Marine Stewardship Council (MSC) 1st Surveillance Audit Report:

Principle 2

Joint demersal fisheries in the North Sea and adjacent waters

On behalf of

Danmarks Fisheriforening Producent Organisation (DFPO), Sveriges Fiskares Producent Organisation (SFPO), Erzeugergemeinschaft-nordsee (EZG) and Coöperatieve Visserij Organisatie (CVO)

Prepared by

Control Union (UK) Limited

October 2021

Authors: Hugh Jones
Julian Addison
Chrissie Sieben
Rob Blyth-Skyrme
Lisa Borges
Geir Honneland

Control Union (UK) Limited
56 High Street, Lymington,
Hampshire, SO41 9AH
United Kingdom
Tel: 01590 613007
Fax: 01590 671573
Email: infofishuk@controlunion.com
Web: uk.controlunion.com

Contents

QA

Role	Signature	Date
Originator:	C Sieben and H Jones	2nd June 2021
Reviewer:	B O'Kane	29th July 2021
Approver:	T Tsuzaki	19th October 2021

Glossary

Term/acronym	Definition
AC	Advisory Council
AIS	Automatic Identification System
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas
B	Biomass
B_{LIM}	Limit reference point for Spawning Stock Biomass
B_{MSY}	Spawning stock Biomass that results from fishing at F_{MSY}
B_{PA}	Precautionary approach biomass
$B_{trigger}$	Value of spawning stock biomass (SSB) that triggers a specific management action
BENTHIS	Benthic ecosystem fisheries Impact Study
BLE	German fisheries authorities
BMS	Below minimum landing size
CCTV	Closed Circuit Television
CEFAS	Centre for Environment, Fisheries, and Aquaculture Science
CFP	Common Fisheries Policy
CITES	Convention on the International Trade of Endangered Species
CL	Conservation Limits
CMP	Conservation and Management Plan
CMS	Convention on Migratory Species
CPUE	Catch Per Unit Effort
CVO	Cooperatieve Visserij Organisatie (Cooperative Fisheries Organisation)
DCF	Data Collection Framework
DFPO	Danmarks Fisheriforening Producent Organisation (Danish Fishermen Producers Organisation)
DTU	Danmarks Tekniske Universitet (Technical University of Denmark)
EBSM	Ecosystem-Based Management System
EC	European Council
EEA	European Environment Agency
EEZ	Exclusive Economic Zone
EMFF	European Maritime and Fisheries Fund
EMN	Euro Marine Network
ETP	Endangered, Threatened or Protected (species)
EZG	Erzeugergemeinschaft (German fisheries producer group)
F	Fishing mortality
F_{LIM}	Limit reference point for fishing mortality (mean over defined age range)
F_{MSY}	Fishing mortality consistent with achieving Maximum Sustainable Yield (MSY)

Term/acronym	Definition
F_{PA}	Precautionary reference point for fishing mortality (mean over defined age range)
FAO	Food and Agriculture Organisation
FCR(G)	(MSC) Fisheries Certification Requirements (and Guidance)
FCS	Favourable Conservation Status
FIFS	Fiskeriverkets författningssamling (Swedish fisheries constitution act)
FIMPAS	Fisheries Measures in Protected Areas
FU	Functional Unit
HAWG	Herring Assessment Working Group
HELCOM	Helsinki Commission (also known as the Baltic Marine Environment Protection Commission)
IBTS	International Bottom Trawl Survey
ICES	International Council for the Exploration of the Seas
IFCA	Inshore Fisheries Conservation Authority
IUCN	International Union for Conservation of Nature
JDF	Joint demersal fisheries in the North Sea and adjacent waters
JRC	Joint Research Centre
LO	Landing Obligation
LPUE	Landings Per Unit Effort
LRP	Limit Reference Points
LTMP	Long Term Management Plan
M	Natural mortality (VB growth equation)
MCRS	Minimum Conservation Reference Size
MIM	Minimum Information Management
MLS	Minimum Landing Size
MPA	Marine Protected Area
MSC	Marine Stewardship Council
MSFD	Marine Strategy Framework Directive
MSP	Marine Spatial Plan
MSY	Maximum Sustainable Yield
NEA	North East Atlantic
NEA(F)C	North East Atlantic (Fisheries) Commission
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
PRI	Point of Recruitment Impairment
PSA	Productivity Susceptibility Analysis
RFMO	Regional Fisheries Management Organisation
RBF	Risk-Based Framework
SAC	Special Area of Conservation

Term/acronym	Definition
SAR	Swept Area Ratio
SEPA	Swedish Environmental Protection Agency
SFPO	Sveriges Fiskares Producent Organisation (Swedish Fishermen's Producers Organisation)
SGB	Substrate, Geomorphology and Biota
SLU	Sveriges lantbruksuniversitet (Swedish University of Agricultural Sciences)
SPA	Special Protection Areas
SSB	Spawning Stock Biomass
STECF	Scientific, Technical and Economic Committee for Fisheries
SwAM	Swedish Agency for Marine and Water Management
TAC	Total Allowable Catch
TRP	Target Reference Points
UoA	Unit of Assessment
UoC	Unit of Certification
UWTV	Underwater Television (surveys)
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring System
WBSS	Western Baltic Spring Spawning (herring)
WDC	Whale and Dolphin Conservation
WFD	Water Framework Directive
WGBFAS	Baltic Fisheries Assessment Working Group (ICES)
WGBYC	Working Group on Bycatch of Protected Species (ICES)
WGECO	Working Group on the Ecosystem Effects of Fishing Activities (ICES)
WGINOSE	Working Group on Integrated Assessments of the North Sea (ICES)
WGSAM	Working Group on Multispecies Assessment Methods (ICES)
WGWIDE	Working Group on Widely Distributed Stocks (ICES)
WKBALT	Benchmark Workshop on Baltic Stocks (ICES)
WKBENTH	Workshop to evaluate regional benthic pressure and impact indicator(s) from bottom fishing (ICES)
WKFBI	Workshop on Fisheries Benthic Impact (ICES)
WKPELA	Benchmark Workshop on Pelagic Stocks (ICES)
WMR	Wageningen Marine Research

1 Executive Summary

This report is one of four reports, which detail the 1st year surveillance audit of the Joint Demersal Fisheries in the North Sea and adjacent waters on behalf of Danmarks Fisheriforening Producent Organisation (DFPO), Sveriges Fiskares Producent Organisation (SFPO), Erzeugergemeinschaft-nordsee (EZG) and Coöperatieve Visserij Organisatie (CVO). The four reports are separated into this general background report and a separate report for each Principle. This report focuses on describing any changes to the fisheries and progress on condition for Principle 2.

The fishery was certified on 31 Oct 2019 and the certificate expires on 30 Apr 2025. This expiry date includes the six-month extension afforded to all MSC fisheries via the MSC covid derogation of March 2020. The fishery audit was undertaken by remote audit as per the MSC derogation on remote audits from September 2020. The assessment team consisted of Hugh Jones (Team Leader) Chrissie Sieben (Principle 2), Lisa Borges (Principle 1), Julian Addison (Principle 1), Rob Blyth-Skyrme (Principle 2) and Geir Hønneland (Principle 3).

As a result of the release by MSC of Derogation 6 - Covid-19 Fishery Conditions Extension, all Year 1 milestones associated with this fishery for management and information PIs were extended by 12 months to become the effective milestones in Year 2. Evidently all subsequent annual milestones were also extended by 12 months. The details of these amendments, condition eligibility, extended condition deadlines and revised condition milestones can be found in the relevant Principle reports from this year 1 audit.

Principle 2 audit results

Catch profile data, observer data and management regime information were all updated for the UoAs in this audit covering the period post 2017 on which the certification was based. Significant changes were evident in some of the bycatch profiles of the fleets under this fishery certificate and as a result of the UK leaving the EU the management of bycatch species. This required rescoring of primary and secondary species Performance Indicators (PI) for some stocks. Notable changes to the scoring under these components are the decline in scores of primary species outcome (PI2.1.1) and primary species Management (PI1.2.2) for a number of UoAs as a result of the status and management of the North Sea cod and 3aS cod stocks. This has resulted in new conditions on these scoring elements. The presence of new main secondary species (tub gurnard (*Chelidonichthys lucerna*), harbour crab (*Liocarcinus depurator*), edible crab (*Cancer pagurus*) and greater weever (*Trachinus draco*) in some UoAs also required rescoring of secondary species PIs and in the case of tub gurnard extension of the existing condition to cover the new UoAs. More positively, evidence provided by the client group at audit did result in closure of some existing Principle 2 conditions and these were also rescored for primary and secondary species.

For ETP species, a successful ETP program in the Netherlands led to closing of conditions for starry ray (*Amblyraja radiata*) for CVO TR1 and TR2 UoAs, whilst there was evidence of significant progress in the development of the ETP recording app (Mofi', i.e., 'Mobile fisheries', developed by Anchor Labs) for recording ETP interactions across the fleet. All conditions were found to be on target or better (closed).

For the habitats and ecosystem components there were no significant changes in the scoring for the fishery. Progress against all conditions in the habitat component were on target, thanks to the updated provision of VMS data across the fleets and the development of the Mofi app, which has the potential to aid the identification of VME habitats.

Overall, with the exception of the UoAs identified below, all UoAs certified at the PCR continue to meet the MSC standard. The reduction in scores for the primary species component (driven by North Sea cod and 3aS cod reducing scores in PIs 2.1.1 and PI2.1.2) has resulted in the suspension of a number of UoAs as they no longer reach the overall 80 score for Principle 2. The UoAs impacted are:

Client group	Gear
DFPO	4-SDN, 4-LL, 3aN-BT1, 3aS-SDN, 3aS-SN
SFPO	4-SDN, 3aN-SDN, 3aN-SN, 3aS-SN
CVO	TR2
EZG	3aN-SN

2 Principle 2

2.1 Catch profiles and data availability

During the initial assessment, UoA catch profile data were assessed for years up to 2016 only. This surveillance therefore aimed to update the datasets, to include the period 2017-19 (at the time of surveillance not all 2020 datasets were fully available; the decision was therefore made to apply the 2019 cut-off for consistency). As per the initial assessment, the catch profiles were compiled from a number of datasets which differ between fishery clients. The following sections explore the different datasets considered in this surveillance.

2.1.1 DFPO

The DTU Aqua observer programme that was already implemented at the time of initial assessment has continued and the Institute aims to meet the sampling obligations under the EU Data Collection Framework (DCF). A statistically-sound sampling strategy is used within a stratified framework, involving a random selection of vessels within the higher-risk metiers (in terms of discarding and/or highgrading) and that are over 9.5m in length with at least 50 days at sea annually, and the aim is to observe 250 trips per year in total. Observers record total weight and length for all species sampled (landed and discarded including ETP species). Only selected species for the area are collected for age and individual weight. Although some vessel owners are known to refuse observers onboard their vessels, DTU Aqua keep a record of refusal rates and investigated VMS tracks and species and size composition of landed catch between observed and refusing vessels, with no significant differences, i.e. observer effect, apparent. The tendency to refuse observers is therefore more likely the result of a particular attitude of individual vessel owners towards DTU Aqua (and perhaps scientists in general), and less a matter of concealing non-compliance (at least in terms of fishing areas and discarding practices). According to the site visit participants, the implementation of the landing obligation has furthermore not had a significant impact on refusal rates (M. Storr-Paulsen pers. comm.).

2017-19 observer data were available for the following DFPO UoAs: 3aN-SN, 4-SN, 3aN-SDN, 3aN-TR, 3aS-TR, 4-TR1, 3aN-TR PRAWN, 3aS-TR PRAWN, and 4-TR PRAWN. The data incorporate only those trips where any of the target (i.e. P1) species were landed, not the entire catch of the vessels in each UoC over the time period. Trips where none of the P1 species were caught were omitted from the dataset. For those UoAs where observer data were not available, other UoAs were used as proxies, as explained in Table 3 (for main Primary and Secondary species) and Table 20 (for ETP species).

Bait data for the longline fishery came from estimates of total bait use provided by the client (following discussion with the fishers and vendors) and is accounted for in section 2.2.3.

The summary data tables are shown in Appendix 5.2.1

Note: A number of research projects have been taking place in Denmark since the initial assessment. These are reported on in the scoring tables where they are relevant to individual scoring rationales.

2.1.2 SFPO

Similar to Denmark, SLU in Sweden have continued their observer programme under the EU DCF, which involves a risk-based sampling of vessels by métier, target species and gear type with 5 strata developed for the Kattegat/Skagerrak area: *Pandalus* with and without sorting grid; *Nephrops* with grid; *Nephrops* with mixed demersal fisheries; mixed demersal fisheries alone and *Nephrops* creels. The data collection for Danish seine (SDN) and set nets (SN) has typically not been prioritised by SLU

since these are such small fisheries with a perceived low impact. Since certification, however, a pilot was carried out to deploy observers on static gear vessels (SN) in the Kattegat and these are now also part of the formal monitoring programme. During the initial assessment, SLU reported that access to vessels was problematic, especially in the mixed fishery in the Skagerrak, and that this had led to a reduction in observer coverage. Since then, fines are issued to vessel owners that refuse observers and this has reportedly improved access and observer coverage (K. Ringdahl pers. Comm.).

2017-19 observer data were available for the following SFPO UoAs: 3a-POT, 3aS-SN, 3aN-TR PRAWN, 3aN-TR and 3aS-TR. For those UoAs where observer data were not available, other UoAs were used as proxies, as explained in Table 4 (for main Primary and Secondary species) and Table 20 (for ETP species).

The above observer data were supplemented with data downloaded from the STECF database covering catch (i.e. landings plus estimated discards where available) by species and gear type. It should be noted that these data cover the entire Swedish fleet rather than just SFPO landings, as per the approach used at full assessment. For the 3a-POT UoA, the STECF database includes *Nephrops* creels as 'POTS' along with other types of pots such as edible crab and lobster pots, whereas in practice there is no overlap between these fisheries. The bycatch profile for this UoA is therefore solely based on the observer data.

Bait data for the pot fishery came from estimates of total bait use provided by the client (following discussion with the fishers and vendors) and is accounted for in section 2.2.3.

The summary data tables are shown in Appendix 5.2.4.

2.1.3 CVO

In The Netherlands, the on-board sampling plan for commercial fisheries in the North Sea is a random sampling scheme from four predefined sampling populations, two of which are relevant for this surveillance: passive demersal gears (DEMPAS) and active demersal gears (DEMACT). The sampling plan for passive demersal gears is working towards a random vessel*trip section scheme, with a sampling intensity of 2 to 3 trips per quarter. During the fishing event all catch components, landings, discards and landed fish below biological minimum reference size (BMS) are sampled. Information on fishing activity, catch composition, catch volumes and individual lengths are measured and recorded by an observer from Wageningen Marine Research. The sampling plan for active demersal gears is based on a self-sampling scheme which has been ongoing since 2009. The sampling is carried out by a 'reference fleet' of 20-25 vessels that aims to sample 160 randomly selected trips per year. During each sampled trip, an 80kg sample of discards from two hauls is preserved for subsequent analysis by WMR. The programme covers all the gears in the UoCs in Subarea 4 for this fishery except the set nets. To check for sampling bias, the self-sampling programme is validated by a separate discard programme by observers at sea. This programme is limited to 10 trips per year on board vessels of the reference fleet (NL 2019). WMR are currently finalizing an analysis to compare the data of the self-sampling programme with the observer data. Although the results are not yet available, preliminary indications are that there are no significant differences (H. van Overzee, pers. comm.).

2017-19 self-sampling data were available for the following CVO UoAs: 4-BT1, 4-BT2, 4-TR1 and 4-TR2 UoAs, consisting of a set of tables of landings and discards by weight by year for the commercial species in the catch (i.e. brill, cod, dab, *Nephrops*, plaice, sole, turbot and whiting) (Table 4 in van_Overzee et al. (2021) and H. van_Overzee et al. (2019)) and tables of mean catch per hour by number for all species of fish (Table 8 in van_Overzee et al. (2021) and H. van_Overzee et al. (2019)).

For those UoAs where self-sampling data were not available, other UoAs were used as proxies, as explained in Table 5 (for main Primary and Secondary species) and Table 20 (for ETP species).

For the set net UoAs, although an observer programme is in place, these data were not accessible to the team due to confidentiality restrictions (the data would be too easy to trace back to individual vessels due to the small fleet size – van Overzee pers. comm.) and were therefore not considered in this surveillance.

The summary data tables are shown in Appendix 5.2.3.

Note: a Fully Documented Fisheries (FDF) project with funding from the European Maritime and Fisheries Fund (EMFF) is being carried out by Wageningen University & Research on behalf of the Dutch *Ministerie van LNV*, using UoA vessels, with the aim to develop an autonomous video-based monitoring system to record catch, i.e. automated catch registration without interference of fishers (logbooks) or on-board observers. The Electronic Monitoring (EM) systems used consist of a control box (onboard computer), GPS, sensors and cameras. Different sensors, e.g. movement sensors on the net drums and sorting belt, detect fishing activity on board and trigger the video system to start (and stop) recording. Subsequently, data are transferred from the fishing vessel to a central database, through a wireless connection. To automate the analysis of video data generated by EM, Wageningen University & Research is developing computer vison methods to automatically detect and classify the fish on the conveyor belts to record the count and size distribution per species. The technology seek to allow automatic catch registration on board of the fishing vessels, making full documentation of fisheries possible. The project is running from 2019 through to 2022. More information is available here: https://www.wur.nl/en/project/Fully-Documented-Fisheries-FDF-R0B07a-1.htm.

2.1.4 EZG

The Thünen Institute of Sea Fisheries (Thünen-Institut) is responsible for managing the EU DCF fisheries observer programme for Germany. Vessels to be sampled are selected from a telephone list. However, the approach is an opportunistic randomised selection and not fully probability-based due to the low number of vessels within each segment. Sampling is organised according to the five strata, two of which are relevant to this assessment: Trawlers (gadoids) in sub areas 3a and 4 and demersal otter trawlers (flatfish) in sub area 4. The set net fishery is not sampled. An at-sea observer catch sampling programme (including concurrent sampling of landings, discards and unwanted by-catches) is conducted for the demersal fleet segments. In addition, a self-sampling programme with fishers is used to collect biological and catch data; unsorted commercial catch samples of usually 150-300 kg from the last or last but one haul are purchased. Diagnostics show that sampled trips are representative of the overall national population of vessels. Opportunistic sampling of landed discards (BMS cod and plaice under the landing obligation) is conducted (TI 2019).

2017-19 observer data were available for the 4-TR1 UoA. For those UoAs where observer data were not available, other UoAs were used as proxies, as explained in Table 6 (for main Primary and Secondary species) and Table 20 (for ETP species).

The above observer data were supplemented with landings data provided by the client for all EZG UoAs.

The summary data tables are shown in Appendix 5.2.2.

Note: The client fleet has been fitted with scientific echosounders on board two of its vessels and has been participating in the TI-led Pandora project which was launched in 2018 and runs through to 2022. The aims for the project are as follows:

- Create more realistic assessments and projections of changes in fisheries resources (30 stocks) by utilizing new biological knowledge (spatial patterns, environmental drivers, food-web interactions and density-dependence) including, for the first time, proprietary data sampled by pelagic fishers.
- Advice on how to secure long-term sustainability of EU fish stocks (maximum sustainable/"pretty good" and economic yields) and elucidate trade-offs between profitability and number of jobs in their (mixed demersal, mixed pelagic and single species) fisheries fleets. It is also expected to provide recommendations on how to stabilize the long-term profitability of European fisheries.
- Develop a public, internet-based resource toolbox (PANDORAs Box of Tools), including assessment modelling and stock projections code, economic models, and region- and species-specific decision support tools; increase ownership and contribution opportunities of the industry to the fish stock assessment process through involvement in data sampling and training in data collection, processing and ecosystem-based fisheries management.

The project will create new knowledge (via industry-led collection, laboratory and field work, and theoretical simulations), new collaborative networks (industry, scientists and advisory bodies) and new mechanisms (training courses and management tools) to ensure relevance, utility and impact. More information is available here: https://www.thuenen.de/en/sf/projects/paradigm-for-novel-dynamic-oceanic-resource-assessments/

2.2 Primary and Secondary species

2.2.1 Overview

Based on the team's analysis of the aforementioned datasets, the 'main' Primary and Secondary species were identified for each UoA, as shown in the following tables. Each table indicates whether the species:

1. Was already considered as 'main' during the initial assessment for that UoA,
2. Was already considered as 'main' during the initial assessment, but not for that UoA,
3. Has not yet been scored for this fishery.

