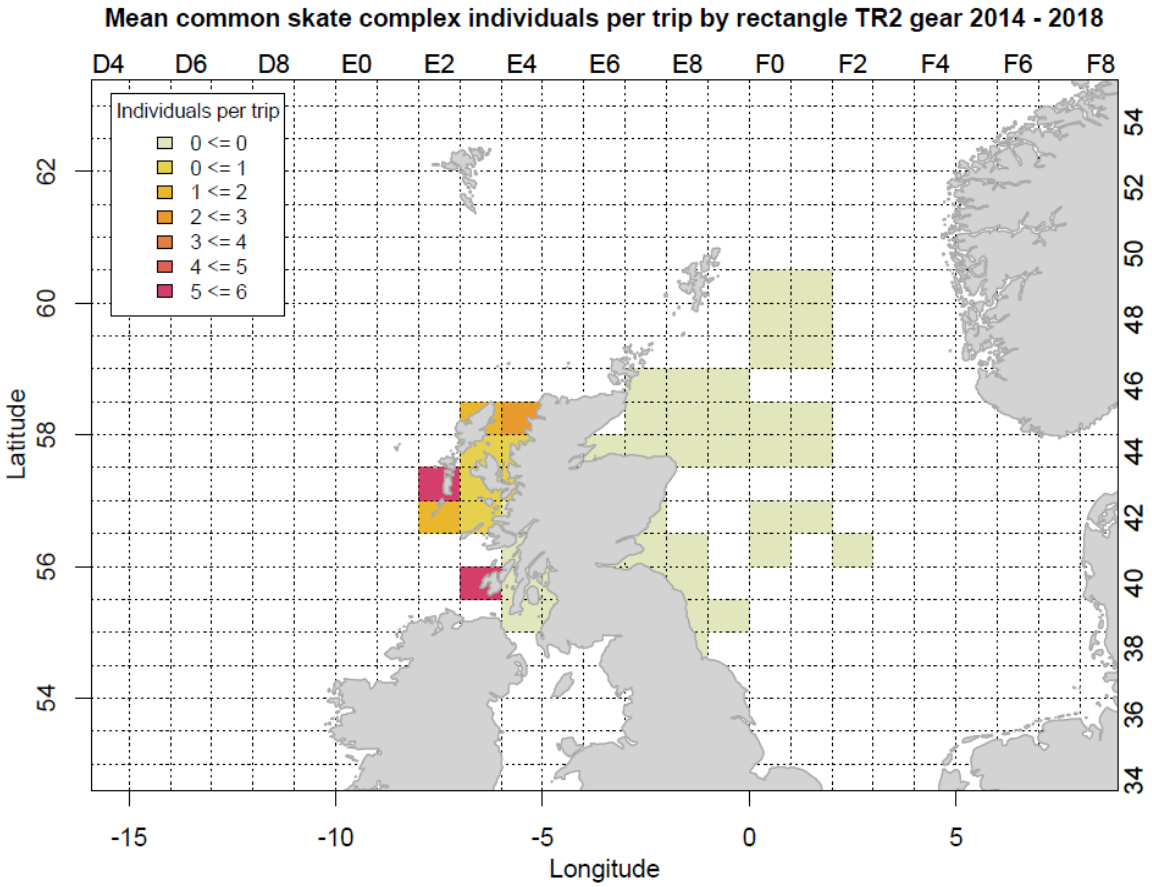


Figure 18. Bycatch of common skate in TR2 gear, 2014-18, by ICES rectangle. Figure provided by Marine Scotland Science.

Figure 19. Common skate individuals observed in TR2 gear, 2014-2018 (each year individually) – see appendix

5. Analysis by trip parameters

Marine Scotland has also evaluated the bycatch data by month and by vessel size, for the two species and gear types separately.

5.1 Monthly bycatch patterns

For starry ray bycatch in TR1 gear (Figure 20), there is some evidence of a seasonal pattern, with a dip in winter and a peak in spring and (possibly) late autumn (note however that the apparent dip in bycatch in January is associated with low sample size). The individual annual patterns are roughly consistent (Figure 21 – see separate file). For common skate bycatch in TR1 gear (Figure 22) there is no evidence of any seasonal pattern (the monthly data by individual year are not included as they are not any more informative). For bycatch of both species for TR2 gear, there is not a large enough sample size to break down the data by month meaningfully.