Note: Where proxies were used in the analysis, this has also been explained. Both primary and secondary species are defined as 'main' if they meet any of the following criteria:

1. The catch comprises 5% or more by weight of the total catch of all species by the UoA;
2. The species is classified as 'less resilient' (SA3.4.2.2) and comprises 2% or more by weight of the total catch of all species by the UoA (less resilient is defined here as having low to medium productivity, or species for which resilience has been lowered due to anthropogenic or natural changes to its life-history);
3. The species is out of scope but is not considered an ETP species (secondary species only);
4. Exceptions to the rule may apply in the case of exceptionally large catches of bycatch species.

2.2.2 North Sea *Nephrops* functional units

North Sea *Nephrops* are divided into a series of 'functional units' (FUs); patches of suitable habitat which are treated for assessment purposes as separate stocks. Only one of the North Sea FUs passed assessment under Principle 1, so it is necessary to consider the other key North Sea FUs as 'main' stocks under Principle 2.

In this audit North Sea *Nephrops* (Nephrops 4) was identified as a 'main' species for the DFPO and CVO 4-TR2 UoAs only. As per the initial assessment, the relevant 'main' FUs were calculated by the following method (and as shown in Table 1):

1. Determine the proportion of FUs in *Nephrops* catches at a national level: for the relevant FUs, the catch by that country for that FU was taken from the 2020 advice for that FU (with 2017 as the most recent year in all but one cases) and compared against the total North Sea *Nephrops* catch reported for that country (from the ICES working group report - ICES_WGNSSK (2020)).

2. Determine the proportion of FUs in *Nephrops* catches at UoA level: this proportion was then multiplied by the proportion of *Nephrops* in the catch from relevant UoCs (see data summary tables in Appendix 5.2).

Table 1. Calculation of relevant 'main' FUs for UoAs where *Nephrops* is a main stock overall. Data have been taken from the 2020 ICES advice for the relevant FU (available here). Data are from 2017 which is the last year available for most of the FUs. * Most recent data available was 2016; ** Reported under 'other countries'. ***Not a 'less resilient' stock.

FU	Landings (t)		FU contribution to total *Nephrops* catch (%)		Estimated UoC catch in tonnes (2017-19 average)		% of total UoC catch (2017-19 average)	
	DK	NL	DK	NL	DFPO 4-TR2	CVO 4-TR2	DFPO 4-TR2	CVO 4-TR2
32*	54	0	9.09	0	24.27	0.00	3.62***	0.00
7*	1	0	0.17	0	0.46	0.00	0.07	0.00
33	**513**	336	**86.4**	23.7	**232.94**	222.70	**34.39**	3.42***
6	<18*	<18*	<3.03	<1.27	<8.17	<11.93	<1.21	0.18
5	0	**745**	0	**52.54**	0	**493.70**	0.00	**7.59**
outside	23**	290**	3.87	20.45	10.43	192.16	1.54	2.95***
Total (from ICES_WGNSSK (2020))	594	1418	100	100	-	-	-	-

Based on the above, the following Nephrops FUs were identified as 'main':

- CVO 4-TR2: FU 5 (central and southern North Sea, Botney Cut–Silver Pit)
- DFPO 4-TR2: FU 33 (central North Sea, Horn's Reef)

2.2.3 Bait species

Two UoAs use bait: the DFPO longline (LL) fishery and the SFPO *Nephrops* creel (POT) fishery.

The longline (LL) fishery uses Argentinian squid or Pacific saury as bait, which is purchased at the port. Bait use is estimated to be in the range 10-30 kg per day, for ~50-150 days fishing per year for each vessel in the fleet (3). This gives an estimate of bait use of approximately 2.9% of the catch of the longline fleet (total range from these estimates 0.7-6.4%). Since it is not reported that one type of bait dominates over the other, it is likely that neither of these species make up >5% of the catch. At the surveillance audit the assessment team were informed that longline effort (5 vessels only) had decreased in the most recent years because of reduced quota. At times the fishers had difficulty sourcing their preferred bait Argentinian squid and had been forced to use locally landed squid and this had not been fully qualified. As a result, and noting that the assessment team still considers the bait as 'minor' species, the team have raised a recommendation that DFPO conduct an audit of bait use and source for the longline fleet to be presented to the assessment team in Year 2. This recommendation is formalised in Section 0.

As in the initial assessment, the SFPO POT fishery was reported to use herring for bait, which is sourced from the North Sea, Norwegian EEZ or NE Atlantic. This means that the herring stocks in question are i) NSAS herring and ii) Atlanto-Scandian herring. An estimated 6 tonnes of bait are used per season per vessel. According to the latest data, there are 38 SFPO POT vessels. Total annual bait use is therefore estimated at 228t. The initial assessment estimated that bait use in the creel fishery could be up to 15% of the weight of catch. Therefore, both NSAS and Atlanto-Scandian herring (ASH) have been maintained as 'main' species for this UoA.

2.2.4 Main species

An overview of the main species is given in Table 2. Main species by UoA is given in Table 3 to Table 4 below.

Table 2. Guide to species and stocks considered in the Primary species analysis. NOTE: P1 species within this assessment are shown in bold and as per the MSC variation accepted for this fishery are not scored under Principle 2 in this fishery

Shortened species/stock name	Scientific name	Stock (by ICES subareas and divisions)
Anglerfish	*Lophius piscatorius, L. budegassa*	Subareas 4 and 6, and in Division 3.a (North Sea, Rockall and West of Scotland, Skagerrak and Kattegat)
Bass	*Dicentrarchus labrax*	Divisions 4b–c, 7a, and 7d–h (central and southern North Sea, Irish Sea, English Channel, Bristol Channel, and Celtic Sea)
Brill	*Scophthalmus rhombus*	Subarea 4 and Divisions 3a and 7d–e (North Sea, Skagerrak and Kattegat, English Channel)
Cod 3aN,4,7d	*Gadus morhua*	Subarea 4, Division 7d, and Subdivision 20 (North Sea, eastern English Channel, Skagerrak)
Cod 3aS	*Gadus morhua*	Subdivision 21 (Kattegat)
Dab	*Limanda limanda*	Subarea 4 and Division 3a (North Sea, Skagerrak and Kattegat)
Flounder	*Platichthys flesus*	Subarea 4 and Division 3a (North Sea, Skagerrak and Kattegat)
Haddock 3a, 4, 6a	***Melanogrammus aeglefinus***	**Subarea 4, Division 6.a, and Subdivision 3.a.20 (North Sea, West of Scotland, Skagerrak)**

Shortened species/stock name	Scientific name	Stock (by ICES subareas and divisions)
Hake	***Merluccius merluccius***	**Subareas 4, 6, and 7 and divisions 3.a, 8.a–b, and 8.d, Northern stock (Greater North Sea, Celtic Seas, and the northern Bay of Biscay)**
Herring ASH	*Clupea harengus*	Subareas 1, 2 and 5 and Divisions 4a and 14a (Northeast Atlantic and Arctic) (Atlanto-Scandian herring/ Norwegian Spring Spawners)
Herring NSAS	*Clupea harengus*	Subarea 4 and Divisions 3a and 7d, autumn spawners (North Sea, Skagerrak and Kattegat, eastern English Channel)
Herring WBSS	*Clupea harengus*	Subdivisions 20–24, spring spawners (Skagerrak, Kattegat, and western Baltic)
Horse mackerel	*Trachurus trachurus*	Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k
Mackerel	*Scomber scombrus*	Subareas 1–8 and 14, and in Division 9.a (the Northeast Atlantic and adjacent waters)
Nephrops	*Nephrops norvegicus*	FU 33 (central North Sea, Horn's Reef)
Nephrops	*Nephrops norvegicus*	FU 5 (central and southern North Sea, Botney Cut–Silver Pit)
Nephrops 3a	***Nephrops norvegicus***	**Division 3.a, functional units 3 and 4 (Skagerrak and Kattegat)**
Norway pout	*Trisopterus esmarkii*	Subarea 4 and Division 3a (North Sea, Skagerrak, and Kattegat)
Pandalus	***Pandalus borealis***	**Divisions 3a and 4a East (Skagerrak and Kattegat and northern North Sea in the Norwegian Deep)**
Plaice 3a. 21-23	***Pleuronectes platessa***	**Subdivisions 21–23 (Kattegat, Belt Seas, and the Sound)**
Plaice 3aN, 4	***Pleuronectes platessa***	**Subarea 4 (North Sea) and Subdivision 20 (Skagerrak)**
Saithe 3a, 4, 6	***Pollachius virens***	**Subareas 4 and 6 and Division 3.a (North Sea, Rockall and West of Scotland, Skagerrak and Kattegat)**
Sole 3a, 22-24	*Solea solea*	Subdivisions 20–24 (Skagerrak and Kattegat, western Baltic Sea)
Sole 4	***Solea solea***	**Subarea 4 (North Sea)**
Turbot 4	*Scophthalmus maximum*	Subarea 4 (North Sea)
Whiting 4, 7d	***Merlangius merlangus***	**Subarea 4 and Divisions 3a and 7d (North Sea, Skagerrak and Kattegat, eastern English Channel)**
Witch	*Glyptocephalus cynoglossus*	Subarea 4 and Divisions 3a and 7d (North Sea, Skagerrak and Kattegat, eastern English Channel)

The following main Secondary species were identified for all UoAs combined:

- Lumpfish 3aS
- Edible crab 3a
- Tub gurnard 3aS, 4
- Pollack 3a
- Grey gurnard 4, 7d, 3a
- Harbour crab 3a (new stock at this Year 1 audit)
- Greater weever 3a (new stock at this Year 1 audit)
- Turbot 3a
- Whiting 3a

The implications of the available datasets and the updated UoA catch profiles on scoring are discussed further in the Primary and Secondary species scoring tables (Sections 2.2.5 and 2.2.7).

Table 3. Overview of main primary/secondary species for DFPO UoAs and how they were determined (1st row – where proxies were used this is highlighted in grey). Blue: P1 species not further assessed under P2 as per MSC variation on this fishery; Black normal font: was assessed for this UoA during initial assessment; Black bold font: has been assessed, but not for this UoA; Green: new species or stock, not previously considered in this assessment.

3aN-SN	3aS-SN	4-SN	3aN-BT	4-BT1	3aN-LL	4-LL	3aN-SDN	3aS-SDN	4-SDN	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN
Observer data analysis	3aS-SN catch volume is minor compared to 3aN-SN (13%) and 4-SN (5%) for which observer data are available and from which bycatch profile was extrapolated.	Observer data analysis	Extrapolation of landed bycatch profile with 4-BT1.	Extrapolation of landed bycatch profile with 3aN-BT1.	Official landing data – no proxies available	Official landing data – no proxies available	Observer data analysis	3aS-SDN catch is a fraction of 3aN-SDN catch (0.04%). Bycatch profile was extrapolated from 3aN-SDN observer data and 4-SDN.	4-SDN catch is a fraction of 3aN-SDN catch (18%). Bycatch profile was extrapolated from 3aN-SDN observer data and 3aS-SDN.	Observer data analysis	Observer data analysis	Observer data analysis	TR2 catch volume is minor compared to 4-TR1 (700 t vs 27,000t). Bycatch profile extrapolated from CVO 4-TR2 WMR DCF self-sampling data.	Observer data analysis	Observer data analysis	Observer data analysis
Plaice 3aN, 4	Plaice 3a. 21-23	Plaice 3aN, 4	Plaice 3aN, 4	Plaice 3aN, 4	Plaice 3aN, 4	Cod 3aN,4,7d	Plaice 3aN, 4	Plaice 3a. 21-23	Plaice 3aN, 4	Plaice 3aN, 4	Plaice 3a. 21-23	Plaice 3aN, 4	Plaice 3aN, 4	Pandalus	Nephrops 3a	Pandalus
Cod 3aN,4,7d	Cod 3aS	Cod 3aN,4,7d	**Cod 3aN,4,7d**	**Anglerfish 3a, 4, 6**	Cod 3aN,4,7d	Haddock 3a, 4, 6a	Cod 3aN,4,7d	**Cod 3aS**	Cod 3aN,4,7d	Nephrops 3a	Nephrops 3a	Cod 3aN,4,7d	Nephrops 4 (FU33)	**Norway pout 3a, 4**	Plaice 3a. 21-23	**Norway pout 3a, 4**
Anglerfish 3a, 4, 6	Sole 3a, 22-24	Sole 4	**Anglerfish 3a, 4, 6**	**Cod 3aN,4,7d**	**Dab 3a, 4**		Dab 3a,4	**Dab 3a,4**	**Dab 3a,4**	Cod 3aN,4,7d	Cod 3aS	Saithe 3a, 4, 6		Saithe 3a, 4, 6	Cod 3aS	Saithe 3a, 4, 6
	Lumpfish 3aS	Anglerfish 3a, 4, 6					Witch 3a,4,7d	**Witch 3a,4,7d**	**Witch 3a,4,7d**	Saithe 3a, 4, 6	Dab 3a,4	Hake		Cod 3aN,4,7d	**Dab 3a, 4**	Cod 3aN,4,7d
	Dab 3a, 4							**Flounder 3a,4**	**Flounder 3a,4**	**Anglerfish 3a,4,6**	Whiting 3a	Anglerfish 3a,4,6		***Caridea* (assumed to be unidentified** Pandalus). See recommendation 2.	Flounder 3a, 4	
	Flounder 3, 4							**Tub gurnard 3aS, 4**	**Tub gurnard 3aS, 4**	Witch 3a,4,7d						
	Anglerfish 3a, 4, 6															

Table 4. Overview of main primary/secondary species for SFPO UoAs and how they were determined (1st row). Blue: P1 species not further assessed under P2 as per MSC variation on this fishery; Black normal font: was assessed for this UoA during initial assessment; Black bold font: has been assessed, but not for this UoA; Green: new species or stock, not previously considered in this assessment.

3a-POT	3aS-SN	3aN-SN	3aN-TR PRAWN	3aS-TR PRAWN	3aN-TR	3aS-TR	4-TR1	3aN-SDN	4-SDN
UoA observer data analysis	UoA observer data analysis supplemented with STECF landings and discard data	STECF landings and discard data and extrapolation from 3aS-SN observer data	UoA observer data analysis supplemented with STECF landings and discard data	STECF landings and discard data and bycatch profile extrapolated from 3aN-TR PRAWN observer data (note: 3aS catches are 0.6% of 3aN catches)	UoA observer data analysis supplemented with STECF landings and discard data	UoA observer data analysis supplemented with STECF landings and discard data	STECF landings and discard data and bycatch profile extrapolated from DFPO 4-TR1 observer data (Table 3)	STECF landings and discard data and bycatch profile extrapolated from DFPO 3aN-SDN observer data (Table 3)	STECF landings and discard data and bycatch profile extrapolated from DFPO 4-SDN data (Table 3)
Nephrops 3a	Plaice 3a. 21-23	Plaice 3aN, 4	Pandalus	Pandalus	Nephrops 3a	Nephrops 3a	Saithe 3a, 4, 6	Saithe 3a, 4, 6	Saithe 3a, 4, 6

3a-POT	3aS-SN	3aN-SN	3aN-TR PRAWN	3aS-TR PRAWN	3aN-TR	3aS-TR	4-TR1	3aN-SDN	4-SDN
Edible crab 3a	Lumpfish 3a	**Lumpfish 3a**	Norway pout 3a,4	Cod 3aS	Cod 3aN,4,7d	Cod 3aS	Cod 3aN,4,7d	Cod 3aN,4,7d	Cod 3aN,4,7d
Harbour crab 3a	**Dab 3a,4**	**Dab 3a,4**	Saithe 3a, 4, 6	Norway pout 3a,4	Saithe 3a, 4, 6	Plaice 3a. 21-23	Haddock 3a, 4, 6a	Haddock 3a, 4, 6a	Hake
Cod 3aS	Sole 3a, 22-24	Sole 3a, 22-24	Cod 3aN,4,7d	Saithe 3a, 4, 6	Plaice 3aN, 4	**Greater weever 3a**	Plaice 3aN, 4	Plaice 3aN, 4	Plaice 3aN, 4
Atlanto-Scandian herring	Turbot 3a	**Turbot 3a**			Witch 3a,4,7d	Whiting 3a	Hake	Hake	**Dab 3a,4**
NSAS herring	**Flounder 3a, 4**	**Flounder 3a, 4**			**Anglerfish 3a,4,6**		**Anglerfish 3a,4,6**	Dab 3a,4	**Witch 3a,4,7d**
	Brill 3a, 4, 7	**Brill 3a, 4, 7**			Haddock 3a, 4, 6a			Witch 3a,4,7d	**Flounder 3a,4**
	Cod 3aS	Cod 3aN,4,7d							**Tub gurnard 3aS, 4**
	Mackerel NE Atlantic	Mackerel NE Atlantic							
	Edible crab 3a	Pollack 3a							
		Herring NSAS							
		Herring WBSS							
		Edible crab 3a							

Table 5. Overview of main primary/secondary species for CVO UoAs and how they were determined (1st row – where proxies were used this is highlighted in grey). Blue: P1 species not further assessed under P2 as per MSC variation on this fishery; Black normal font: was assessed for this UoA during initial assessment; Black bold font: has been assessed, but not for this UoA; Green: new species or stock, not previously considered in this assessment.

4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2	4-SN
UoA landings and DCF self-sampling data reported by WMR	UoA landings and extrapolation from DCF self-sampling data reported by WMR for 4-BT1	UoA landings and DCF self-sampling data reported by WMR	UoA landings and DCF self-sampling data reported by WMR	UoA landings and extrapolation from DCF self-sampling data reported by WMR for 4-TR1	UoA landings and DCF self-sampling data reported by WMR	UoA landings data and extrapolation from DFPO 4-SN data (see Table 3)
Plaice 3aN, 4	Plaice 3aN, 4	Plaice 3aN, 4	Plaice 3aN, 4	Plaice 3aN, 4	Plaice 3aN, 4	Sole 4
Dab 3a,4	Dab 3a,4	Sole 4	Dab 3a,4	Dab 3a,4	Whiting 4, 7d	Bass 4,7
Grey gurnard 4, 7d, 3a	**Grey gurnard 4, 7d, 3a**	**Turbot 4**	Grey gurnard 4, 7d, 3a	**Grey gurnard 4, 7d, 3a**	Dab 3a,4	Dab 3a,4
		Tub gurnard 3aS, 4		Saithe 3a, 4, 6	Grey gurnard 4, 7d, 3a	Plaice 3aN, 4
				Cod 3aN,4,7d	*Nephrops* 4 (FU 5)	Cod 3aN,4,7d
					Cod 3aN,4,7d	**Anglerfish 3a, 4, 6**
					Tub gurnard 3aS, 4	
					Mackerel NE Atlantic	
					Horse mackerel 3a,4b-c,7d	

Table 6. Overview of main primary/secondary species for EZG UoAs and how they were determined (1st row – where proxies were used this is highlighted in grey). Blue: P1 species; Black normal font: was assessed for this UoA during initial assessment; Black bold font: has been assessed, but not for this UoA; Green: new species or stock, not previously considered in this assessment.

3aN-SN	**3aN-TR**	**4-SN**	**4-TR1**
Bycatch profile based on EZG landings data and extrapolated from DFPO 3aN-SN observer data (see Table 3)	Total landings for 3aN-TR were a fraction (~3%) of 4-TR1. Bycatch profile based on EZG landings data and extrapolated from 4-TR1 observer and landings data	Bycatch profile based on EZG landings data and extrapolated from DFPO 4-SN data (see Table 3)	Observer and landings data analysis
Plaice 3aN, 4	Saithe 3a, 4, 6	Cod 3aN,4,7d	Saithe 3a, 4, 6
Cod 3aN,4,7d	Cod 3aN,4,7d	Sole 4	Cod 3aN,4,7d
Anglerfish 3a, 4, 6	Haddock 3a, 4, 6a	Plaice 3aN, 4	Hake
Pollack 3a		Anglerfish 3a, 4, 6	
Sole 3a, 22-24			
Edible crab 3a			

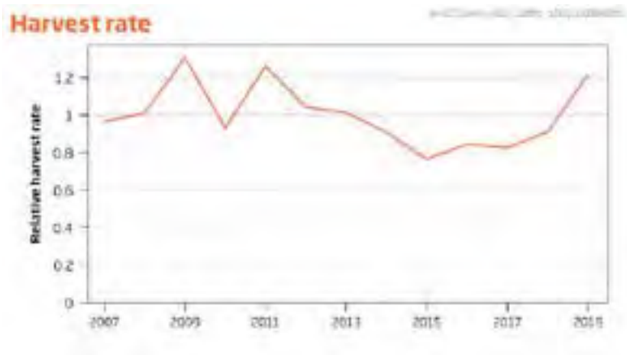
2.2.5 Rescoring tables Primary species

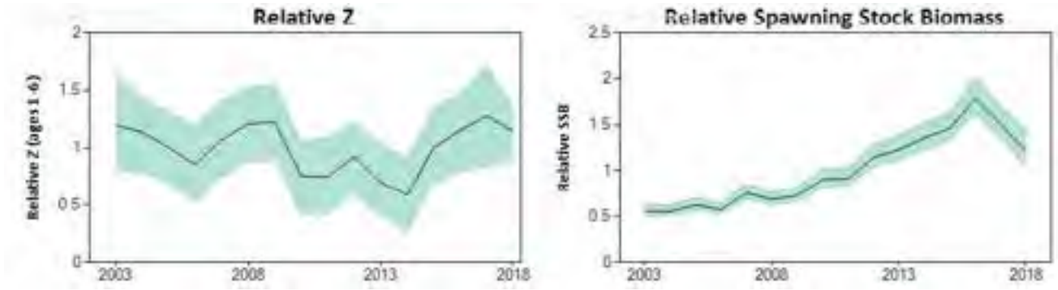
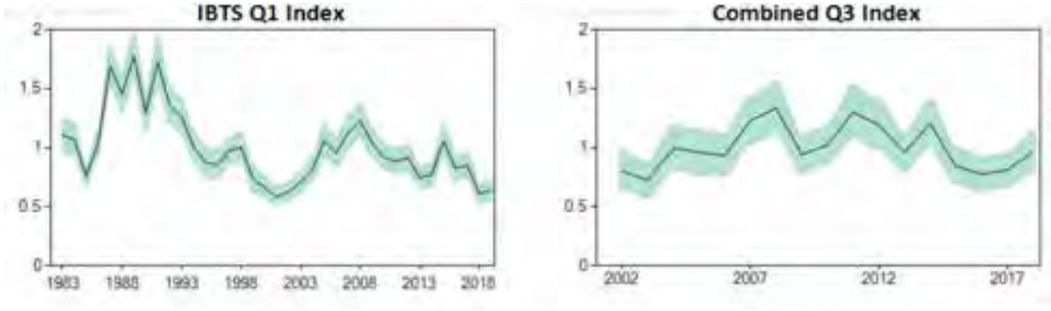
2.2.5.1 PI2.1.1

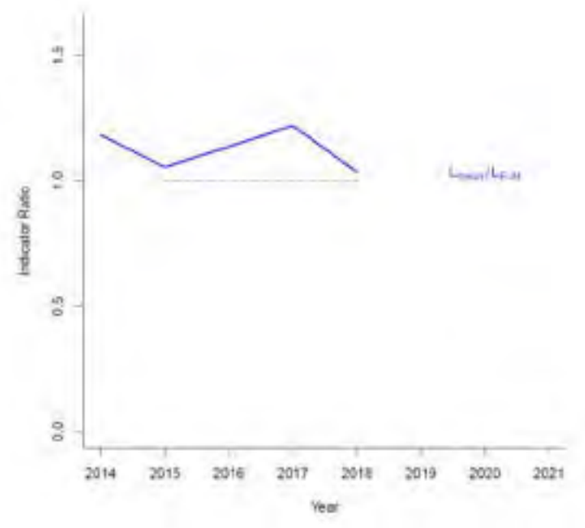
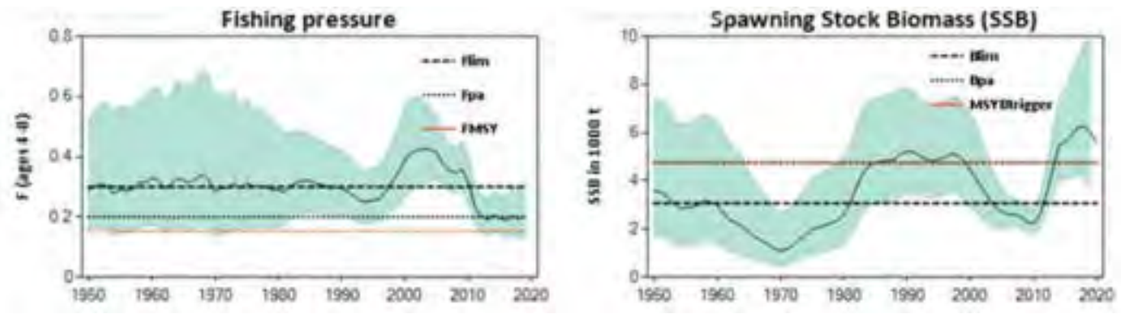
Evaluation Table for PI 2.1.1 – Primary species outcome

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

The purpose of a surveillance audit is to review the up-to-date information on the fishery to determine whether any performance indicators require rescoring (i.e. whether there has been a material change). For the main primary species identified at this surveillance, the team reviewed the latest ICES advice to determine whether rescoring against 2.1.1 is required. Where stock status has remained the same, the score as given in the Public Certification Report has been adopted. Where there is a change in stock status, the new scores are presented underneath the summary table. Any scoring changes in the summary table are shown in red.

Primary species/stock	**Reference latest ICES advice**	**Material change in status?**	**Scoring outcome**		
			SG60 met	**SG80 met**	**SG100 met**
Cod 3aN,4,7d	ICES_COD (2020a)	Yes – see below for rescoring	Yes	No	No
Cod 3aS	ICES_COD (2020b)	Yes – see below for rescoring	Yes	No	No
Anglerfish 3a, 4, 6	ICES_ANG (2020)	No – Survey-based index is estimated to have decreased by more than 20% with harvest rate increasing; however stock-size indicator is still well above lowest point in the timeseries.  	Yes	Yes	No

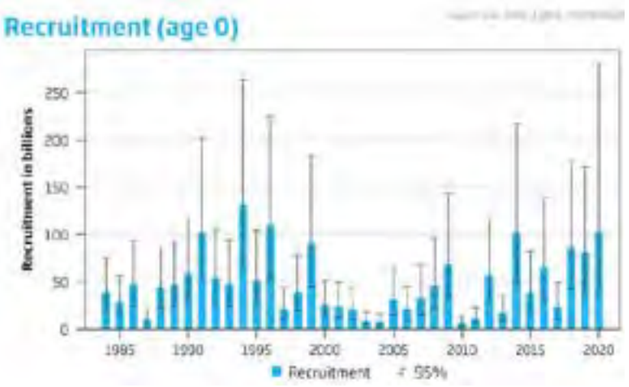
Primary species/stock	Reference latest ICES advice	Material change in status?	Scoring outcome		
			SG60 met	SG80 met	SG100 met
		Figure 1. Anglerfish in subareas 4 and 6, and in Division 3.a. Summary of the stock assessment. Left: Relative harvest rate (total catch/stock-size indicator; normalized to the average harvest rate). Right: Stock biomass from the SIAMISS-Q2 survey. The horizontal orange lines indicate the average of the most recent two years (with 2020 not available) and the previous three years.			
Dab 3a, 4	ICES_DAB (2019)	No - ICES assesses that fishing pressure on the stock is below F_{MSY} proxy, and the spawning stock size is above MSY $B_{trigger}$ proxy.  **Figure 2. Dab in Subarea 4 and Division 3.a. Summary of the stock assessment. Left: relative fishing pressure. Right: relative spawning-stock biomass. Shaded areas in Z and SSB and error bars in R show 90% confidence intervals.**	Yes	Yes	Yes
Flounder 3, 4	ICES_FLO (2019)	No – ICES assesses that fishing pressure on the stock is below F_{MSY}. The stock size indices are stable or have been increasing in recent years.  **Figure 3. Flounder in Subarea 4 and Division 3.a. Summary of the stock assessment. Left: Relative index from IBTS Q1. Right: Relative index combining IBT SQ3, BTS, and SNS. The indices are standardized to their mean.**	Yes	Yes	No

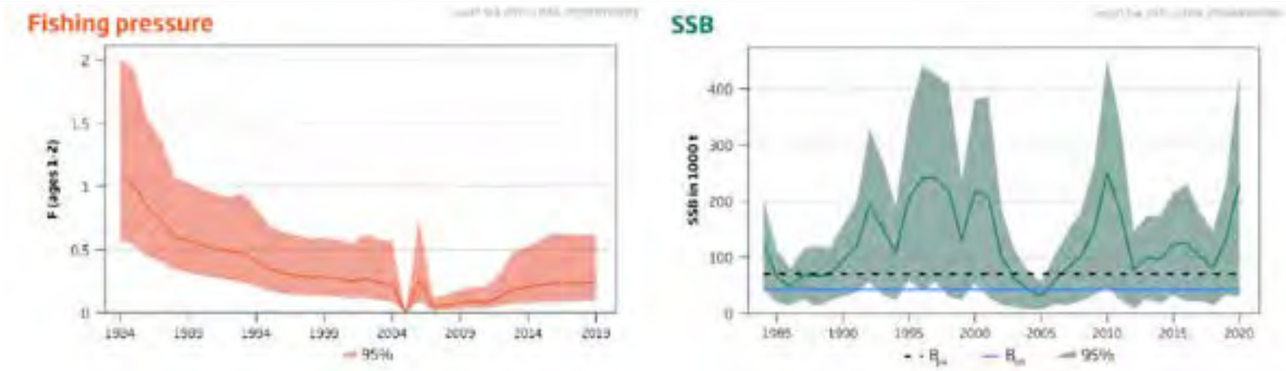
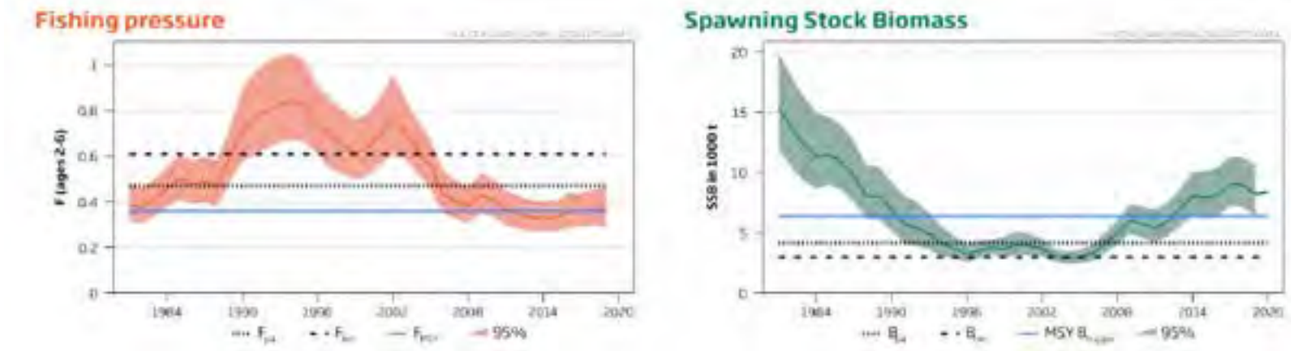
Primary species/stock	Reference latest ICES advice	Material change in status?	Scoring outcome		
			SG60 met	SG80 met	SG100 met
		 **Figure 4. Flounder in Subarea 4 and Division 3.a. The index ratio Lmean/LF = M from the length-based indicator (LBI) method is used for the evaluation of the exploitation status. The exploitation status is below the F_{MSY} proxy when the index ratio value is higher than 1.**			
Witch 3a,4,7d	ICES_WIT (2020)	No – SSB lowest 95%CI bound is well above B_{lim}.  **Figure 5. Witch in Subarea 4 and divisions 3.a and 7.d. The shaded areas on the spawning-stock biomass (SSB) and fishing pressure (F) plots, and the error bars on the recruitment (R) plot represent 95% confidence intervals. The assumed recruitment for 2020 is unshaded. SSB is estimated at the middle of the year (i.e. spawning time). Landings below minimum conservation reference size (BMS) are those officially reported.**	Yes	Yes	Yes
Nephrops 4 (FU 33)	ICES_NEP (2020a)	Yes – see below for rescoring.	Yes	Yes	No
Nephrops 4 (FU 5)	ICES_NEP (2020b)	No – Harvest rate based on average 2010-19 and maximum landings (for assumed stock density of 0.7 m^{-2}) remains within the bounds of precautionary MSY harvest rate estimates across the North Sea FUs (7.5 – 16%). The first part of SG80 continues to be met. **Table 7. Norway lobster in divisions 4.b and 4.c, FU 5. Sensitivity analysis of harvest rates for a range of densities. Shaded cells indicate harvest ratios above the MSY proxy harvest rate for this stock of 7.5%. All weights are in tonnes** (ICES_NEP 2020b)**.**	Yes	Yes	No

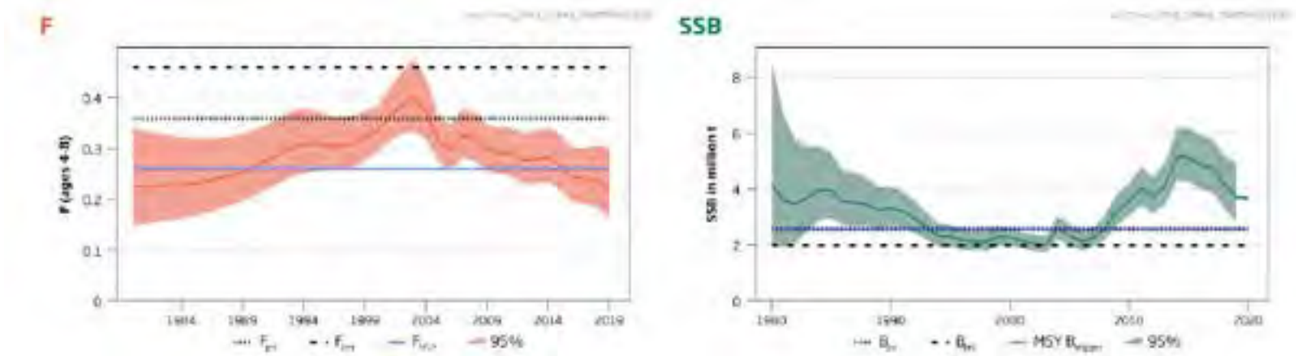
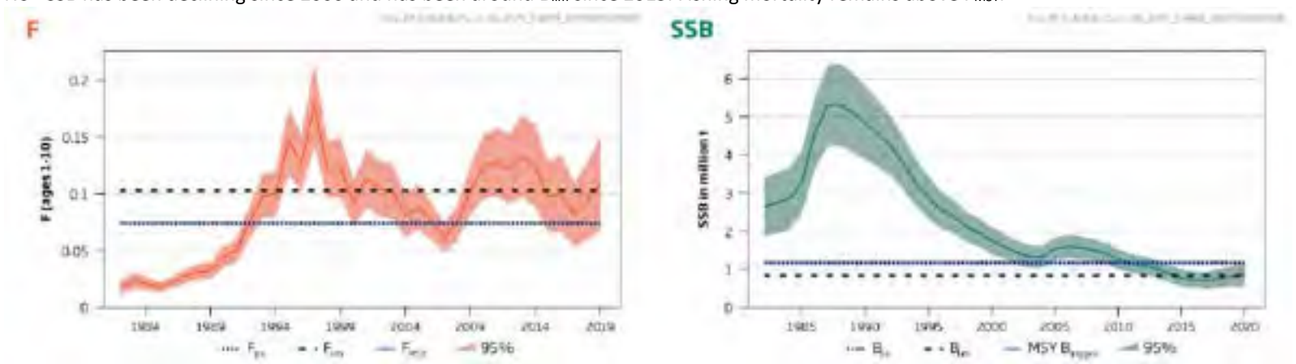
Primary species/stock	Reference latest ICES advice	Material change in status?	Scoring outcome		
			SG60 met	SG80 met	SG100 met

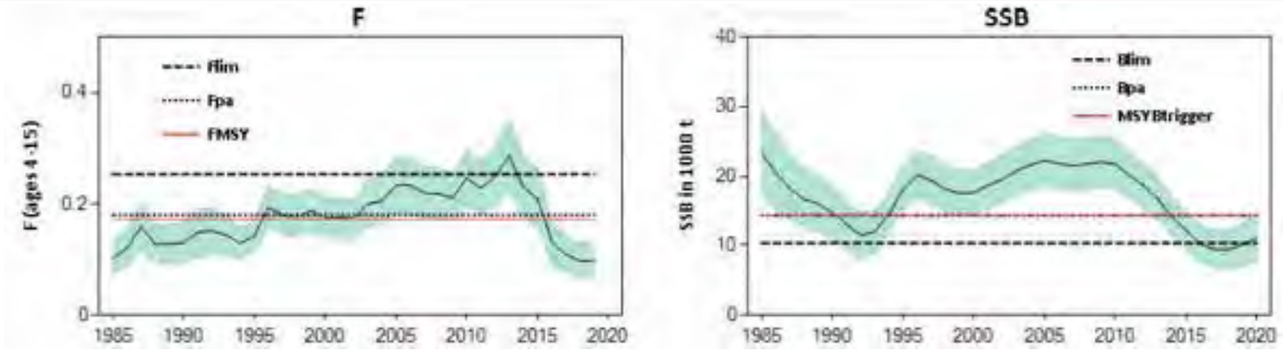
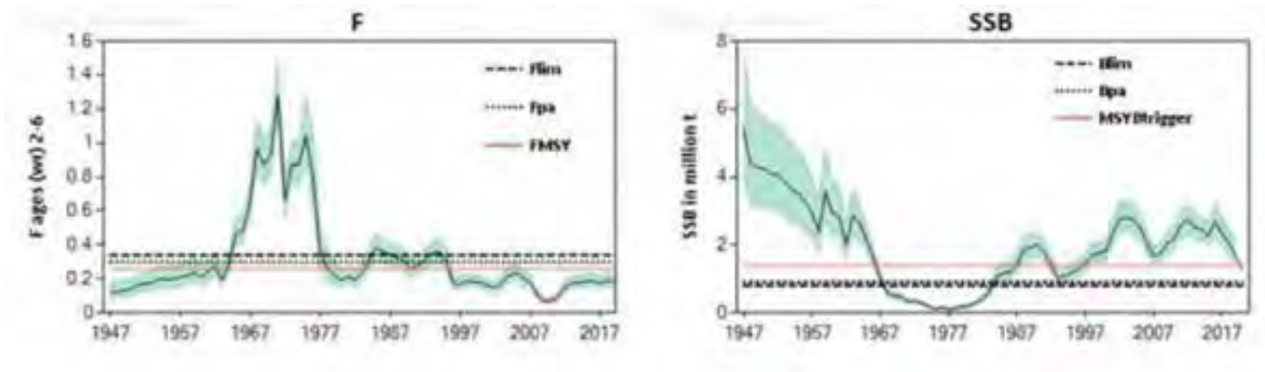
Basis	Total catch	Projected landings	Projected discards	Range of potential densities (*Nephrops* m^{-2})								
				0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7 *	0.8
				Harvest rate in %								
0.5 × average landings (2010–2019)	1070	703	368	45.3	22.7	11.3	7.6	5.7	4.5	3.8	3.2	2.8
0.5 × average landings (2017–2019)	1088	715	374	46.1	23.1	11.5	7.7	5.8	4.6	3.8	3.3	2.9
(Advice for 2019 and 2020 +20%) –20%	1570	1031	539	66.6	33.3	16.6	11.1	8.3	6.7	5.5	4.8	4.2
Advice for 2019 and 2020	1636	1074	562	69.3	34.7	17.3	11.6	8.7	6.9	5.8	5.0	4.3
Advice for 2019 and 2020 +20%	1963	1289	674	83.2	41.6	20.8	13.9	10.4	8.3	6.9	5.9	5.2
Average landings (2010–2019)	2140	1405	735	90.7	45.3	22.7	15.1	11.3	9.1	7.6	6.5	5.7
Average landings (2017–2019)	2177	1429	748		46.1	23.1	15.4	11.5	9.2	7.7	6.6	5.8
MSY proxy harvest rate	2478	1627	851		52.5	26.3	17.5	13.1	10.5	8.8	7.5	6.6
Average landings (2010–2019) +20%	2568	1686	882		54.4	27.2	18.1	13.6	10.9	9.1	7.8	6.8
Maximum landings	3861	2535	1326		81.8	40.9	27.3	20.5	16.4	13.6	11.7	10.2

* Density assumed for this stock.