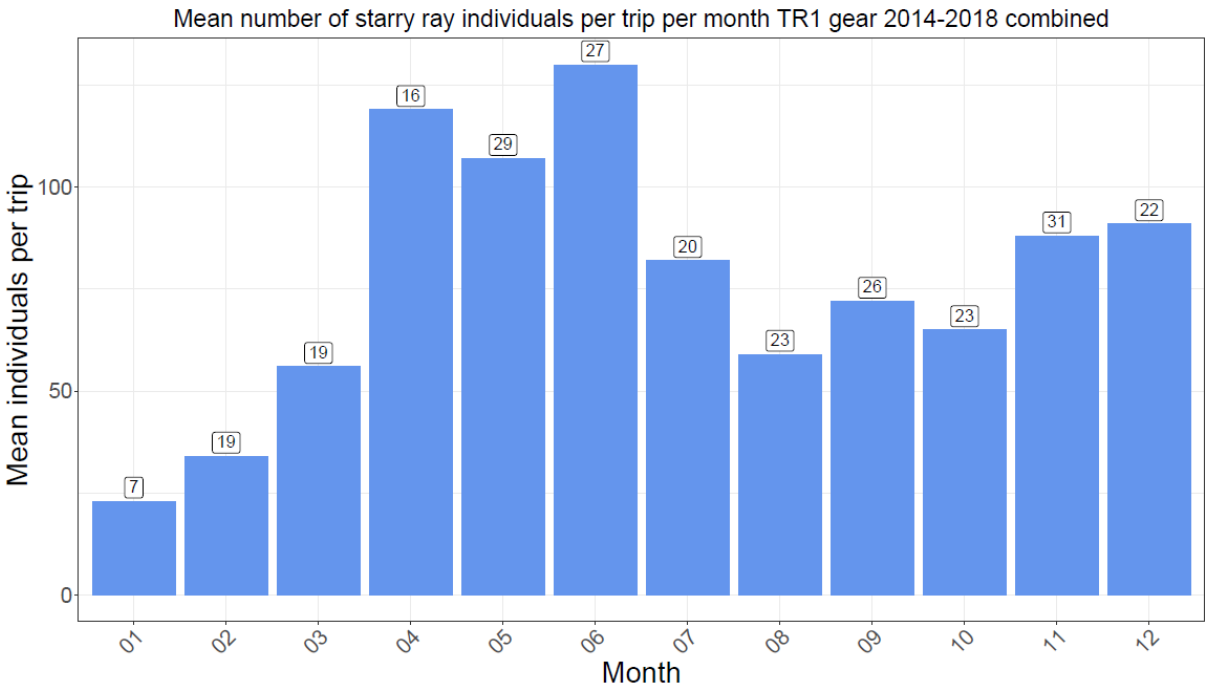


Figure 20. Bycatch per trip for starry ray in TR1 gear, 2014-18 (all years combined). Figure prepared by Marine Scotland Science.

Figure 21. Bycatch per trip for starry ray in TR1 gear, 2014-18 (years individually) – see appendix