Norway pout 3a, 4	ICES_NOP (2020)	No – An upward revision of SSB as well as the strong 2018–2020 year classes has resulted in a change in advice (+52%) compared to last year's advice. 	Yes	Yes	No

Primary species/stock	Reference latest ICES advice	Material change in status?	Scoring outcome		
			SG60 met	SG80 met	SG100 met
		 **Figure 6. Norway pout in Subarea 4 and Division 3.a. Summary of the stock assessment. SSB is estimated at the beginning of quarter 4. Shaded areas (F, SSB) and error bars (R) indicate 95% confidence intervals.**			
Turbot 4	ICES_TUR (2020a)	No – Lower bound of SSB 95% CI remains well above B_{lim} and is above or fluctuating around MSY $B_{trigger}$.  **Figure 7. Turbot in Subarea 4. Summary of the stock assessment (weights in thousand tonnes). Shaded areas represent 95% confidence intervals.**	Yes	Yes	Yes
Brill 3a, 4, 7 (new stock)	ICES_BRI (2020)	New stock – see below for scoring.	Yes	Yes	Yes
Mackerel NE Atlantic		No – The spawning-stock biomass (SSB) is estimated to have increased since 2007, reaching a maximum in 2014, and has been declining since then. It has, however, remained above MSY $B_{trigger}$ since 2008. The fishing mortality (F) has declined since 2003, and is estimated to have been below F_{MSY} since 2016. There has been a succession of large year classes since 2001, with year classes since 2011 estimated to be above average.	Yes	Yes	Yes

Primary species/stock	Reference latest ICES advice	Material change in status?	Scoring outcome		
			SG60 met	SG80 met	SG100 met
		 **Figure 8. Mackerel in subareas 1–8 and 14, and in Division 9.a. Summary of the stock assessment (weights in thousand tonnes). F: Fishing pressure. SSB: Spawning Stock Biomass. Shaded areas represent 95% confidence intervals.**			
Horse mackerel 3a,4b-c,7d	ICES_HOR (2020)	No - SSB has been declining since 2006 and has been around B_{lim} since 2015. Fishing mortality remains above F_{MSY}.  **Figure 9. Horse mackerel in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k. Summary of the stock assessment. F is the fishing mortality weighted by population numbers, and SSB is the spawning-stock biomass. Plots show the relevant confidence intervals.** *Initial assessment identified this stock as 'main' for the CVO 4-TR1 UoA. At this surveillance, based on UoA-specific data, the stock was identified as 'main' for the CVO 4-TR2 UoA only. However, the overall assessment remains valid, in that CVO landings for this stock (2017-19 average of 194.73 tonnes) are a small fraction (0.19%) of the average ICES landings for that same period (99,970 t). There are no other fisheries in the MSC programme that have this stock as 'main'. Therefore, the second part of SG80 continues to be met.	Yes	Yes*	No
Bass 4,7	ICES_BAS (2020)	No - Spawning-stock biomass (SSB) has been declining since 2009 and is currently below MSY $B_{trigger}$ and just above B_{lim}. Fishing mortality (F) has increased over the time-series, peaking in 2013 before a rapid decline to below F_{MSY}. After a period of above average recruitment (R), recruitment is low, fluctuating without trend since 2008. This species was identified as 'main' for the CVO 4-SN fleet during this surveillance – as per the initial assessment. Estimated landings (4.29 tonnes – 2017-20 average) remain a fraction of average total ICES landings for that same time period (968t). With F remaining well below F_{MSY} and SSB experiencing an upward trend, evidence of recovery or a demonstrably effective strategy is in place so that the second part of SG80 continues to be met.	Yes	Yes	No

Primary species/stock	Reference latest ICES advice	Material change in status?	Scoring outcome		
			SG60 met	SG80 met	SG100 met
		 **Figure 10. Sea bass in divisions 4.b–c, 7.a, and 7.d–h. Summary of the stock assessment. Fishing mortality (F) is shown for the combined commercial and recreational fisheries. F and spawning-stock biomass (SSB) are shown with 95% confidence intervals.**			
Atlanto-Scandian herring	ICES_HER (2020b)	Yes – see below for scoring.	Yes	Yes	No
NSAS herring	ICES_HER (2020a)	No – F remains below F_{MSY} and lower bound of SSB 95% CI is well above B_{lim} although dropping below MSY $B_{trigger}$ in recent years.  **Figure 11. Herring in Subarea 4 and divisions 3.a and 7.d, autumn spawners. Summary of the stock assessment; 95% confidence intervals are shown for SSB and F.**	Yes	Yes	No
WBSS herring	ICES_HER (2020c)	No – SSB remains below B_{lim} and F is declining but not yet at a level below F_{MSY}. A condition is in place for this stock for SFPO 3aN-SN and 3aS-SN UoAs (the stock was only considered main for 3aN-SN in this surveillance; however the condition remains in place for both UoAs).	Yes	No	No

Primary species/stock	Reference latest ICES advice	Material change in status?	Scoring outcome		
			SG60 met	SG80 met	SG100 met

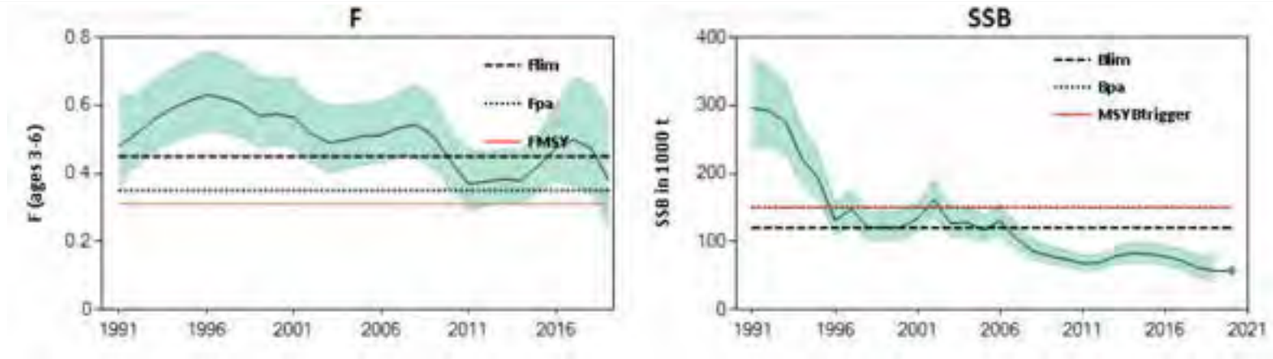


Figure 12. Herring in subdivisions 20–24, spring spawners. Fishing mortality (F) and spawning-stock biomass (SSB) from the summary of the stock assessment; 95% confidence intervals are shown. The grey diamond in the SSB plot is a predicted number for 2020.

Rescoring rationales

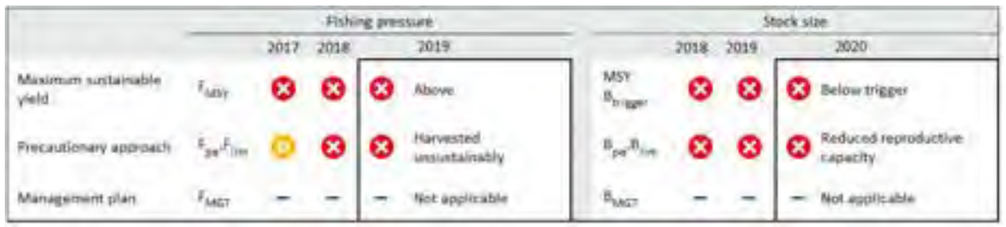
Cod 3aN,4,7d (note: old rationale in blue):

Spawner biomass has increased strongly from the historic low (~2006) and is above B_{lim} but below MSY $B_{trigger}$. F has decreased significantly but remains above F_{MSY}, although it has been below F_{lim} with a high degree of confidence since ~2008. SSB in 2018 is estimated to be above B_{lim} with ~60% probability, below the 70% threshold set by MSC for 'likely'. The first part of SG60 is not met.

The stock has been managed since 2008 under a EU-Norway Long Term Management Plan (LTMP); initially the 'Cod Recovery Plan', but switched in 2013 from rebuilding to the long-term phase in 2013. ICES initially evaluated the strategy as consistent with the precautionary approach but note that since the benchmarking of the stock assessment and significant change in the reference point values in 2015 and 2017, a re-evaluation is required. For this reason, ICES provided advice in 2018 based on the MSY approach. This means advice is based on fishing at F_{MSY} if the stock is above MSY Bt_{rigger}, but between MSY $B_{trigger}$ and B_{lim} (the current situation with revised reference points), the target F is adjusted downwards according to the current biomass as a proportion of MSY $B_{trigger}$. The EU have also proposed a multi-annual plan for the stock (2016) but as of May 2018, this was not agreed by Norway and therefore not taken as the basis for advice. ICES range of advice options show that the MSY approach (adopted to provide advice) results in a 47% reduction in the TAC, compared to a 65% reduction under the EU MAP and a 20% reduction under the EU-Norway LTMP.

It is important to note that the perception of poor stock status relative to the last few years is not a function of a reduction in SSB, but is rather a consequence of review and revision of stock reference points towards a more precautionary level. In fact, SSB has been increasing year-on-year since 2006, although the rate of increase has slowed or perhaps stalled since 2016. The strategy has therefore been demonstrably effective up till now. It is reasonable to suppose that the reduction in the TAC proposed by ICES will reduce F by a significant amount, and since TACs have been at this level or lower in the recent past (nearly every year from 2003-2015) a TAC reduction is deliverable. Since the strategy covers the stock as a whole, it includes all fisheries on the stock, MSC or otherwise. On this basis, since there is demonstrable evidence of recovery, which should continue under the agreed strategy (the MSY approach), SG80 is met.

In recent years (since 2017), assessments of this stock have resulted in a downscaling of SSB and an upward revision of F. This is caused by lower catch rates of older fish in the IBTS surveys compared to the commercial catches. The reason for this discrepancy is not fully understood and might include a number of possible ecological and anthropogenic drivers (ICES_COD 2020a). The stock was on a recovery trajectory from ~2006-2015) and biomass increased briefly above Blim. Previous ICES assessments gave a more optimistic picture of the stock, with biomass estimated to have been close to Btrigger. For this reason, the Cod Recovery Plan was replaced by a long-term management plan, and some of the main elements (notably restrictions on days at sea) were scrapped in 2017. ICES notes that it is unclear whether this has had any impact on the stock, and if so what (ICES_COD 2019). Figure 4 in ICES_COD (2019) also provides an evaluation of biomass by area within the North Sea, showing that in the southern North Sea, there was never any recovery trend at all, while in the other areas, the trend was strong, but reversed abruptly after 2017. ICES suggest that this pattern may be driven by climate change, biological or fisheries effects, or a mixture, with further work needed to establish the main drivers of these trends. The latest ICES assessment for North Sea cod (ICES_COD 2020a) estimates that the upper bound of the 95% CI for SSB (79,522 t) is now well below Blim (107,000 t). There is therefore a high degree of certainty that this stock is below the point of recruitment impairment. The first part of SG60 and S80 is not met.



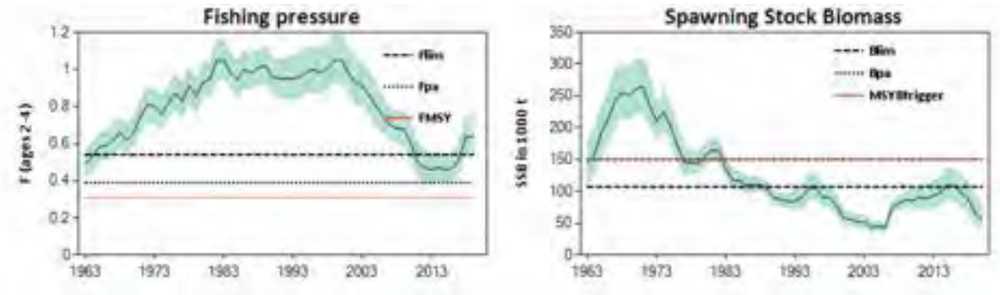


Figure 13. Cod in Subarea 4, Division 7.d, and Subdivision 20. Top: State of the stock and the fishery relative to reference points. Bottom: Summary of the stock assessment. Catches are assessment estimates. Only positive unaccounted removals are plotted. Shaded areas (F, SSB) and error bars (R) indicate 95% confidence intervals. Landings below minimum conservation reference size as officially reported. From ICES (2020)**.**

For the second statement of SG60 to be met, the UoA must have measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding. Although this stock is included in the EU multiannual plan (MAP) for demersal stocks in the North Sea EU (2018), this plan has not been adopted by Norway and ICES advice continues to be based on the MSY approach, with the MAP FMSY lower and upper ranges included as a catch option (ICES_COD 2020b). This stock is therefore managed through a combination of monitoring and reference points-based stock assessment, which forms the basis for the ICES advice based on the MSY approach. The latter is then used as a basis for TAC setting through previously bilateral (EU-Norway) and now trilateral (EU-Norway-UK) negotiations.

At the UoA level, it can be argued that even if the total catch of a species is clearly hindering recovery, UoA catches of less than 30% of the total catch of a species may not normally be influential in hindering a recovery in a marginal sense, i.e., nothing the UoA does would be likely to change the situation (GSA3.4.6). In this sense, the team considered the average 2017-19 UoA landings below, as extracted from the UoA data tables in Appendix 5.2, none of which made up more than 30% of the 2019 landings estimated by ICES (28,558t - ICES_COD (2020a)) – the highest landings correspond to the DFPO 4-TR1 fleet which made up ca. 17% of total cod landings (with a 3.5% discard rate based on observer data). It can therefore be concluded that each UoA has measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding (i.e. the measure in place is the UoA's low contribution to overall catch). **Therefore SG60 is met.**

Average 2017-19 cod 3aN,4,7d landings (in tonnes) per UoA (where the stock is main):

- DFPO 3aN-SN: 759.56
- DFPO 4-SN: 890.67
- DFPO 3aN-BT: 1.77
- DFPO 4-BT1: 10.28
- DFPO 3aN-LL: 14.65
- DFPO 3aN-SDN: 421.79
- DFPO 4-SDN: 187.47
- DFPO 3aN-TR: 2,726.33
- DFPO 4-TR1: 4,626.69
- DFPO 3aN-TR PRAWN: 186.26
- DFPO 4-TR PRAWN: 7.94
- EZG 3aN-SN: 12.86
- EZG 3aN-TR: 35.23
- EZG 4-SN: 52.44
- EZG 4-TR1: 872.97
- CVO 3aN-TR: 23.48
- CVO 4-TR2: 341.37
- CVO 4-SN: 0.38
- SFPO 3aN-SN: 65.46
- SFPO 3aN-TR PRAWN: 212.78
- SFPO 3aN-TR: 397.29
- SFPO 4-TR1: 292.97
- SFPO 3aN-SDN: 19.11
- SFPO 4-SDN: 33.63

With respect to SG80, there should be either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding. Based on the 2017-19 average landings data, presented above, the UoAs included in the JDF alone collectively account for more than 40% of the total catch. Without taking into account any other fisheries in the MSC programme that have this species as main, it is clear that GSA3.4.6 does not apply. The TACs for the last two years (2019, 2020) have been set in excess of the ICES advised catch (see Table 4a, b and c in ICES (2020)). Furthermore, for 2019, the ICES estimated catch (landing + discards) was 35,685 t, well above

the recommended catch of less than 28,204 t. ICES further reports that the below minimum size (BMS) landings of cod reported to ICES are currently negligible, and are much lower than the estimates of catches below the minimum conservation reference size (MCRS) estimated by observer programmes. This suggests that there may still be a degree of unreported discarding of this species, despite the fact that all cod must be landed as per the EU Landing Obligation. In the absence of clear evidence of recovery of this stock, or a demonstrably effective strategy between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding, **it cannot be concluded that SG80 is met.**

Cod 3aS - (note: old rationale in blue):

Spawner biomass has increased strongly from the historic low (2009-10) but is still low by historical standards and has declined again in recent years due to poor recruitment. Nevertheless, the highest recruitment in the time series was estimated to be in 2012, at very low estimated biomass. This suggests that the stock is at least 'likely' to be above the PRI. Nevertheless, ICES underline the uncertainty in the stock assessment (explained in detail in Section 3.4.4). The team concluded that the first part of SG60 is met, but the first part of SG80 is not met. There is no directed fishing on the stock; catch is taken as bycatch in various other fisheries. Technical measures are in place to reduce discards of cod (Section 3.4.5); they have resulted in various exemptions from the Landing Obligation (see Section 3.6.2). Details of the stock assessment and 2017 benchmark are given in Section 3.4.4. The stock biomass has been increasing since 2011, although it is estimated to have been declining since 2015, assumed to be because of poor recruitment. The issue of unallocated removals was considered at the 2017 benchmark, and considered likely to be due to interchange between neighbouring stocks, as well as increased seal predation (see Section 3.4.4). On this basis, there is considered to be a strategy for this stock, which has been effective at recovering the stock up until recently; recent declines are due to multiple factors rather than increased fishing pressure, since relative mortality has remained low. All the MSC-certified fisheries taking this stock (as a P2 species) are being subsumed into this assessment. Overall, therefore, SG80 is met.

Spawner biomass remains low by historical standards and has continued to decline since the initial assessment, ICES estimates that 2020 is the historic low. Nevertheless, relative recruitment >1 occurred in 2012-13, when the stock size was at a similar very low relative biomass to that currently in the fishery. In addition, recent recruitment is also increasing (2019-2020) from the low point in 2018 indicative that the stock continues to be at least 'likely' above the PRI; **SG60 is met**. However, the assessment team does not consider this evidence to be sufficient to consider that the stock is highly likely above PRI and **SG80 is not met**.

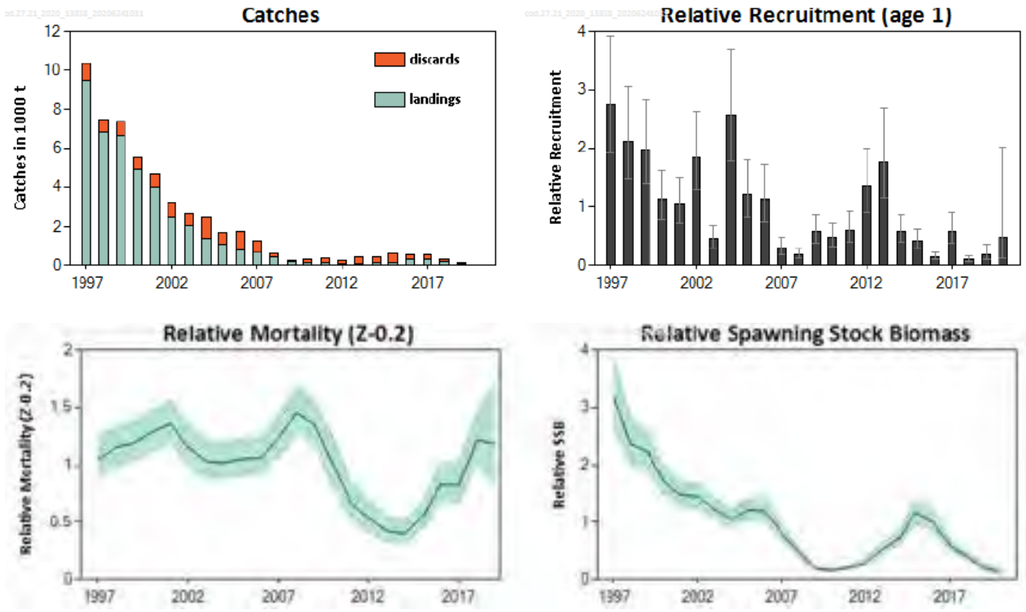


Figure 14. Cod in Subdivision 21. Summary of the stock assessment. Catches (weights in thousand tonnes). Recruitment, mortality, and SSB are relative to the average of the time-series; 95% confidence intervals are shown in the plots.

***Nephrops* 4 (FU 33) (note: old rationale in blue):**

Stock biomass is estimated from one survey in 2017; previously it was inferred from FU7 (the lowest) but the survey result (0.13) is relatively consistent with the previous figure (0.1). Landings have been stable since 2004. Based on assumptions about discards (taken to be the same as FU6 and FU8 – the nearest), ICES estimate that with average landings (2006-2015), the harvest rate on the stock will be 5.1%. This is below 7.5%, which is taken as the lower bound of harvest rate proxies for F_{MSY}, based on North Sea FUs for which this can be calculated (range 7.5-16%). Recent landings have been slightly below this level. On this basis, the stock is considered to be 'highly likely' to be above the PRI, and the first part of SG80 is met. Given the uncertainties in the assessment (a range of plausible but untested assumptions), the first part of SG100 is not met.

In the absence of a full analytical assessment, ICES bases its advice for Norway lobster on the most recent advice. Maximum sustainable yield (MSY) harvest rates estimated for other FUs vary between 7.5% and 16%. ICES uses the lower boundary as an upper limit for advice for data-limited Norway lobster stocks. As long as the harvest rate is less than or equal to 7.5%, the default basis for advice is that catches can be increased from the previous advice, within the 20% uncertainty cap. The advice for this functional unit has been previously based on an assumed density of 0.1 *Nephrops* m^{-2}, corresponding to the lowest observed density in the North Sea (FU 7, Fladen Ground). In 2017, 2018 and 2019, underwater TV (UWTV) surveys were conducted for the first time for this functional unit. The mean observed densities from these surveys (0.073 *Nephrops* m^{-2} in 2019) are now used as a basis for the advice (Table 8). For FU 33, ICES assume a maximum 25% discard rate for the calculation of the harvest rate. On that basis, average 2010-19 and maximum landings are above the 7.5% level (9.2 and 12.8% respectively, see Table 8) but still within the MSY range for North Sea FUs. On this basis, the stock is considered to be 'highly likely' to be above the PRI, and the first part of **SG60 and SG80 continues to be met.** However, there is too much uncertainty to determine that the stock is fluctuating around a level consistent with MSY. **SG100 is not met**.