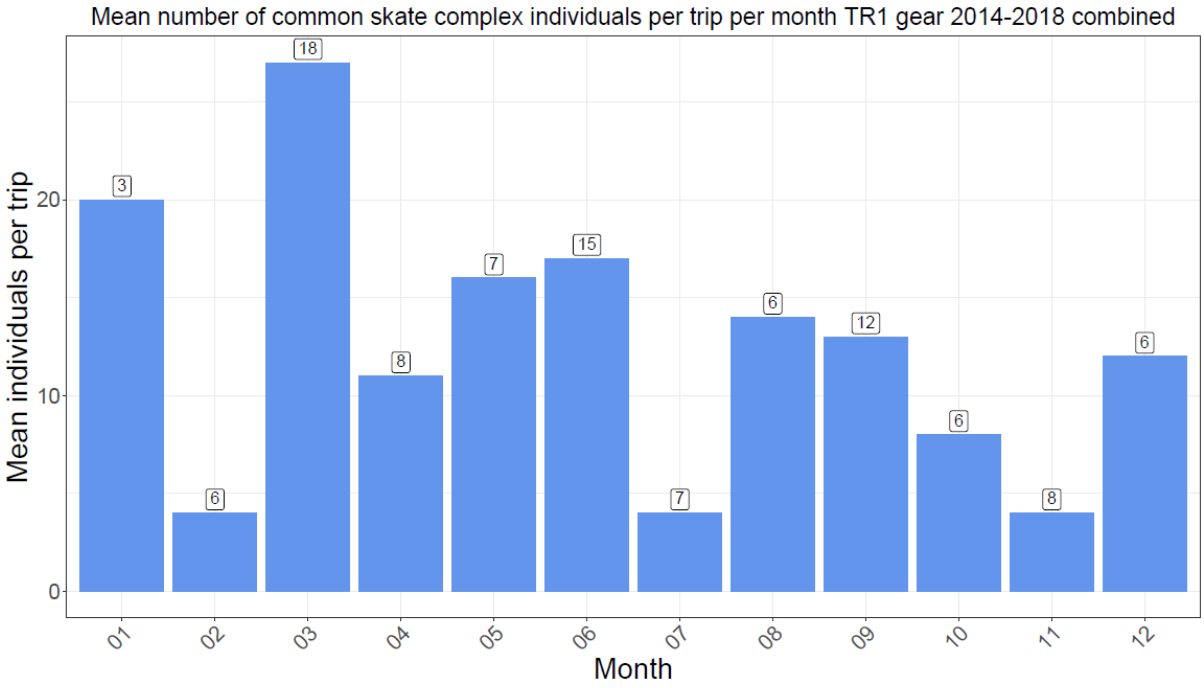


Figure 22. Bycatch per trip for starry ray in TR1 gear, 2014-18 (all years combined). Figure prepared by Marine Scotland Science.

5.2 Bycatch by vessel size

The vessels were broken down by MSS into 5 size categories. However, there is no data in the middle category (20-30m) and the sample size in the small and large categories (<12m, >40m) is small. Overall, therefore, this analysis is not informative.

6. Conclusions of the data analysis

With five full years of bycatch data from the PETS and bycatch sampling programme (2014-18), 2019 was the first year in which MSS felt that sample sizes might be appropriate to attempt some global analysis of the dataset in relation to skates. The purpose of this analysis was to evaluate whether the data contain information which might help Marine Scotland and/or SFSAG to put in place additional measures to reduce skate bycatch.

In relation to starry ray, the main conclusions of the analyses by ICES and MSS, summarised above, are as follows:

- Survey catch rates remain in decline in the North Sea, having increased throughout the 1980s. The reasons for the increase and subsequent decline are unclear.
- The spatial analysis of starry ray bycatch data do not reveal any clear bycatch hotpots which could form the basis of a protected area. Biomass seems to be highest over a relatively large area in the northern North Sea (east of Shetland) which is not the centre of effort for SFSAG towed gear, although according to ICES the species remains present throughout the North Sea.
- The analysis of starry ray bycatch by season likewise does not reveal any clear pattern that could form the basis of a temporal management measure, although there are some general trends.
- Overall, because catch rates are low and patchy, there are not sufficient data as yet for further analysis of this bycatch data based on other parameters. The data set will continue to improve year by year, but this situation will probably not change over the timeframe of an MSC assessment cycle (5 years). ICES base their analysis on a long survey time series, and therefore the best approach to ongoing management of starry ray would seem to be to take account of ICES' evaluations and follow their recommendations.

In relation to common skate, the main conclusions of the analyses by ICES and MSS, summarised above, are as follows:

- For the North Sea, although a quantitative analysis of trends is not possible, survey catch rates have increased substantially since the 1990s. For W. Scotland, ICES was not able to present an analysis, although trends in the Celtic Seas region more widely are likewise encouraging.
- The spatial analysis of common skate bycatch data suggests that common skate bycatch in the SFSAG fishery takes place almost entirely around the north and west coasts. Observed bycatch in the North Sea is minimal.
- The species appears to be distributed more widely than thought, including in inshore areas. As for starry ray, no spatial or seasonal patterns could be discerned which would support additional robust management measures.
- In terms of future action, it is critical to try and establish what are the trends in the population on the west coast, and it is clear that the bycatch data from this fishery is not a long enough time series to be able to answer this question in the near future. ICES WGEF (2018) regrets that Scottish participants were not available to support an analysis of data from the Scottish West Coast Groundfish Survey, and it is recommended that for their next steps, SFSAG liaise with MSS to establish whether these data might help in establishing whether trends in Subarea 6a mirror those elsewhere.

References

Control Union Pesca (formerly MacAlister Elliott Certification) 2016. Marine Stewardship Council (MSC) Reduced Re-Assessment Public Certification Report. Scottish Fisheries Sustainable Accreditation Group (SFSAG) North Sea haddock. Jo Gascoigne, Sophie des Clers and Robert O'Boyle, May 2016. https://fisheries.msc.org/en/fisheries/sfsag-northern-demersal-stocks/@@assessments

Control Union Pesca (formerly MacAlister Elliott Certification) 2018a. Marine Stewardship Council (MSC) Expedited Assessment Public Certification Report. SFSAG North Sea haddock. Hugh Jones, Robin Cook, Jo Gascoigne and Geir Hønneland. July 2018. https://fisheries.msc.org/en/fisheries/sfsag-northern-demersal-stocks/@@assessments

Control Union Pesca (formerly MacAlister Elliott Certification) 2018b. Marine Stewardship Council (MSC) Second Annual Surveillance Report. SFSAG North Sea haddock. Hugh Jones and Geir Hønneland. June 2018. https://fisheries.msc.org/en/fisheries/sfsag-northern-demersal-stocks/@@assessments

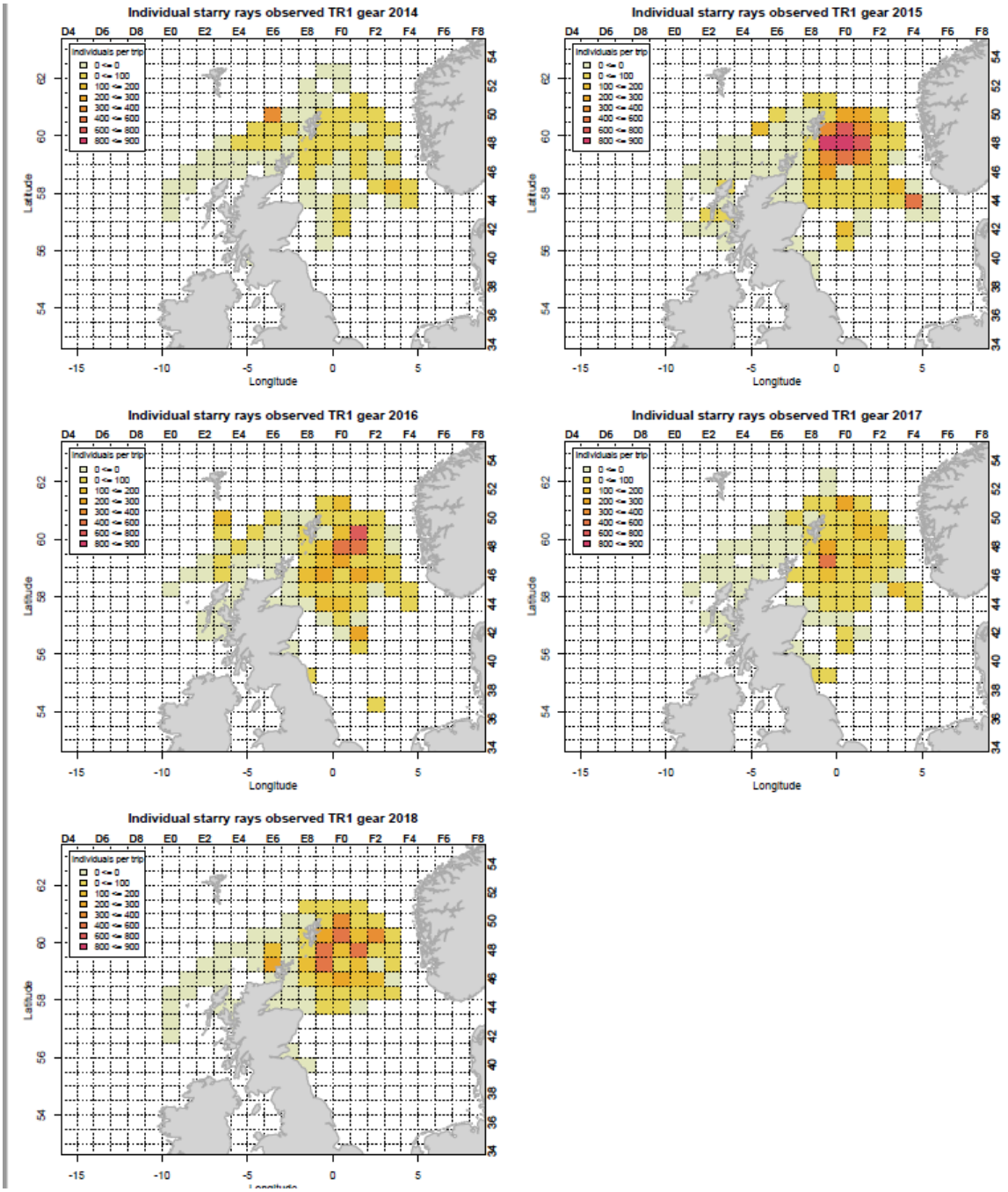
Daan N., Gislason H., Pope J.G. and Rice J.C. 2005. Changes in the North Sea fish community: evidence of indirect effects of fishing? ICES Journal of Marine Science 62, 177-188.