Table 8. Norway lobster in Division 4.b, FU 33. Sensitivity analysis of harvest rates for a range of potential densities and assuming a discard rate of 25% by number and a mean discard weight of 17.2 g (mean weight in the Danish discards in 2015). Shaded cells indicate harvest ratios above the MSY proxy harvest rate for this stock of 7.5%. All weights are in tonnes (ICES_NEP 2020a)**.**

Basis	Total catch	Projected landings	Projected discards	Density (*Nephrops* m^{-2})									
				0.05	0.073 *	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
				Harvest rate (%)									
0.5 × Average landings (2010–2019)	666	584	82	6.7	4.6	3.3	1.67	1.11	0.84	0.67	0.56	0.48	0.42
Advice for 2020 –20%	820	718	102	8.2	5.6	4.1	2.1	1.37	1.03	0.82	0.69	0.59	0.51
Average landings (2010–2019) –20%	1066	934	132	10.7	7.3	5.3	2.7	1.78	1.34	1.07	0.89	0.76	0.67
MSY proxy harvest rate	1091	956	135	11.0	7.5	5.5	2.7	1.83	1.37	1.10	0.91	0.78	0.68
Average landings (2010–2019)	1332	1167	165	13.4	9.2	6.7	3.3	2.2	1.67	1.34	1.11	0.96	0.84
Maximum	1867	1636	231	18.7	12.8	9.4	4.7	3.1	2.3	1.87	1.56	1.34	1.17

* A density of 0.073 *Nephrops* m^{-2} is the observed density in the UWTV survey 2019 for this functional unit, which is the most recent survey undertaken.

Brill 3a, 4, 7 (new stock)

The stock size is considered to be above MSY proxy and fishing pressure is considered to be below F_{MSY} proxy (ICES_BRI (2020); Figure 15). On that basis, there is a high degree of certainty that brill is above the PRI and is fluctuating around a level consistent with MSY. **SG60, SG80 and SG100 are met**.

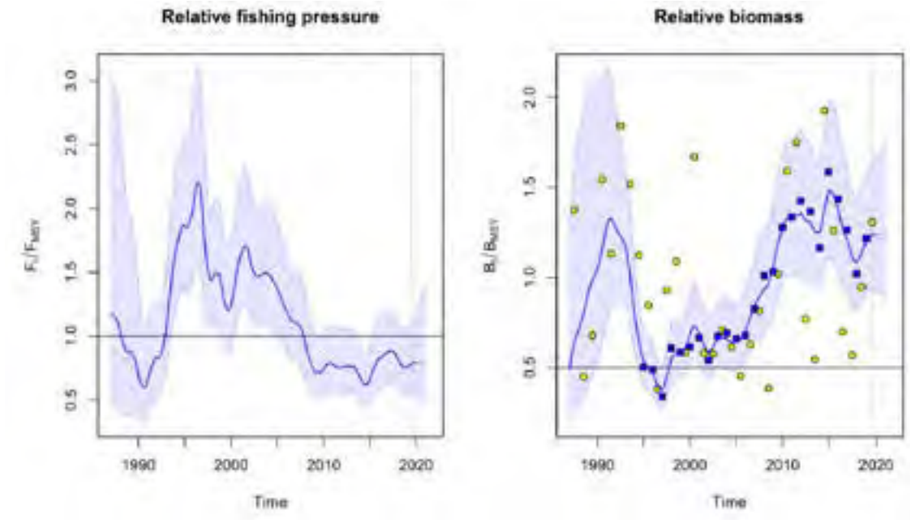


Figure 15. Brill in Subarea 4 and divisions 3.a and 7.d–e. SPiCT analysis showing fishing pressure relative to F_{MSY} (left) and exploitable biomass relative to B_{MSY} (right). The symbols in the relative biomass plot indicate observed biomass indices (blue squares = standardized LPUE from the Dutch beam-trawl fleet for vessels > 221 kW that was applied as the biomass index in the assessment; yellow dots = BTS_ISI_Q3), while the shaded areas in both plots indicate 95% confidence intervals. The horizontal lines indicate F_{MSY} and MSY $B_{trigger}$ proxies. From ICES_BRI (2020)**.**

Atlanto-Scandian herring (note: old rationale in blue):

Stock biomass is estimated to be above B_{pa} with slightly below 95% confidence. F has been below F_{MSY} since ~2011 but was estimated to be above F_{MSY} in 2017. Recruitment has been low since 2007, but 2007-9 (the start of low recruitment) corresponded to the highest biomass in the time series; recruitment in 2018 is estimated to be above average. On this basis, the first part of SG80 and SG100 is met.

The 2020 advice (ICES_HER 2020b) is more pessimistic than the advice available during the initial assessment. SSB has continued its downward trajectory and is now at or just below MSY $B_{trigger}$. F is above F_{MSY} (Figure 16). MSY $B_{trigger}$ implies a 5% probability that the stock is below B_{lim}. Because the lower bound of the 95% CI is below MSY $B_{trigger}$, there is thus no longer a high degree of certainty (95th percentile) that the stock is above the PRI. **SG100 is no longer met. SG60 and SG80 continue to be met** because the lower bound of the SSB 95%CI is above B_{lim}. The stock is therefore highly likely (80th percentile) above the PRI.

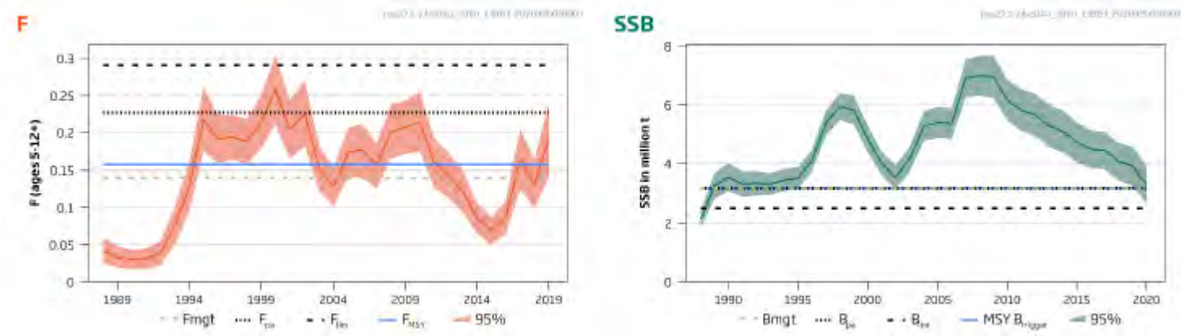


Figure 16. Herring in subareas 1, 2, and 5, and in divisions 4.a and 14.a (Norwegian spring-spawning herring). Summary of the stock assessment. F is the fishing mortality weighted by population numbers, and SSB is the spawning-stock biomass. Plots show the relevant confidence intervals. From ICES_HER (2020b)**.**

b	Minor primary species stock status			
	Scoring Issue	SG 60	SG 80	SG 100
	Guidepost			For minor species that are below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species
	Met?			N

No change – using the all or nothing approach for minor species, SG100 continues to be not met.

References	See references within scoring issue a
OVERALL PERFORMANCE INDICATOR SCORE:	**DFPO: see Table 11** **SFPO: see Table 12** **CVO: see Table 13** **EZG: see Table 14**
CONDITION NUMBER (if relevant):	**NS cod – 1** **3aS cod - 1**

2.2.5.2 PI2.1.2

Evaluation Table for PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guidepost	There are **measures** in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to above the point where recruitment would be impaired.	There is a **partial strategy** in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the point where recruitment would be impaired.	There is a **strategy** in place for the UoA for managing main and minor primary species.
	Met?	Cod 3aS – Yes WBSS herring – Yes Bilateral EU-UK stocks (Table 9) – Yes NSAS herring – Yes Cod 3aN,4,7d – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Cod 3aS – Yes WBSS herring – Yes Bilateral EU-UK stocks (Table 9) – Yes NSAS herring – Yes Cod 3aN,4,7d – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Cod 3aS – Yes WBSS herring – No Bilateral EU-UK stocks (Table 9) – Yes NSAS herring – Yes Cod 3aN,4,7d – Yes Atlanto-Scandian herring – No Mackerel NE Atlantic – No

MSC definition of a strategy (Table SA8):

"**Measures**" are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.

A "**partial strategy**" represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.

A "**strategy**" represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

Note: unless otherwise indicated, all stocks were rescored. In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW."

There have been considerable changes to the management of North Sea fisheries since 2017. These changes are mainly related to: a) the agreement of EU Multiannual Management Plans (North Sea – NSMAP in 2018, and Western Waters – WWMAP in 2019); b) the introduction of the technical measures regulation (EU) 2019/1241 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures; and c) due to the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the EU, a large number of stocks have become shared stocks. As a result, bilateral consultations between the EU and UK, bilateral consultations between the EU and Norway and trilateral consultations between the EU, UK and Norway have to be carried out. As those consultations had not yet been concluded at the time of this surveillance, provisional TACs were established. According to Council Regulation (EU) 2021/406 of 5 March 2021 "*this approach is without prejudice to the Union shares established in the Trade and Cooperation Agreement* (TCA) *between the European Union and the United Kingdom, which will be used to set definitive TACs*". The TCA (TCA 2021) constitutes a common harvest strategy for UK-EU shared stocks. The UK has furthermore committed to ongoing collaboration with ICES by signing a Memorandum of Understanding (see link).

An overview of the Primary species stocks and their management is given in Table 9.

Table 9. Summary of the fisheries management regime per Primary species stock from 2020.

Management	Stock
EU only	Cod 3aS
Bilateral EU-Norway	Herring WBSS
Bilateral EU-UK	Anglerfish 3a, 4, 6 Dab 3a, 4 Flounder 3, 4 Witch 3a,4,7d *Nephrops* 4 (FU33)

Management	Stock
	Nephrops 4 (FU 5) Norway pout 3a, 4 Turbot 4 Brill 3a, 4, 7 Horse mackerel 3a,4b-c,7d Bass 4,7
Trilateral EU-UK-Norway	Cod 3aN,4,7d Herring NSAS
EU, Faroe Islands, Iceland, Norway, Russia and the United Kingdom	Atlanto-Scandian herring
EU, Faroe Islands, Norway, United Kingdom, Iceland and Greenland	Mackerel NE Atlantic

Cod 3aS: The LTMP for cod stocks (Regulation 1342/2008, as amended by Regulation 2016/2094) has been repealed since the initial assessment and a TAC together with the EU Landing Obligation are now the main tools regulating cod catches in the Kattegat (the effort limitations having been repealed with the LTMP) (ICES_WGBFAS 2020). There is no targeted cod fishery in the Kattegat and cod is mainly taken as bycatch in the *Nephrops* fishery, with mortality of the stock strongly correlated with the uptake of the *Nephrops* quota and the effort directed to the *Nephrops* fishery, which according to ICES_WGBFAS (2020) has increased substantially in the last years. In addition, the ICES working group states that "*the removal of the effort system has led to a reduction in the uptake of selective gears in the* Nephrops *fishery which itself has increased the mortality of Kattegat cod"*. This stock was identified as 'main' for the following UoAs:

- DFPO 3aS-SN
- DFPO 3aS-SDN
- DFPO 3aS-TR
- DFPO 3aS-TR PRAWN
- SFPO 3a-POT
- 3aS-SN
- 3aS-TR PRAWN
- 3aS-TR

In Denmark, a number of projects are underway that are relevant for this stock:

- MatRedEx - aims to develop a trawl that is radically different from the current commercial trawl used in the *Nephrops* fishery. The focus of the project is to comply with increased management requirements to reduce CO2-emissions and catches of cod in all Danish waters. The new trawl will be designed to target *Nephrops* as efficiently as the current commercial trawl with very little or no bycatch of cod and other fish while reducing the fuel consumption needed to tow the gear. Specifically, the aims of the project are to: 1) reduce towing resistance and thus fuel consumption considerably by developing a radically new gear design concept that will replace the upper front part of the trawl and 2) increase selectivity of all sizes of cod by developing a low-flow zone in the cod-end using innovative gear materials and fish behaviour.
- Project on provision of discard advice to Danish fisheries and Danish fishermen - aims to 1) collect knowledge and data about discarding in order to improve the knowledge base and the overview of any discard and compliance with the landing obligation in Danish fisheries; 2) Contribute to reducing the discard quantities in Denmark through direct discard advice to the fishermen based on the results for the first objective; and 3) Examine the possibilities for resource utilization of BMS landed fish.
- FAST TRACK II - *Sustainable, cost-effective and responsive fishing solutions under the landing obligation* provides a platform for collaboration between industry, researchers and managers for the continued development of selective gear technologies. Its predecessor FASTTRACK developed and tested a total of 19 gears aboard 13 vessels in the demersal trawl fisheries, namely the Baltic Sea cod trawl fishery, *Pandalus* trawl fishery, *Nephrops* trawl fishery, and the brown shrimp beam trawl fishery. The gears tested either aimed at reducing catches of unwanted species and/or sizes. For the *Nephrops* fishery, a workshop is being organized under FAST TRACK II together with fishermen and net makers to identify the design(s) which will be applicable to most vessels. Following this, scientific testing will be conducted. Finally, an acoustic catch sensor was tested to see if it could limit fishing to areas with high *Nephrops* catches and thus reduce bycatch and benthic impact. Further development is needed to adapt the system to the *Nephrops* fishery (Feekings et al. 2019).
- FORTORSK - Improving the scientific basis for the management of cod stocks in the Baltic Sea and Kattegat, through the development of solutions to the current key challenges in stock assessment and scientific advice, in order to ensure the sustainable exploitation of fishery resources;
- Reference fleet trials in the Kattegat with a view to estimating cod catches: Aims to establish a reference fleet which is monitored for a year using sensors and CCTV cameras in order to obtain accurate and documented catch data (landing and discard) for cod in the Kattegat.

- CCTV monitoring trial by Danish Fisheries Agency of fourteen fishing vessels involved in the *Nephrops* fishery in the Kattegat (the vessels were identified in collaboration with DTU Aqua to ensure representative coverage). The aim is to in time extend this type of surveillance to all vessels involved in the fishery. Although the CCTV cameras are being installed for surveillance, the data will reportedly be available for scientific purposes as well, with one DTU Aqua staff member seconded to the control agency for this purpose.
- FLEXSELECT - The purpose of this project is to develop and demonstrate a simple and efficient system that can be quickly assembled and disassembled for all existing bottom trawls that want to reduce their catch of fish, e.g. to improve the species selection in the Danish mixed fishery for Norway lobsters (see for example Feekings, Malta, et al. (2020) and Feekings, Melli, et al. (2020)).

In Sweden, scientific studies by SLU-aqua showed that SELTRA 300 gear catches 6.32 times less cod with size below MCRS compared to the SELTRA 270. As a consequence, Sweden phased out the less selective SELTRA 270 gear in the Skagerrak in national regulation starting 1 November 2020. This was also introduced for Kattegat through remedial measures in EU-regulation (EU) no 2020/123. Fishing vessels with bottom trawls with mesh size 90 – 119 mm in the Skagerrak and Kattegat now need to be equipped with a SELTRA 300 panel. Sweden also introduced through national regulation an alternative cod end for the *Nephrops* grid fisheries in 2020, designed to decrease catches of juvenile flat- and roundfish, with a combination of square- and diamond mesh. Finally, the Swedish government continues to support innovative action in the development of selective and low impact fishing gear in order to meet the requirements of the landing obligation. Most projects are coordinated and evaluated by the Swedish Secretariat for Selective Fishing at the Swedish Agricultural University on behalf of The Swedish Agency for Marine and Water Management. The aim of the Secretariat is to gather new ideas from fishers and other industry stakeholders on how to fish more selectively. Ideas are developed in cooperation with scientists, and the new gears evaluated scientifically. More information on this can be found here: https://www.slu.se/en/departments/aquatic-resources1/selective-fishing/the-secretariat-for-selective-fishing/

Both Denmark and Sweden are subject to EU technical measures (Regulation (EU) 2019/1241) which set out mesh size restrictions, spatio-temporal restrictions, bycatch limitations and allow for other selectivity modifications which have been assessed by STECF upon request of one or more Member States and approved by the Commission, and which result in the same or better selectivity characteristics for cod, haddock and saithe as that of 120 mm.

Overall, the surveillance team concludes that the combination of ICES stock assessment, TAC setting, landing obligation, technical measures and ongoing research meets the requirements of a strategy. **SG60, SG80 and SG100 are met.**

WBSS herring: No change from initial assessment. This stock continues to be managed under the Baltic MAP although ICES issues advice against the MSY approach because the MAP has not been endorsed by Norway. **No change, not rescored.**

Bilateral EU-UK stocks (see Table 9): The EU fleet is subject to a landing obligation, as well as technical measures regarding gear specifications, mesh sizes, spatio-temporal restrictions and minimum conservation reference sizes. Before 2019, the TACs for these stocks were decided through annual negotiation between EU Member states during the December Fisheries Council. In 2018-2019, the EU Multiannual Plans were agreed, and species specified in Art. 1 were considered target species and as such had their TACs set within an HCR: fishing mortality ranges around F_{MSY}. These MAPs are still in effect for EU fisheries. However, Norway has never agreed to the MAPs HCRs provisions, while the UK since leaving the EU has also not officially endorsed them. The TCA (2021) constitutes a common harvest strategy for UK-EU shared stocks. According to Council Regulation (EU) 2021/406 of 5 March 2021 "*this approach is without prejudice to the Union shares established in the Trade and Cooperation Agreement* (TCA) *between the European Union and the United Kingdom, which will be used to set definitive TACs*". Therefore, a partial strategy is considered in place. **SG60 and SG80 continues to be met for those stocks.** The TACs for joint bilateral stocks are still set in the context of annual bilateral negotiations. The TACs for 2021 were initially set provisionally to 50% of the 2020 TAC for the first half of the year (EC 2021), and bilateral EU-UK TAC negotiations for the remainder of the year were concluded in early June "*allowing for the conduct of fishing activities in an environmentally sustainable way in the long-term, managed in ways consistent with the objectives of achieving economic, social and employment benefits and contributing to the availability of food supplies, including promotion of a level playing field for Union operators where stocks are shared with third countries in both Union other (including third country waters).*" Overall, the team concludes that a strategy is in place for these stocks and **SG100 is met.**

Note that dab and flounder are no longer managed under a TAC. ICES stated that this advice was valid as long as dab and flounder remained largely bycatch species, with the main fleets catching dab and flounder continuing to fish the target species (plaice and sole) sustainably within the F_{MSY} ranges provided by ICES. If this situation changes, or dab is no longer within safe biological limits, this advice would need to be reconsidered. On this basis, the team concludes that a strategy is in place for those species as well. **SG60, SG80 and SG100 are met.**

In respect of seabass, the following amendments were agreed on in June: 1) the commercial trawl/seine flexibility will be reduced from a 520kg cap per two months to a 380kg cap per month within the 5% bass per trip limit; 2) bycatches of seabass in shore-based commercial netting are removed from the scope of the general seabass fishing prohibition. This exemption only applies to historic numbers of locally regulated beach nets set at pre-2017 levels. 3) commercial shore-based netting activities should not target seabass and are only allowed to land unavoidable bycatches. A full strategy remains in place for bass – **SG60, SG80 and SG100 are met.**

Trilateral EU-UK-Norway stocks (NSAS herring and Cod 3aN,4,7d): The trilateral arrangement on jointly managed fisheries stocks in the North Sea for 2021 was agreed between the EU, Norway and the UK in March 2021. The agreement establishes the final TACs for 2021 for those stocks. North Sea cod and herring are therefore managed through a combination of monitoring and stock assessment (see PI 2.1.1) which forms the basis for the ICES advice based on the MSY approach. The latter is then used as a basis for TAC setting through previously bilateral (EU-Norway) and now (2021) trilateral (EU-Norway-UK) negotiations. In addition, the EU fleet is subject to a landing obligation, as well as technical measures regarding gear specifications, mesh sizes, spatio-temporal restrictions and minimum conservation reference sizes. On that basis, the team concludes that a strategy is in place for North Sea cod and herring. **SG60, SG80 and SG100 are met**.

Atlanto-Scandian herring: Score reduced, the long-term management strategy agreed by the European Union, the Faroe Islands, Iceland, Norway, and Russian Federation in 2018 remains in place with TACs set by annual negotiation, **SG60 and SG80 are met.** However, the management of this stock is continuing to fail to maintain catches to the ICES advice through the coastal states continuing to set unilateral quotas without agreement on shares. It cannot be said that modification of fishing practices in the light of the identification of unacceptable impacts is being met and **SG100 is therefore not met**.

Mackerel NE Atlantic: No change, ICES provides advice following the MSY approach, but since 2009 there has been no agreed quota allocation between all parties (**SG60 and SG80 met, SG100 not met**).

b	Management strategy evaluation			
	Guidepost	SG 60	SG 80	SG 100
		The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.

	Met?	Cod 3aS – Yes WBSS herring – Yes Bilateral EU-UK stocks (see Table 9) – Yes NSAS herring – Yes Cod 3aN,4,7d – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Cod 3aS – No WBSS herring – Yes Bilateral EU-UK stocks (see Table 9) – Yes NSAS herring – Yes Cod 3aN,4,7d – No Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Cod 3aS – No WBSS herring – No Bilateral EU-UK stocks (see Table 9) – No NSAS herring – No Cod 3aN,4,7d – No Atlanto-Scandian herring – No Mackerel NE Atlantic – No

Note: unless otherwise indicated, all stocks were rescored. In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW."

Cod 3aS: Cod is mainly taken as bycatch in the *Nephrops* fishery, with mortality of the stock strongly correlated with the uptake of the *Nephrops* quota and the effort directed to the *Nephrops* fishery, which according to ICES_WGBFAS (2020) has increased substantially in the last years. In addition, the ICES working group states that "*the removal of the effort system has led to a reduction in the uptake of selective gears in the* Nephrops *fishery which itself has increased the mortality of Kattegat cod*". Furthermore, while overall landings + discards have decreased since 2017 (see Figure 17 under scoring issue c), the stock is at a historical low point (see 2.1.1), the TAC is set in excess of ICES advice and the practice of discarding in the Danish and Swedish fleets appears to be continuing according to the ICES working group. Although the general downward trend in catches along with the considerable effort currently (being undertaken on gear selectivity and CCTV via the projects discussed in Sia) provides plausible argument that the partial strategy will work, the team felt that an objective basis for confidence is lacking at present. **SG60 is met but not SG80**.

WBSS herring: No change from initial assessment, has not been rescored (**SG60 and SG80 met, SG100 not met**).

Bilateral EU-UK stocks (see Table 9):

For those stocks where the 1st part of SG80 under 2.1.1 (scoring issue a) is met, it can be considered that the good stock status provides an objective basis for confidence that the partial strategy is working and **SG60 and SG80 are met**. Despite the signing off of the TAC negotiations between the EU and UK for 2021 the strategy has not been tested and **SG100 is not met**. This scoring applies to the following stocks:

- Anglerfish 3a, 4, 6
- Dab 3a, 4
- Flounder 3, 4
- Witch 3a,4,7d
- *Nephrops* 4 (FU 33)
- *Nephrops* 4 (FU 5)
- Norway pout 3a, 4
- Turbot 4
- Brill 3a, 4, 7

Horse mackerel 3a,4b-c,7d: No change from initial assessment - Initial assessment identified this stock as 'main' for the CVO 4-TR1 UoA. At this surveillance, based on UoA-specific data, the stock was identified as 'main' for the CVO 4-TR2 UoA only. However, the overall assessment remains valid, in that CVO landings for this stock (2017-19 average of 194.73 tonnes) are a small fraction (0.19%) of the average ICES landings for that same period (99,970 t), providing an objective basis for confidence that the partial strategy will work at the UoA level. **SG60 and SG80 are met.** As the partial strategy has not been tested, **SG100 is not met.**

Bass 4,7: No change from initial assessment and not rescored (**SG60 and SG80 met, SG100 not met**). It is clear that the management strategy has worked to reduce catch and fishing mortality on the stock significantly. According to ICES_BAS (2020), median SSB has recovered to a level above B_{lim}.

Trilateral EU-UK-Norway stocks (NSAS herring and Cod 3aN,4,7d):

NSAS herring: The 2019 management strategy evaluations (MSE) found that the ICES MSY advice rule with current F_{MSY} and MSY $B_{trigger}$ was found not to be precautionary (probability of SSB < B_{lim} higher than 5%) under the assumptions of those simulations (ICES, 2019c in ICES_HER (2020a)). ICES states that this can be explained by technical differences in the evaluation approach used for the MSE compared to the standard approach to estimate MSY reference points. Further investigation is now required to establish if the current reference points need to be re-defined. In the interim ICES will continue to use the current reference points for advice. Although F remains below F_{MSY} and SSB is still highly likely above the PRI (see 2.1.1) despite having declined in recent years, the team concludes that this provides some objective basis for confidence that the strategy will work but that a high degree of confidence is lacking. **SG60 and SG80 are met. SG100 is not met**.

Cod 3aN,4,7d: This stock is managed as per the ICES MSY approach (see scoring issue a). The analysis by ICES of different options for a long-term management strategy for North Sea cod, in response to a request by the EU and Norway, provides a basis for thinking that the strategy will work; i.e. it is precautionary in the long term with P(SSB< B_{lim}) = 0.011 over the final 10 years of the projection: "*All requested management scenarios are considered precautionary in the long term, but none of them in the short term. ICES advises, however, the use of the existing ICES MSY advice rule with an F_{MSY} of 0.31 and an MSY $B_{trigger}$ of 150 000 t, with added stability elements if desired. This is because the ICES MSY advice rule was the only management strategy that was precautionary across all robustness tests, with a minimal loss of yield and reduced interannual variation of the catch*" (ICES 2019a). **SG60 is met.** With respect to SG80, the TACs for the last two years (2019, 2020) have been set in excess of the ICES advised catch (see Table 4a, b and c in ICES (2020)). Furthermore, for 2021, ICES advised that total catch and projected landings in 2021 should not be more than 14,755 and 12,632 tonnes, respectively. However, under the 2021 EU-UK-Norway agreement, a 15,911 t TAC was agreed on (EU 2021). ICES further reports that the below minimum size (BMS) landings of cod reported to ICES are currently negligible and are much lower than the estimates of catches below the minimum conservation reference size (MCRS)

estimated by observer programmes (ICES_WGNSSK 2020). This suggests that there may still be a degree of unreported discarding of this species, despite the fact that all cod must be landed as per the EU Landing Obligation. Overall, this suggests that the TAC (already above ICES advice) will not account for the additional fishing mortality caused by discarding. **SG80 not met.**

In 2020, Article 14 of COUNCIL REGULATION (EU) 2020/900 (the fishing opportunities regulation) introduced remedial measures to support the recovery of North Sea and Skagerrak cod. The regulation provides a number of options for Member States to use specific highly selective gears or as an alternative, for Member States to introduce alternative gears, provided it could be demonstrated that these alternatives result in at least a 30% reduction in cod catches compared to the legal minimum requirements set out in Regulation (EC) 2019/1241. Furthermore, Member States, as an alternative to the selective gears above, can implement national cod avoidance plans to ensure that realised cod catches are in line with the intended catch as per national quota allocations (STECF 2020). The STECF was requested to:

1) Based on the supporting scientific information, assess whether the alternative gear designs proposed by Sweden meet the objectives of reducing cod catches by at least 30% compared to the current baselines set out in the technical measures regulation.

2) If the supporting scientific information provided by Sweden is insufficient, assess what further supporting information may be required.

3) Provide a qualitative assessment whether the measures contained in the national Danish and UK plans would help maintain cod catches in line with available quota. STECF should use previous experience in the assessment of the cod recovery plan (Regulation (EC) 1342/2008)) and other relevant reviews, e.g. Kraak et al (2013). Where considered appropriate, STECF should provide guidance on whether the plans would benefit from further refinement.

For Sweden, STECF evaluated "An assessment of the estimated reduction of cod catches by the introduction of a 120 mm square mesh codend as an alternative gear in the North Sea and Skagerrak" produced by SLU. Based on the analyses, the predicted reductions in cod catches (by numbers) for trawls with a 120 mm square mesh codend compared to trawls with the baseline codends are 13.2%±2.6% (avg±95% CI) in the North Sea and 72.7±8.6% or 34.2±6.2%, from two scenarios in the Skagerrak. In the second scenario for the Skagerrak, in 6 out of 21 years, the estimated reduction in cod catches was less than 30%. In the North Sea, based on the results provided, STECF concluded that the alternative gear design proposed by Sweden does not meet the objectives of reducing cod catches by at least 30% compared to the current baselines set out in the technical measures regulation. For the Skagerrak, STECF concluded that the supporting scientific information provided by Sweden is inconclusive and conflicting. STECF has also raised concerns on some methodological aspects of the study.

For Denmark, STECF evaluated the "National cod plan for the North Sea and Skagerrak" with its stated aim to ensure that catches from Danish demersal vessels operating in defined areas of the North Sea with bottom contacting gears from 70 mm and in Skagerrak with bottom contacting gears from 90 mm are kept within the fishing opportunities for cod in the North Sea and Skagerrak, in order not to exceed, but could continue to use, the allocated quota. In addition, in order to contribute to the recovery of the cod stock in the areas covered, the plan aims to reduce the mortality rate of juvenile cod (juvenile cod), i.e. below the minimum conservation reference size, which is 35 cm for North Sea cod and 30 cm for cod in the Skagerrak. The plan prohibits fishing in defined 'restricted areas' with bottom trawls and seines with a minimum mesh size of at least 70 mm in 4a and 4b or at least 90 mm in 3a, and with longlines, unless one meets one of the stipulated access conditions, granting access on the basis of quota availability, catch composition, selective gear design, electronic monitoring, new selective gear development (see DK_national_cod_plan (2020) and STECF (2020)). In addition, the Danish National Cod Plan proposes closures to protect areas where there is an estimated high abundance of juvenile cod. An area in EU waters to the north-west of "Revet" in Skagerrak, with a high abundance of juvenile cod, is closed. The area is an extension of the spawning closure provided for in EU legislation for the period 1 February to 15 March (STECF 2020). The plan furthermore proposes to strengthen the monitoring, control and surveillance of vessels covered by the plan (in relation to real time controls and real-time closures (RTCs), Last Haul inspections, haul by haul reporting, VMS and AIS control measures, adherence to closed areas in the Norwegian zone). The STECF review concluded that many elements in the plan are already in place in existing EU legislation and are not new. Furthermore, while STECF considers qualitatively that a few elements of the plan may help to maintain cod catches in line with the available quota, most other elements are either not expected to help or may even potentially hinder the aim to maintain cod catches in line with the available quota (STECF 2020).

The Netherlands or Germany are less pertinent in this context as their waters are less relevant to the North Sea cod fishery. However, outside the client group, other national cod plans such as those of the UK and Norway must be considered as well, given that those plans will have bearing on the UoA fisheries. The UK National North Sea Cod Avoidance Plan (MMO 2020) focuses on spatial measures to avoid catching an abundance of cod. Whilst spatial measures are difficult to quantify, the plan relies on previous experience of using spatial measures such as Real Time Closures (RTCs) (particularly during the Cod Recovery Plan) to demonstrate that such measures can have an observable effect on cod mortality and biomass. Note, however, that although a minimum gear size of 120mm is required in Scottish North Sea waters, using a gear size of less than 120mm in mud areas will be permitted on the basis that mud areas are primarily *Nephrops* grounds. STECF (2020) states that it was not provided with any document from the UK for its review, so this plan does not appear to have been reviewed against the objective of maintaining cod catches in line with available quota. For Norway, the plan aims to ensure that the Norwegian fleet does not catch more that its quota and sets out protection requirements for spawning areas (as per the annual agreement between the EU and Norway for 2020), nursery areas, minimum catch size, minimum mesh size, other rules regarding rigging of gear, Real Time Closures (RTC) and so-called "Precautionary areas".

In conclusion, given the issues around TAC-setting, ongoing discarding and the apparent lack of confidence in the national cod plans, the surveillance team concludes that there is no objective basis for confidence that the strategy will work. **SG80 is not met.**

Atlanto-Scandian herring: Score reduced. In 2018 the coastal states (EU, Faroes, Iceland, Norway, Russia) agreed a long-term management plan (LTMS) which was evaluated by ICES. The harvest control rule (HCR) proposed for the LTMS is found to be consistent with the precautionary approach, including when taking into account constraints on interannual TAC change (-20%/+25%), and 10% banking or borrowing of quota between years. All scenarios gave a probability of SSB being below B_{lim} of less than 5% in all years simulated (SG60, SG80 are met). However since unilateral quotas continue to exceed the TAC, there is not in general 'high confidence' based on testing. (**SG100 not met**).

Mackerel NE Atlantic: No change. Since $B>B_{MSY}$ and this fishery takes a negligible proportion of the catch, there is an objective basis for confidence that the partial strategy will work to prevent this fishery having any impact on the stock; **SG60 and SG80 are met.** However since unilateral quotas continue to exceed the TAC, there is not in general 'high confidence' based on testing. (**SG100 not met**).

c	Management strategy implementation			
	Guidepost	SG 60	SG 80	SG 100
			There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a).

	Met?		Cod 3aS – Yes WBSS herring – Yes Bilateral EU-UK stocks (see Table 9) – Yes NSAS herring – Yes Cod 3aN,4,7d – No Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Cod 3aS – No WBSS herring – No Bilateral EU-UK stocks (see Table 9) – No NSAS herring – No Cod 3aN,4,7d – No Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes

Note: unless otherwise indicated, all stocks were rescored. In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW."

Cod 3aS: In 2017 cod in the Kattegat came under the EU landing obligation. According to ICES_WGBFAS (2020) this has however not affected the discard rate of undersized cod in the *Nephrops* fishery which still remains at high levels. Nonetheless, there is no BMS landing reported so far. Discard estimates were available from Sweden for 1997—2019 and from Denmark for 2000— 2019. In 2018, the estimated discards formed about 33% of the catch weight and the proportion of discards in the catches has increased slightly in the last year compared to the previous year (Figure 17). In numbers, the available data indicates that close to 59% of the cod caught in the Kattegat is discarded. However, since the implementation of the landing obligation, overall estimated landings and discards combined have reduced significantly since 2017, which provides some evidence that the partial strategy is being implemented successfully. It is noted that the LO is just one measure of the wider partial strategy which aims to minimise cod catches overall, **SG80 is considered met** as discards have been reduced and other measures are being implemented (gear selectivity etc) **SG100 is not met** as clear evidence would need to include complete implementation of the LO, which is not apparent.

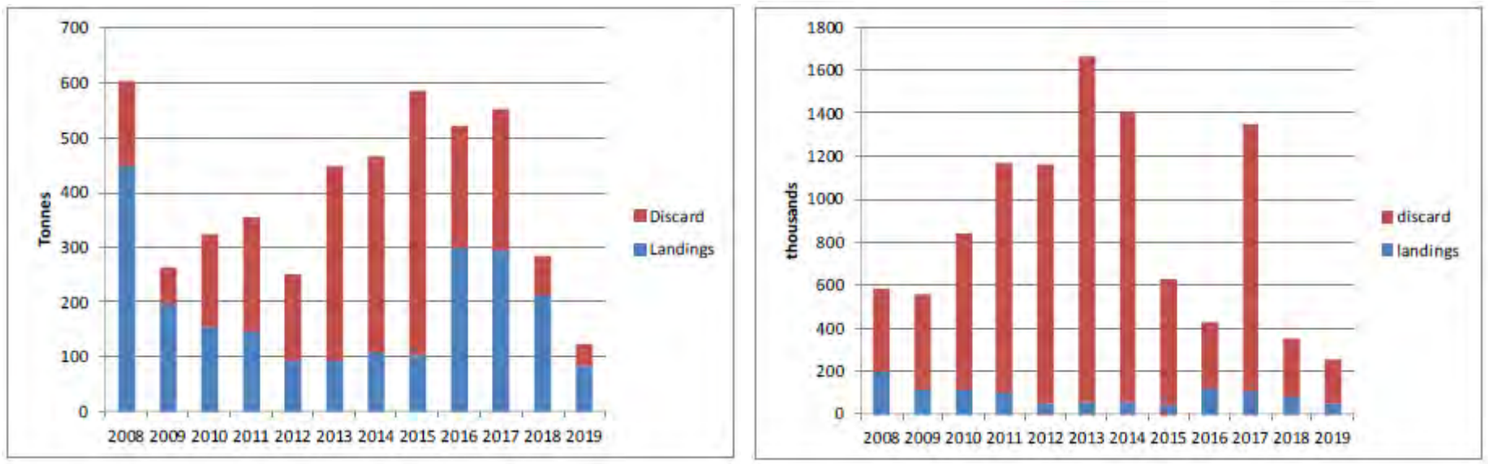


Figure 17. Cod in the Kattegat. Estimates of discards (Denmark and Sweden combined) compared to reported landings, in tonnes (left) and in numbers (right). From ICES_WGBFAS (2020)**.**

WBSS herring: No change from initial assessment, has not been rescored (**SG80 met, SG100 not met**).

Bilateral EU-UK stocks (see Table 9): for the purpose of this surveillance, the team took a pragmatic approach where for those stocks where the 1st part of SG80 under 2.1.1 (scoring issue a) is met, it can be considered that the good stock status provides some evidence that the partial strategy is being implemented successfully and **SG60 and SG80 are met**. At present it is impossible at this stage to foresee the outcome of the TAC for 2021 under the new annual agreement (e.g. whether the TACs are adhered to), clear evidence is lacking and **SG100 is not met**. This scoring applies to the following stocks:

- Anglerfish 3a, 4, 6
- Dab 3a, 4
- Flounder 3, 4
- Witch 3a,4,7d
- *Nephrops* 4 (FU 33)
- *Nephrops* 4 (FU 5)
- Norway pout 3a, 4
- Turbot 4
- Brill 3a, 4, 7

Horse mackerel 3a,4b-c,7d: As per the initial assessment, since 2015 the TAC has been set below ICES advice including in 2020. This provides some evidence that the partial strategy is being implemented successfully and **SG60 and SG80** continue to be met. As for the other stocks, the lack of visibility on final 2021 TACs means there is no clear evidence and **SG100 is not met**.

Bass 4,7: No change from initial assessment and not rescored (**SG80 met, SG100 not met**).

Trilateral EU-UK-Norway stocks (NSAS herring and Cod 3aN,4,7d):

NSAS herring: F remains below F_{MSY} and SSB is still highly likely above the PRI. The 2021 TAC under the EU-UK-Norway agreement was set in accordance with ICES advice (EU 2021), the team therefore concludes that this provides some evidence that the strategy is being implemented successfully. **SG80 is met.** Without more comprehensive observer coverage, **SG100 is not met.**

Cod 3aN,4,7d: The TACs for the last two years (2019, 2020) have been set in excess of the ICES advised catch (see Table 4a, b and c in ICES (2020)). Furthermore, for 2021, ICES advised that total catch and projected landings in 2021 should not be more than 14,755 and 12,632 tonnes, respectively. However, under the 2021 EU-UK-Norway agreement, a 15,911 t TAC was agreed on (EU 2021). ICES further reports that the below minimum size (BMS) landings of cod reported to ICES are currently negligible and are much lower than the estimates of catches below the minimum conservation reference size (MCRS) estimated by observer programmes. This suggests that there may still be a degree of unreported discarding of this species, despite the fact that all cod must be landed as per the EU Landing Obligation. Overall, this suggests that evidence that the strategy is being implemented successfully is lacking. **SG80 is not met.**

Atlanto-Scandian herring: No change. The overall strategy for the stock is not being fully implemented because of an ongoing dispute between the coastal states as to quota allocations. Nevertheless, biomass estimates remain above B_{lim} and the UoAs in this surveillance continue to take a negligible proportion of the catch (**SG80 and SG100 are met**).

Mackerel NE Atlantic: No change. The overall strategy for the stock is not being fully implemented because of the dispute between the coastal states as to quota allocations. Nevertheless, biomass estimates remain above B_{MSY} and the UoAs in this surveillance continue to take a negligible proportion of the catch (**SG80 and SG100 are met**).

d	Shark finning			
	Guidepost	SG 60	SG 80	SG 100
		It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	Not relevant	Not relevant	Not relevant

None of the primary species are sharks; not relevant.

e	Review of alternative measures			
	Guidepost	SG 60	SG 80	SG 100
		There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	Y – all stocks	Y – all stocks	N

The situation described during the initial assessment (LO and associated three-yearly discard plans) remains valid. This scoring issue was not rescored.