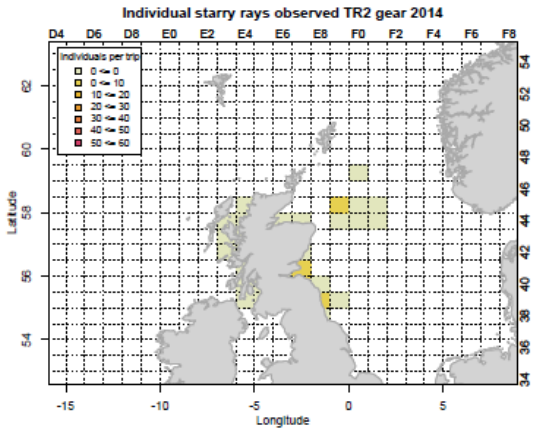
ICES 2018. Report of the Working Group on Elasmobranch Fishes (WGEF), 19-28 June 2018, Lisbon, Portugal. ICES CM2018/ACOM:16. Section 15 – North Sea demersals; Section 18 – Celtic Seas

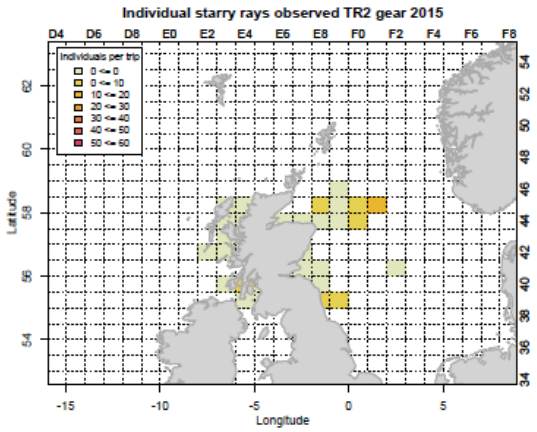
ICES 2019a. Starry ray (*Amblyraja radiata*) in subareas 2 and 4, and Division 3.a (Norwegian Sea, North Sea, Skagerrak and Kattegat). *In* Report of the ICES Advisory Committee, 2019. ICES Advice 2019, rjr.27.23a4, https://doi.org/10.17895/ices.advice.4841.

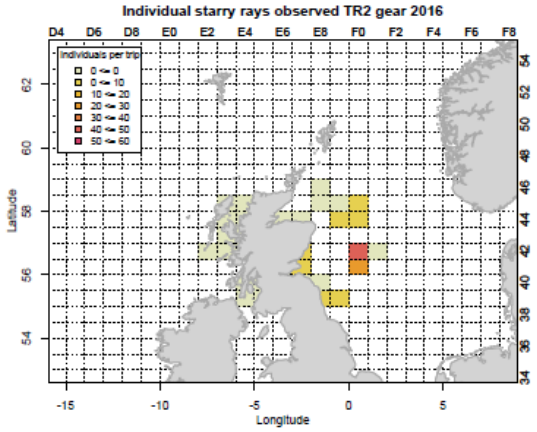
ICES 2019b. Common skate complex (Blue skate (*Dipturus batis*) and flapper skate (*Dipturus intermedius*) in Subarea 4 and Division 3.a (North Sea, Skagerrak and Kattegat). *In* Report of the ICES Advisory Committee, 2019. ICES Advice 2019, rjb.27.3a4, https://doi.org/10.17895/ices.advice.4835.

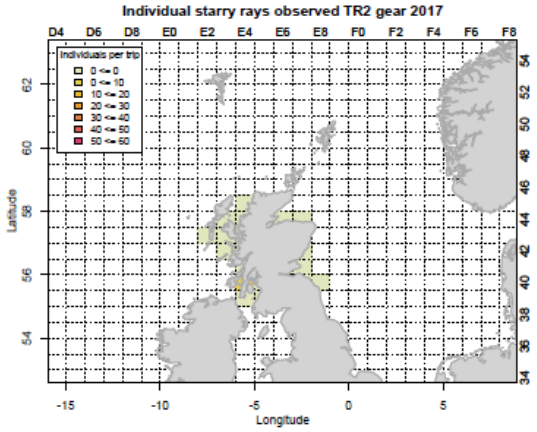
Appendix – figures 4, 7, 10 12, 14.

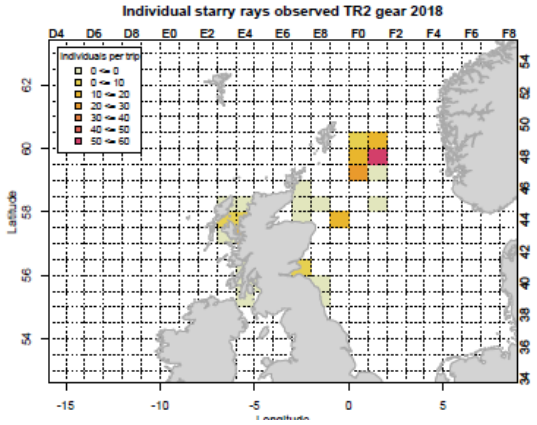


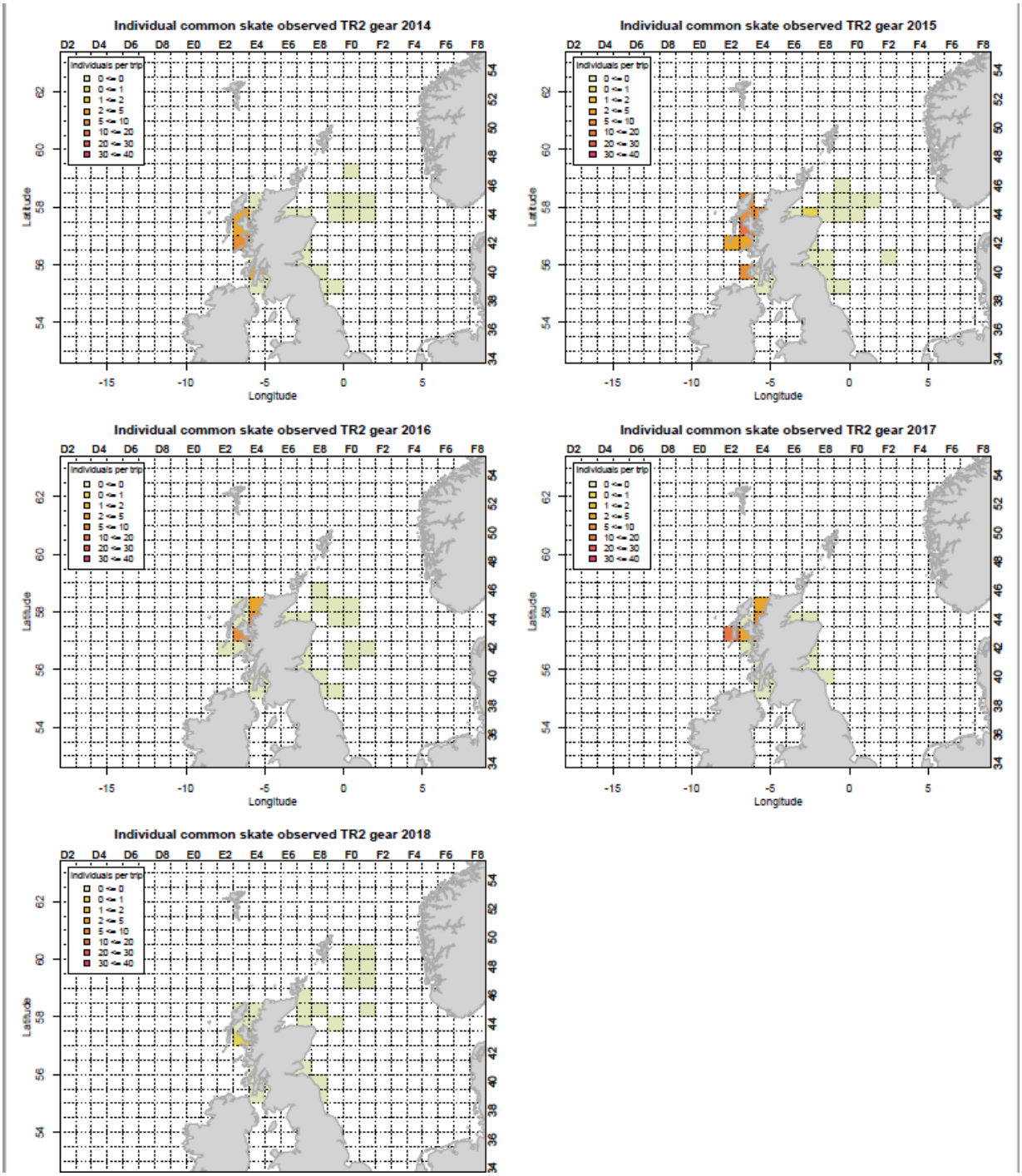

Individual starry rays observed TR2 gear 2014
Individuals per trip
0 <= 0
0 <= 10
10 <= 20
20 <= 30
30 <= 40
40 <= 50
50 <= 60