References	See scoring issues
OVERALL PERFORMANCE INDICATOR SCORE:	**DFPO: see Table 11** **SFPO: see Table 12** **CVO: see Table 13** **EZG: see Table 14**
CONDITION NUMBER (if relevant):	**NS cod – 2** **3aS cod - 2**

2.2.5.3 PI2.1.3

Evaluation Table for PI 2.1.3 – Primary species information

PI 2.1.3		**Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species**		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main species			
	Guidepost	Qualitative information is **adequate to estimate** the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is **adequate to assess** the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is **adequate to assess with a high degree of certainty** the impact of the UoA on main primary species with respect to status.
	Met?	Cod 3aS – Yes Herring WBSS – Yes Anglerfish 3a, 4, 6 – Yes Dab 3a, 4 – Yes Flounder 3, 4 – Yes Witch 3a,4,7d – Yes Nephrops 4 (FU33) – Yes Nephrops 4 (FU 5) – Yes Norway pout 3a, 4 – Yes Turbot 4 – Yes Brill 3a, 4, 7 – Yes Horse mackerel 3a,4b-c,7d – Yes Bass 4,7 – Yes Cod 3aN,4,7d – Yes Herring NSAS – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Cod 3aS – Yes Herring WBSS – Yes Anglerfish 3a, 4, 6 – Yes Dab 3a, 4 – Yes Flounder 3, 4 – Yes Witch 3a,4,7d – Yes Nephrops 4 (FU33) – Yes Nephrops 4 (FU 5) – Yes Norway pout 3a, 4 – Yes Turbot 4 – Yes Brill 3a, 4, 7 – Yes Horse mackerel 3a,4b-c,7d – Yes Bass 4,7 – No Cod 3aN,4,7d – Yes Herring NSAS – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Cod 3aS – No Herring WBSS – No Anglerfish 3a, 4, 6 – No Dab 3a, 4 – No Flounder 3, 4 – No Witch 3a,4,7d – No Nephrops 4 (FU33) – No Nephrops 4 (FU 5) – No Norway pout 3a, 4 – Yes Turbot 4 – No Brill 3a, 4, 7 – No Horse mackerel 3a,4b-c,7d – Yes Bass 4,7 – No Cod 3aN,4,7d – No Herring NSAS – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes

There are two elements to this SI, i.e. the information available overall to evaluate stock status, and the information available from the relevant UoA to evaluate its impact on the stock. There have been no material changes in the information bases considered by ICES for the stocks assessed during the initial assessment, and these remain as described in the PCR (Sieben, Seip, et al. 2019). One new stock was identified at this surveillance (brill 3a, 4, 7) and this stock is therefore covered in more detail below. To determine to what extent the UoA information is available and adequate to assess the fishery impact on the stocks concerned, the team took the following approach for this surveillance. Landings data (i.e. retained catch data) are available for all UoAs. For those stocks where discarding is considered significant by ICES and where additional precaution is required in assessing the UoA impact because stock biomass is not highly likely to be above the PRI, the availability of observer data to determine UoA discarding and therefore the overall UoA impact on that stock was considered. This is explored for each stock below.

Note: In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW."

Cod 3aS: Stock not highly likely to be above the PRI (see PI 2.1.1a). Cod is mainly taken as bycatch in the *Nephrops* fishery, with mortality of the stock strongly correlated with the uptake of the *Nephrops* quota and the effort directed to the *Nephrops* fishery, which according to ICES_WGBFAS (2020) has increased substantially in the last years. This stock was identified as 'main' for the following UoAs:

- DFPO 3aS-SN
- DFPO 3aS-SDN

- DFPO 3aS-TR
- DFPO 3aS-TR PRAWN
- SFPO 3a-POT
- SFPO 3aS-SN
- SFPO 3aS-TR PRAWN
- SFPO 3aS-TR

Of these, the following have *Nephrops* as a 'main' species:

- DFPO 3aS-TR: UoA observer data available for 2017-19 (see Table 3)
- DFPO 3aS-TR PRAWN: UoA observer data available for 2017-19 (see Table 3)
- SFPO 3aS-TR: UoA observer data available for 2017-19 (see Table 4)

On that basis, the surveillance team considers that UoA information remains available and adequate to assess the fishery impact on Kattegat cod. **SG60 and SG80** are met for all UoAs. As explained in the PCR, there are a range of uncertainties in relation to stock status which remain unchanged. SG100 is not met.

Herring WBSS: Stock not highly likely to be above the PRI (see 2.1.1a). Discarding is considered to be negligible (ICES_HER 2020c) this stock was therefore not rescored (**SG60 and SG80 met, SG100 not met**).

Anglerfish 3a, 4, 6: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60 and SG80 met, SG100 not met**).

Dab 3a, 4: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60 and SG80 met, SG100 not met**).

Flounder 3, 4: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60 and SG80 met, SG100 not met**).

Witch 3a,4,7d: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60 and SG80 met, SG100 not met**).

Nephrops 4 (FU33): Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60 and SG80 met, SG100 not met**).

Nephrops 4 (FU 5): Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60 and SG80 met, SG100 not met**).

Norway pout 3a, 4: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60, SG80 and SG100 met**).

Turbot 4: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60 and SG80 met, SG100 not met**).

Brill 3a, 4, 7: ICES Category 3 stock. The stock assessment used to provide advice is based on a commercial biomass index (Dutch beam-trawl fleet, vessels > 221 kW) used as an indicator of stock size. The current surveys in this area are not designed for catching brill, especially large brill. A fisheries-independent survey, one that had adequate catchability of large flatfish and that covered the entire distribution area of the stock, would improve the assessment. To address this issue in future assessments, a Dutch science–industry partnership initiated a new fisheries independent beam trawl survey for brill in 2019 (ICES_BRI 2020). However, these survey results have not yet been considered in the assessment. A SPiCT analysis is used to indicate likely status in relation to MSY proxy reference points. Total catch (landings and discards) are quantified. As per 2.1.1a, there is a high degree of certainty that brill is above the PRI and is fluctuating around a level consistent with MSY. Some quantitative information is therefore available and adequate to assess the impact of the UoA on this stock with respect to status. **SG60 and SG80 are met.** Because ICES provides quantitative advice based on the precautionary (data-deficient) framework, there can be no high degree of certainty and **SG100 is not met**.

Horse mackerel 3a,4b-c,7d: Stock not highly likely to be above the PRI (see 2.1.1a). Partial (prior to 2014) and full (since 2014) discard volumes are included in the assessment. Overall discarding is considered negligible (ICES_HOR 2020). According to the working group on widely distributed stocks (WGWIDE), the Netherlands have provided data on discards over an extended period with occasional estimates from Germany and Spain. Since 2017 additional countries have provided estimates of discards with 6 countries reporting in 2019. Following the introduction of the EU landing obligation for the pelagic fisheries targeting horse mackerel in large areas of the overall fishing area and for Norwegian waters, discards in recent years have decreased. The discard rate is estimated to be less than 2.5 % in weight for the combined Horse mackerel stocks. The discard rate for the North Sea stock is estimated to be 1.6% (ICES_WGWIDE 2020). During the initial assessment, it had been determined that the available UoA data may not be sufficient to estimate the UoA impact on the stock because at the time ICES noted that discards from demersal fisheries remain uncertain and may be significant. A condition was raised accordingly. However, based on the latest working group report (ICES_WGWIDE 2020), it is clear that ICES considers the effect of discarding on the stock to be negligible. The initial assessment identified this stock as 'main' for the CVO 4-TR1 UoA. At this surveillance, based on UoA-specific data, the stock was identified as 'main' for the CVO 4-TR2 UoA only. CVO landings for this stock (2017-19 average of 194.73 tonnes) are a small fraction (0.19%) of the average ICES landings for that same period (99,970 t). On this basis, the surveillance team concludes that some quantitative information is available and is adequate to assess the impact of the UoA on horse mackerel. **SG60 and SG80 are met** and this condition can be closed. Given that this is a Category 1 stock with a length- and age-based analytical assessment (ICES_HOR 2020), quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoA on horse mackerel with respect to status. **SG100 is met**.

Bass 4,7: Stock not highly likely to be above the PRI (see 2.1.1a). Discarding of seabass below the MCRS occurs in most commercial fisheries to a variable extent. WGCSE and WKBASS (ICES, 2017 in ICES_WGCSE (2020)) showed that discard rates have typically been the highest in bottom otter trawls (OTB) and have increased following the introduction of additional management measures in 2015. Discards are now included in the assessment of this stock and in the absence of any data on discard survival, this has been assumed to be zero for all commercial fisheries. This has the potential to overestimate commercial fishing mortality, but the effect was initially expected to be small due to the low discard rates prior to 2015. This has changed in recent years, since the management measures have been implemented and discard rates are expected to increase in the short term as fishers adjust to take account of the changes, such as the increase in minimum conservation reference size from 36 cm to 42 cm (ICES_WGCSE

2020). A condition was raised at the initial assessment in relation to the lack of UoA-specific discard data for bass. The relevant UoA at the time was the CVO 4-SN fleet. This remains the case (see Table 5). Although an observer programme is in place for the SN UoA, these data were not accessible to the team due to confidentiality restrictions (the data would be too easy to trace back to individual vessels according to WMR (van Overzee pers. comm.) and could therefore not be considered in this surveillance. The client made the following progress statement in relation to this condition: *Approximately five observer trips are carried out by WMR annually in the set net fleet under the DCF programme. In addition, market sampling is carried out by WMR periodically to determine lengths and (less frequently) ages. Statistically valid sampling would probably require additional sampling effort. The ETP app [*CU UK comment: currently being developed by the client group see section 2.3.1*] would be a suitable platform to register discards of bass, using a reference fleet. Number of vessels and frequency of sampling to be determined*.

The scoring of this PI therefore remains the same (**SG60 only**) and the condition stays open. The condition progress is considered under section 3.4.2.

Cod 3aN,4,7d: Stock not highly likely to be above the PRI (see 2.1.1a). ICES_WGNSSK (2020) reports that the below minimum size (BMS) landings of cod reported to ICES are currently negligible and are much lower than the estimates of catches below the minimum conservation reference size (MCRS) estimated by observer programmes. Based on average 2017-19 catch data, this stock was identified as main for the UoAs listed in the table below. This same table explores whether observer data are available and therefore whether UoA discards can be estimated. Where this is the case, the surveillance team considers that some quantitative information is available and is adequate to assess the impact of the UoA on North Sea cod. Where observer data are not available, the implications on scoring are shown in the table below. It is important to consider that the ICES advice in 2020 was for catches of the stock should be limited to 14,755 t and the scale and intensity of the individual UoAs in Table 10 are consider against this value. Although the stock assessment is detailed and probabilistic, and landings and discards can be estimated based on logbook and observer data, the observer coverage is not sufficiently comprehensive across all UoAs to provide a high degree of certainty. **SG100 is not met** for any of the UoAs.

Table 10. Overview of scoring for UoAs that have cod 3aN,4,7d as 'main'.

UoA (with average 2017-19 catch in tonnes)	Observer data available?	SG80 met?
DFPO 3aN-SN: 759.56	Yes	**Yes**
DFPO 4-SN: 890.67	Yes	Yes
DFPO 3aN-BT: 1.77	No	Average catch 1.77t with only a single vessel in the UoA which is highly unlikely to impact on the status of this stock. Any discard rates can be extrapolated from the TR gears which do have observer coverage. **SG80 is met.**
DFPO 4-BT1: 10.28	No	Average catch 10.28t with only a single vessel in the UoA which is highly unlikely to impact on the status of this stock. Any discard rates can be extrapolated from the TR gears which do have observer coverage. **SG80 is met.**
DFPO 3aN-LL: 14.65	No	There are no observer data and no extrapolations from other UoAs can be made. However, based on a FAO analysis of global discard rates, average discard rates in bottom longline fisheries varied from 18 to 31% (lower and upper 95% CIs) (Kennelly et al. 2019). Applying the worst-case rate to the UoA (31 % discard giving a catch of ~110 t against 14,755 t in the ICES advice), the impact of the UoA on cod stock status can be assessed (overall this remains a very small-scale fishery) and as such **SG80 is met.**
DFPO 4-LL: 71.63	No	
DFPO 3aN-SDN: 421.79	Yes	**Yes**
DFPO 4-SDN: 187.47	No	4-SDN catch is a fraction of 3aN-SDN catch (18%) and on that basis discard rate can be extrapolated, sufficient for **SG80 to be met.**
DFPO 3aN-TR: 2,726.33	Yes	**Yes**
DFPO 4-TR1: 4,626.69	Yes	**Yes**
DFPO 3aN-TR PRAWN: 186.26	Yes	**Yes**
DFPO 4-TR PRAWN: 7.94	Yes	**Yes**
EZG 3aN-SN: 12.86	No	Based on a FAO analysis of global discard rates, average discard rates in bottom set net fisheries varied from 20 to 34% (lower and upper 95% CIs) (Kennelly et al. 2019). Applying the worst-case rate to the UoA, the impact of the UoA is still less than 20 t and the impact on cod stock status can be assessed as negligible (this remains a very small-scale fishery) and as such **SG80 is met.**
EZG 3aN-TR: 35.23	No	3aN-TR catch is a fraction of 4-TR1 catch (4%) and on that basis discard rate can be extrapolated, sufficient for **SG80 to be met.**
EZG 4-SN: 52.44	No	Based on a FAO analysis of global discard rates, average discard rates in bottom set net fisheries varied from 20 to 34% (lower and upper 95% CIs) (Kennelly et al. 2019). Applying the worst-case rate to the UoA (70 t), the impact of the UoA on cod stock status can be assessed as being very low (overall this remains a very small-scale fishery) and as such **SG80 is met.**
EZG 4-TR1: 872.97	Yes	**Yes**
CVO 3aN-TR: 23.48	No	3aN-TR catch is a fraction of 4-TR2 catch (6.7%) and on that basis discard rate can be extrapolated, sufficient for **SG80 to be met.**
CVO 4-TR2: 341.37	Discards self-sampling analysed by WMR	**Yes**

UoA (with average 2017-19 catch in tonnes)	Observer data available?	SG80 met?
CVO 4-SN: 0.38	No	**Yes** - Pieke Molenaar from WMR stated the following for the bycatch of cod in the set nets: During the last seven years of sampling they have observed a negligible amount of cod. In the sole and bass fisheries they hardly ever see cod. Only during winter months using 'mirrornets' they occasionally see one, but overall this amounts to 1 or 2 individuals per trip if encountered at all.
SFPO 3aN-SN: 65.46	No	There is only a small amount of landings from this UoA and the average discard rate of cod in set nets in 3aN between 2011-2018 was 3.6 % (Swedish FDI-data) Daniel Valentinsson SLU pers comm.) to provide sufficient confidence that **SG80 is met.**
SFPO 3aN-TR PRAWN: 212.78	Yes	**Yes**
SFPO 3aN-TR: 397.29	Yes	**Yes**
SFPO 4-TR1: 292.97	No	**Yes** - Discard rates can be extrapolated from the same fishery in 3aN (3aN-TR), sufficient for SG80 to be met.
SFPO 3aN-SDN: 19.11	No	SFPO 3aN/4-SDN catch is minimal compared to that of DFPO 3aN/4-SDN fleet (4%). Discard rates can be extrapolated from the DFPO fleet, sufficient for **SG80 to be met.**
SFPO 4-SDN: 33.63	No	SFPO catch is minimal compared that of DFPO 3aN/4-SDN fleet (4%). Discard rates can be extrapolated from the DFPO fleet, sufficient for **SG80 to be met.**

Herring NSAS: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60, SG80 and SG100 met**).

Atlanto-Scandian herring: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60, SG80 and SG100 met**).

Mackerel NE Atlantic: Stock highly likely to be above the PRI (see 2.1.1a). Stock not rescored (**SG60, SG80 and SG100 met**).

b	Information adequacy for assessment of impact on minor species			
	Guidepost	SG 60	SG 80	SG 100
				Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			No

No change from initial assessment; not rescored. **Not met**.

c	Information adequacy for management strategy			
	Guidepost	SG 60	SG 80	SG 100
		Information is adequate to support **measures** to manage **main** primary species.	Information is adequate to support a **partial strategy** to manage **main** Primary species.	Information is adequate to support a **strategy** to manage **all** primary species, and evaluate with a **high degree of certainty** whether the strategy is achieving its objective.
	Met?	Cod 3aS – Yes Herring WBSS – Yes Anglerfish 3a, 4, 6 – Yes Dab 3a, 4 – Yes Flounder 3, 4 – Yes Witch 3a,4,7d – Yes Nephrops 4 (FU33) – Yes Nephrops 4 (FU 5) – Yes Norway pout 3a, 4 – Yes Turbot 4 – Yes Brill 3a, 4, 7 – Yes	Cod 3aS – Yes Herring WBSS – Yes Anglerfish 3a, 4, 6 – Yes Dab 3a, 4 – Yes Flounder 3, 4 – Yes Witch 3a,4,7d – Yes Nephrops 4 (FU33) – Yes Nephrops 4 (FU 5) – Yes Norway pout 3a, 4 – Yes Turbot 4 – Yes Brill 3a, 4, 7 – Yes	Cod 3aS – No Herring WBSS – No Anglerfish 3a, 4, 6 – No Dab 3a, 4 – No Flounder 3, 4 – No Witch 3a,4,7d – No Nephrops 4 (FU33) – No Nephrops 4 (FU 5) – No Norway pout 3a, 4 – Yes Turbot 4 – No Brill 3a, 4, 7 – No

		Horse mackerel 3a,4b-c,7d – Yes Bass 4,7 – Yes Cod 3aN,4,7d – Yes Herring NSAS – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Horse mackerel 3a,4b-c,7d – Yes Bass 4,7 – Yes Cod 3aN,4,7d – Yes Herring NSAS – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes	Horse mackerel 3a,4b-c,7d – Yes Bass 4,7 – No Cod 3aN,4,7d – No Herring NSAS – Yes Atlanto-Scandian herring – Yes Mackerel NE Atlantic – Yes

All main primary species stocks are assessed as having at least a partial strategy in place. With the exception of bass, none of the species/stocks and UoAs were identified as having inadequate quantitative information available to estimate UoA impact (see scoring issue a). On that basis, the information remains adequate to support a partial strategy to manage main primary species at the UoA level. With the exception of the below stocks, the scoring as per the initial assessment remains valid. For bass, the initial assessment considered this stock to have a 'strategy' in place, and stock status is assessed via an analytical stock assessment. The strategy is based on minimising impact across all fisheries (commercial and recreational), and on that basis is not dependent on detailed data (e.g. about discards). This situation has not changed and this stock is not rescored (**SG60 and SG80 met, SG100 not met**).

Note: In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW."

Brill 3a, 4, 7 (new stock): a partial strategy is in place (see 2.1.2a). Stock status is estimated through SPiCT analysis to indicate likely status in relation to MSY proxy reference points (ICES_BRI 2020) and is therefore adequate to support the partial strategy. **SG60 and SG80 are met. SG100 is not met** because there is not considered to be 'strategy' for brill (see 2.1.2a), nor can its impact on stock status be evaluated with a high degree of certainty (see 2.1.3a).

Horse mackerel 3a,4b-c,7d: Partial (prior to 2014) and full (since 2014) discard volumes are included in the assessment. Overall discarding is considered negligible (ICES_HOR 2020). According to the working group on widely distributed stocks (WGWIDE), the Netherlands have provided data on discards over an extended period with occasional estimates from Germany and Spain. Since 2017 additional countries have provided estimates of discards with 6 countries reporting in 2019. Following the introduction of the EU landing obligation for the pelagic fisheries targeting horse mackerel in large areas of the overall fishing area and for Norwegian waters, discards in recent years have decreased. The discard rate is estimated to be less than 2.5 % in weight for the combined horse mackerel stocks. The discard rate for the North Sea stock is estimated to be 1.6% (ICES_WGWIDE 2020). During the initial assessment, it had been determined that the available UoA data may not be sufficient to estimate the UoA impact on the stock because at the time ICES noted that discards from demersal fisheries remain uncertain and may be significant. A condition was raised accordingly. However, based on the latest working group report (ICES_WGWIDE 2020), it is clear that ICES considers the effect of discarding on the stock to be negligible. CVO landings for this stock (2017-19 average of 194.73 tonnes) are a small fraction (0.19%) of the average ICES landings for that same period (99,970 t). The surveillance team therefore concludes that the available information is adequate to support a partial strategy to manage horse mackerel and evaluate with a high degree of certainty whether the strategy is achieving its objective at the UoA level. **SG60, SG80 and SG100 are met**.

References	See scoring issues
OVERALL PERFORMANCE INDICATOR SCORE:	**DFPO: see Table 11** **SFPO: see Table 12** **CVO: see Table 13** **EZG: see Table 14**
CONDITION NUMBER (if relevant):	**Existing condition PI2.1.3 - Bass** **Closed condition PI2.1.3 – Horse Mackerel**

2.2.6 Overall scores Primary species

The assessment team followed the scoring element approach as per FCRv2.0 7.10.7 and Table 4. The following tables summarise the scores for each scoring element per UoA gear type – Client combination based on the preceding evaluation tables. The overall score was then derived in accordance with Table 4 of the FCRv2.0. Scores that changed at this surveillance are shown in red. Conditions are shown in orange with condition numbers in parentheses.