Latitude
Longitude

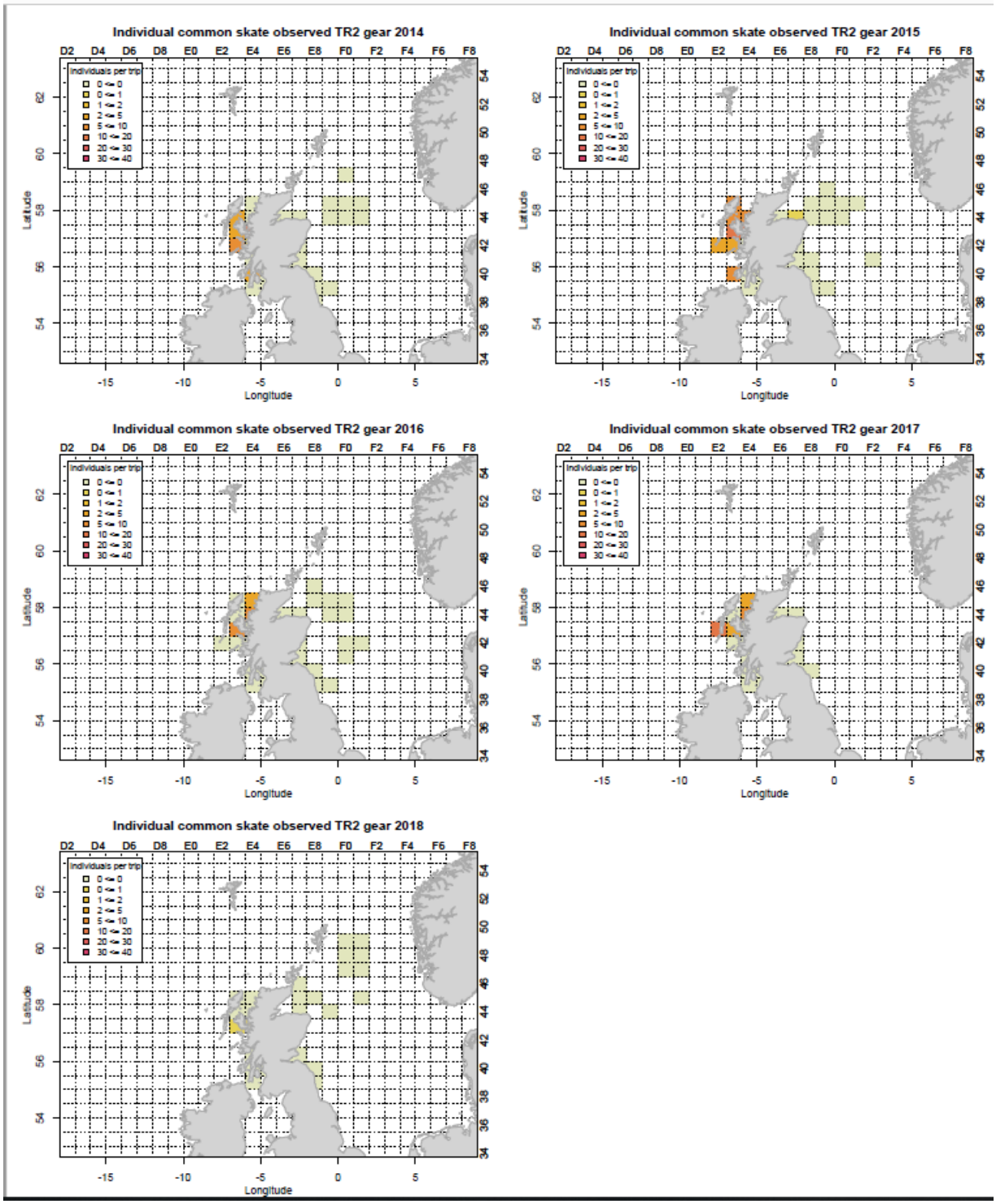

Individual starry rays observed TR2 gear 2015
Individuals per trip
0 <= 0
0 <= 10
10 <= 20
20 <= 30
30 <= 40
40 <= 50
50 <= 60
Latitude
Longitude

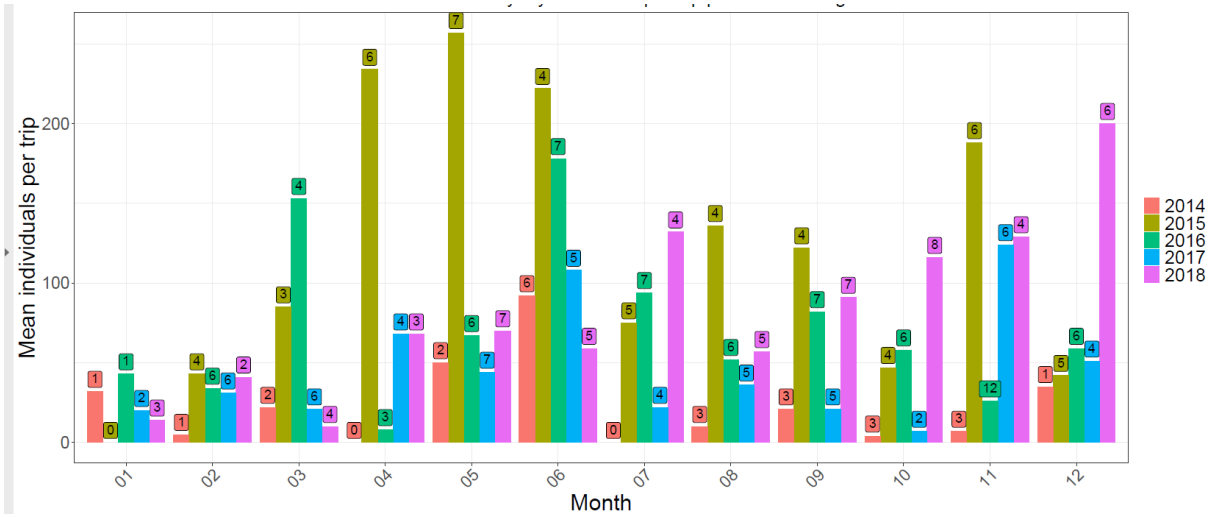

Individual starry rays observed TR2 gear 2016
Individuals per trip
0 <= 0
0 <= 10
10 <= 20
20 <= 30
30 <= 40
40 <= 50
50 <= 60
Latitude
Longitude


Individual starry rays observed TR2 gear 2017
Individuals per trip
0 <= 0
0 <= 10
10 <= 20
20 <= 30
30 <= 40
40 <= 50
50 <= 60
Latitude
Longitude


Individual starry rays observed TR2 gear 2018
Individuals per trip
0 <= 0
0 <= 10
10 <= 20
20 <= 30
30 <= 40
40 <= 50
50 <= 60
Latitude
Longitude


Individual common skate observed TR2 gear 2014
Individual common skate observed TR2 gear 2015
Individual common skate observed TR2 gear 2016
Individual common skate observed TR2 gear 2017
Individual common skate observed TR2 gear 2018
Individuals per trip
0 <= 0
0 <= 1
1 <= 2
2 <= 5
5 <= 10
10 <= 20
20 <= 30
30 <= 40
Latitude
Longitude


Individual common skate observed TR2 gear 2014
Individual common skate observed TR2 gear 2015
Individual common skate observed TR2 gear 2016
Individual common skate observed TR2 gear 2017
Individual common skate observed TR2 gear 2018
Individuals per trip
0 <= 0
0 <= 1
1 <= 2
2 <= 5
5 <= 10
10 <= 20
20 <= 30
30 <= 40
Latitude
Longitude
D2 D4 D6 D8 E0 E2 E4 E6 E8 F0 F2 F4 F6 F8
54 56 58 60 62
34 36 38 40 42 44 46 48 50 52 54
-15 -10 -5 0 5


Mean individuals per trip
0
100
200
Month
01
02
03
04
05
06
07
08
09
10
11
12
2014
2015
2016
2017
2018