Table 11. DFPO Primary species PI scores (x indicates presence). Revised scores in red. Conditions are shown in orange with condition numbers in parentheses.

Scoring element	Score 2.1.1	Score 2.1.2	Score 2.1.3	4-TR1	4-TR2	4-TR PRAWN	4-BT1	4-SDN	4-SN	4-LL	3aN-TR	3aN-TR PRAWN	3aN-BT1	3aN-SDN	3aN-SN	3aN-LL	3aS-TR	3aS-TR PRAWN	3aS-SDN	3aS-SN
Anglerfish 3a, 4, 6	80	85	80	x			x		x		x		x		x					x
Cod 3aN,4,7d	60	70	80	x		x	x	x	x	x	x	x	x	x	x	x				
Dab 3a,4	100	85	80					x						x		x	x	x	x	x
Flounder 3a,4	80	85	80					x										x	x	x
Witch 3a,4,7d	100	85	80					x			x			x					x	
Nephrops FU 33	80	85	80		x															
Norway pout 3a, 4	80	85	100			x						x								
Cod 3aS	60	75	80														x	x	x	x
Minor (>200)	80	80	80	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Overall score 2.1.1				**75 (DFPO – 81)**	**80**	**75 (DFPO – 82)**	**75 (DFPO – 83)**	**75 (DFPO – 84)**	**75 (DFPO – 85)**	**75 (DFPO – 86)**	**75 (DFPO – 87)**	**75 (DFPO – 88)**	**75 (DFPO – 89)**	**75 (DFPO – 90)**	**75 (DFPO – 91)**	**75 (DFPO –92)**	**75 (DFPO – 93)**	**75 (DFPO – 94)**	**75 (DFPO – 95)**	**75 (DFPO – 96)**
Overall score 2.1.2				**75 (DFPO – 97)**	**80**	**75 (DFPO – 98)**	**75 (DFPO – 99)**	**75 (DFPO – 100)**	**75 (DFPO – 101)**	**75 (DFPO – 102)**	**75 (DFPO – 103)**	**75 (DFPO – 104)**	**75 (DFPO – 105)**	**75 (DFPO – 106)**	**75 (DFPO – 107)**	**75 (DFPO – 108)**	**75 (DFPO – 109)**	**75 (DFPO – 110)**	**75 (DFPO – 111)**	**75 (DFPO – 112)**
Overall score 2.1.3				**80**	**80**	**85**	**80**	**80**	**80**	**80**	**80**	**85**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**

Table 12. SFPO Primary species PI scores (x indicates presence). Revised scores in red. Conditions in orange highlight. With condition numbers in brackets * No fishery has been present for this UoA between 2017-19; therefore score shown are those of the PCR.

Scoring element	Score 2.1.1	Score 2.1.2	Score 2.1.3	4-TR1	4-TR2*	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Cod 3aN,4,7d	60	70	80	x		x	x	x	x	x	x			
Anglerfish 3a, 4, 6	80	85	80	x			x							
Dab 3a,4	100	85	80			x			x	x			x	
Witch 3a,4,7d	100	85	80			x	x		x					
Flounder 3a,4	80	85	80			x				x			x	
Cod 3aS	60	75	80									x	x	x
Brill 3a, 4, 7	100	85	80							x			x	
Mackerel NE Atlantic	100	85	100							x			x	
Norway pout 3a, 4	80	85	100					x				x		
NSAS herring	80	85	100							x				x
WBSS herring	60	80	80							x				
Atlanto-Scandian herring	80	85	100											x
Minor (>200)	80	80	80	x	x	x	x	x	x	x	x	x	x	x
Overall score 2.1.1				**75 (SFPO- 54)**	**80**	**75 (SFPO- 55)**	**75 (SFPO- 56)**	**75 (SFPO- 57)**	**75 (SFPO- 58)**	**75 (SFPO- 1) (SFPO- 59)**	**75 (SFPO- 60)**	**75 (SFPO- 61**	**75 (SFPO- 2) (SFPO- 62)**	**75 (SFPO- 63)**
Overall score 2.1.2				**75 (SFPO- 64)**	**80**	**75 (SFPO- 65)**	**75 (SFPO- 66)**	**75 (SFPO- 67)**	**75 (SFPO- 68)**	**75 (SFPO- 69)**	**75 (SFPO- 70)**	**75 (SFPO- 71)**	**75 (SFPO- 72)**	**75 (SFPO- 73)**
Overall score 2.1.3				**80**	**80**	**80**	**80**	**85**	**80**	**85**	**80**	**85**	**85**	**85**

Table 13. CVO Primary species PI scores. Condition numbers are shown in between brackets and in orange highlight. Note: numbering is by client group (x indicates presence). Revised scores in red.

Scoring element	Score 2.1.1	Score 2.1.2	Score 2.1.3	4-BT1	4-BT2	4-SN	4-TR1	4-TR2	3aN-BT1	3aN-TR
Cod 3aN,4,7d	60	70	80			x		x		x
Dab 3a,4	100	85	80	x		x	x	x	x	x
Nephrops FU 5	80	85	80					x		
Turbot 4	100	85	80		x					
Mackerel NE Atlantic	100	85	100					x		
Horse mackerel 3a,4b-c,7d	80	80	100					x		
Bass 4,7	80	85	70			x				
Minor (>200)	80	80	80	x	x	x	x	x	x	x
Overall score 2.1.1				**85**	**85**	**75 (CVO – 50)**	**85**	**75 (CVO – 51)**	**85**	**75 (CVO – 52)**
Overall score 2.1.2				**85**	**85**	**75 (CVO – 53)**	**85**	**75 (CVO – 54)**	**85**	**75 (CVO – 55)**
Overall score 2.1.3				**80**	**80**	**75 (CVO- 1)**	**80 (CVO – 2)**	**85**	**80**	**80**

Table 14. EZG Primary species PI scores (x indicates presence). Revised scores in red. Conditions are shown in orange with condition numbers in parentheses.

Scoring element	Score 2.1.1	Score 2.1.2	Score 2.1.3	4-TR1	4-SN	3aN-TR	3aN-SN
Cod 3aN,4,7d	60	70	80	x	x	x	x
Anglerfish 3a, 4, 6	80	85	80		x		x
Minor (>200)	80	80	80	x	x	x	x
Overall score 2.1.1				**70 (EZG – 18)**	**75 (EZG – 19)**	**75 (EZG – 20)**	**75 (EZG – 21)**
Overall score 2.1.2				**75 (EZG – 22)**	**75 (EZG – 23)**	**75 (EZG – 24)**	**75 (EZG – 25)**
Overall score 2.1.3				**80**	**80**	**80**	**80**

2.2.7 Rescoring tables Secondary species

2.2.7.1 PI2.2.1

Evaluation Table for PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biological based limit and does not hinder recovery of secondary species if they are below a biological based limit.		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guidepost	Main Secondary species are **likely** to be within biologically based limits. OR If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are **highly likely** to be above biologically based limits OR If below biologically based limits, there is either **evidence of recovery** or a **demonstrably effective partial strategy** in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that also have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main secondary species are within biologically based limits.
	Met?	Lumpfish 3a – RBF (80) Edible crab 3a – Yes Tub gurnard 3aS, 4 – RBF (80) Pollack 3a – RBF (80) Grey gurnard 4, 7d, 3a – Yes Harbour crab 3a – RBF (80) Greater weever 3a – Yes Turbot 3a – Yes Whiting 3a – Yes	Lumpfish 3a – RBF (80) Edible crab 3a – Yes Tub gurnard 3aS, 4 – RBF (80) Pollack 3a – RBF (80) Grey gurnard 4, 7d, 3a – Yes Harbour crab 3a – RBF (80) Greater weever 3a – Yes Turbot 3a – Yes Whiting 3a – Yes	Lumpfish 3a – RBF (80) Edible crab 3a – No Tub gurnard 3aS, 4 – RBF (80) Pollack 3a – RBF (80) Grey gurnard 4, 7d, 3a – No Harbour crab 3a – RBF (80) Greater weever 3a – No Turbot 3a – No Whiting 3a – No

The main secondary species and area identified at this surveillance are as follows:

- Lumpfish 3a
- Edible crab 3a
- Tub gurnard 3aS, 4
- Pollack 3a
- Grey gurnard 4, 7d, 3a
- Pacific oyster 4
- Harbour crab 3a (new stock)
- Greater weever 3a (new stock)
- Turbot 3a
- Whiting 3a

Note: In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW.“

On the basis of catch profiles for the fisheries American plaice is no longer considered a main species in this component as is assessed as a minor secondary element.

Lumpfish 3a: scored with RBF for DFPO and SFPO 3aS-SN during initial assessment. At surveillance the species was also identified as main for the 3aN area (same gear type: SN). The surveillance team determined that the findings of the initial RBF, particularly in relation to aerial overlap of the UoA (Kattegat/Skagerrak) compared with the stock (single North Atlantic stock with spawning areas from the North Sea / Skagerrak / Kattegat round the NE Atlantic coast to Norway, Iceland, Greenland and Canada) remain valid. All other fishery characteristics are as initially assessed. This species was not rescored (**RBF score of 98 but capped at 80 as minor species were not scored**).

Edible crab 3a: Initially assessed for the Sweden SN and POT fishery. There are currently no examinations of the crab population status but logbook data and interviews with fishermen conducted by SLU indicates that the stock is at a relatively high level. Catch per effort (kg crab per crab) is available from the commercial fishing logbook from last fourteen-year period (Figure 18). Although the data is limited to 19 percent of the Swedish logbook landings this measure is used as an indicator for fishing mortality, fishing for crab seems to be on a long-term stable and sustainable level. Catch recommendation from SLU are to maintain catches at the current level (SLU 2020) **SG60 and SG80 are met. SG100 is not met** on the basis that the index is not robust enough to provide a high degree of certainty on the stock across all fisheries and seasons.

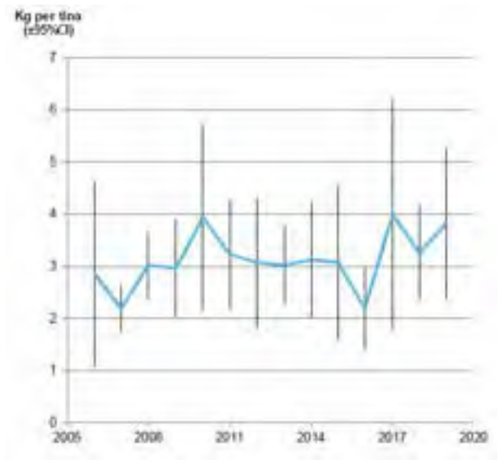


Figure 18. Catch per unit effort brown crab (kg per crab) in Swedish commercial fishing during the high season (June– November) 2006– 2019. Error bars are 95 percent confidence interval.

Tub gurnard 3aS, 4: Initially assessed with RBF for CVO TR fleet. At surveillance identified as 'main' for the following UoAs. The average 2017-19 reported catch is also indicated:

- DFPO 3aS-SDN (0.08 t)
- DFPO 4-SDN (1.48 t)
- CVO 4-BT2 (227.56 t)
- CVO 4-TR2 (761.42 t)
- SFPO 4-SDN UoAs (does not appear in landings – added as main on precautionary basis from extrapolation with DFPO 4-SDN data)

The surveillance team concludes that the findings of the initial RBF remain valid. This species was not rescored (**RBF score of 89 but capped at 80 as minor species were not scored**).

Pollack 3a: Identified as main for the same UoAs as at the initial assessment (EZG 3aN-SN, SFPO 3aN-SN) and assessed with RBF. The surveillance team concludes that the findings of the initial RBF remain valid. This species was not rescored (**RBF score of 98 but capped at 80 as minor species were not scored**).

Grey gurnard 4, 7d, 3a: No change from the initial assessment. Although the ITBS Q1 survey is showing a decrease in grey gurnard biomass since ~2016/17, the length-based analysis continues to suggest that $F<F_{MSY}$ (Figure 19; ICES_GRE (2020)). This species was not rescored (**SG60 and SG80 met; SG100 not met**).

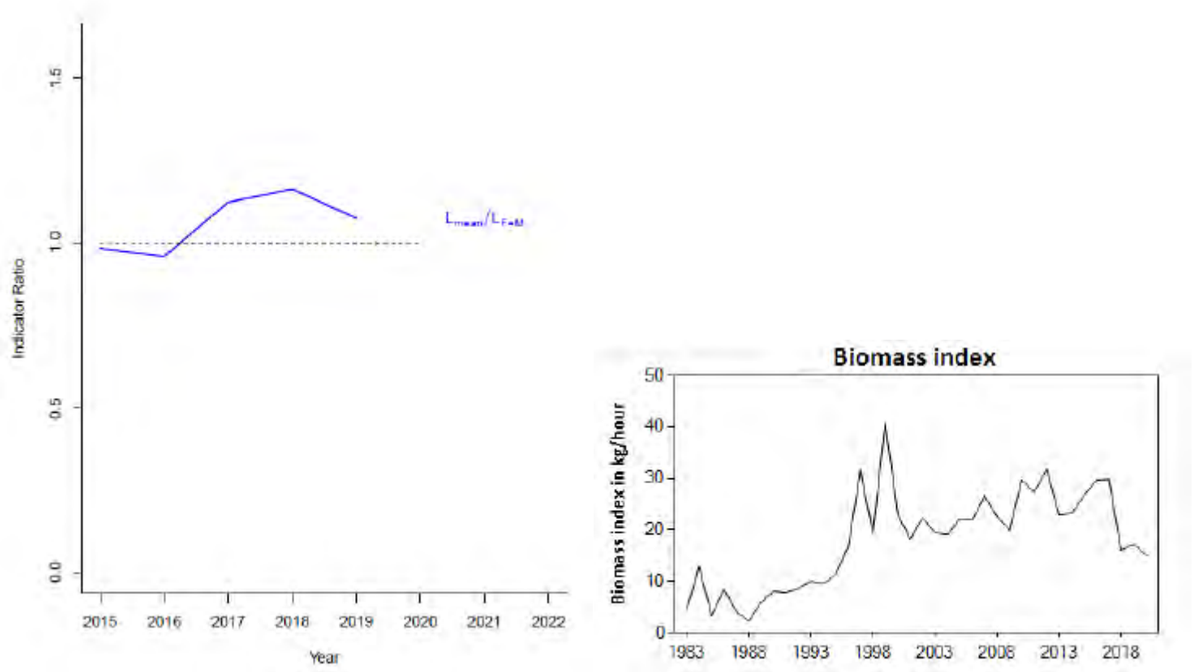
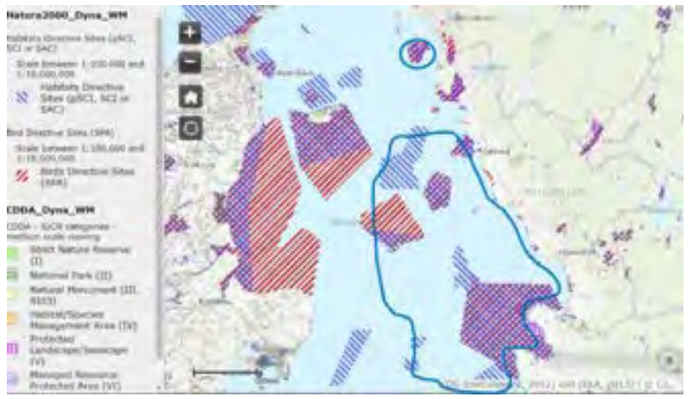


Figure 19. Grey gurnard in Subarea 4 and divisions 7.d and 3.a. Left: The indicator ratio $L_{mean}/L_{F=M}$ from the length-based indicator (LBI) method is used for the evaluation of the exploitation status. The exploitation status is below the F_{MSY} proxy when the ratio value is higher than 1. Right: The time-series of mature biomass index of grey gurnard from the International Bottom Trawl Survey quarter 1 (IBTS-Q1). From ICES_GRE (2020).

Harbour crab 3a (Blue-leg swim crab): Only identified as 'main' in the SFPO POT fishery. According to the SLU observer data this species is discarded > 99% of the time. At this surveillance, the RBF approach was applied to score this species. The results of the Productivity Susceptibility Analysis (PSA) are shown below:

Table 15. Productivity Susceptibility Analysis for *Liocarcinus depurator* (blue-leg swim crab)

a. Productivity (from https://www.marlin.ac.uk/species/detail/1175 unless otherwise indicated)		
Attribute	**Rationale**	**Score**
Average age at maturity	1 year	1
Average maximum age	<10 years	1
Fecundity	100,000-1,000,000 eggs	1
Reproductive strategy	Females carry the eggs but larvae are planktonic – precautionary score of 2.	2
Trophic level	3.4 – 3.5	3
Density dependence (scoring invertebrate species only)	Not known – precautionary score of 3	3
b. Susceptibility (from https://www.marlin.ac.uk/species/detail/1175 unless otherwise indicated)		
Attribute	**Rationale**	**Score**
Areal Overlap	Distributed from Norway to West Africa including the Mediterranean. SFPO *Nephrops* pot fishery is restricted to 3a only. Areal overlap estimated at less than 10%.	1

	 **Figure 20. Areas fished by the Swedish pot fleet in the Kattegat (within blue border), with Natura 2000 sites shown. Source: SFPO – from Public Certification Report**	
Encounterability	Depth range -5m to -300m+. *Nephrops* are commonly found at depths of between 5m to -300m+. According to stakeholder D. Valentinsson (SLU) the absolute majority (>90 %) of the *Nephrops* creel fishery in 3a takes place at depths between 35 m - 80 m. Vertical overlap is estimated at less than 10%. However, because of bait use a more precautionary score of 2 is given.	2
Selectivity of gear type	Gear selectivity unknown - Individuals < size at maturity maybe frequently caught. – precautionary score given	3
Post capture mortality	>99% are discarded according to SLU observer data. Mortality rates are unknown. According to stakeholder D. Valentinsson (SLU) despite mortality rates being unknown for this gear and species he noted that crustacean fisheries around the world are managed by minimum sizes and v-notch/berried female restrictions- these management measures are all dependent on high survivability. He sees no reason to expect any difference for *Liocarcinus* and proposed to change the score to 1 on this basis. In view of these comments, but considering the lack of species-specific data, the team awarded a precautionary risk score of 2.	2

Greater weever 3a: At this surveillance, the species was identified as 'main' for the SFPO 3aS-TR fleet. The catches of this species during trial trawling in the North Sea ("International Bottom Trawl Survey", IBTS) in July-September (quarter 3) shows no clear in either Skagerrak and Kattegat since the early 2000s but there is and evidence that the stock is not recruitment limited with high catch rates in some years, but there is also large variation between years since 2010 (Figure 21). SLU advice (in the absence of a full stock assessment) under a precautionary approach for data limited species was that catches in 2019 should be increased to 591 t a rise of 17% from 2018 based on change over time in the survey (SLU 2020).On this precautionary basis it is reasonable to assume that **SG60 and SG80 can be met.** Without a full stock assessment (which SLU are working on) **SG100 is not met**.

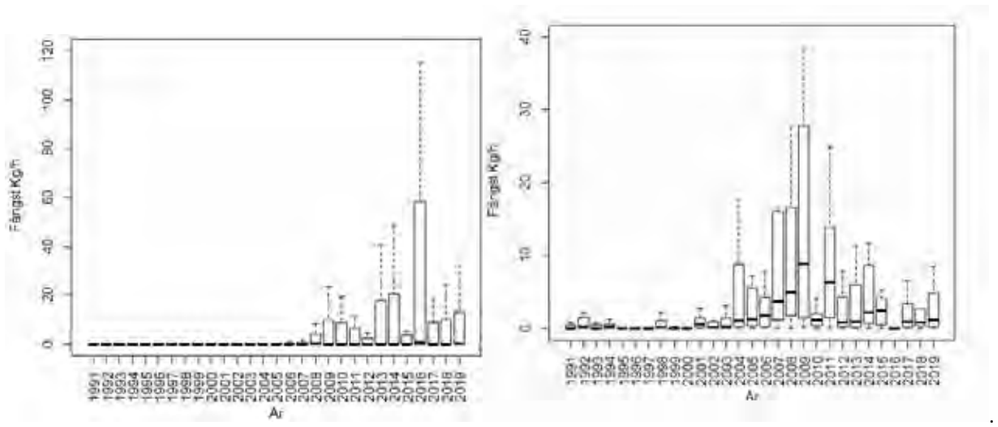


Figure 21. Catches of greater weever (kg per trawl hour) in Skagerrak (left) and Kattegat (right) between 1991-2019. Data comes from international bottom trawl survey (IBTS) made between July and September (Q3). The box charts show the second and third quartile, i.e.25-75 per cent, of catches per trawl hour. The black horizontal line indicates the median of the prisoners. The solid vertical lines above and below the box indicate the range at which 95% confidence is given.

Turbot 3a: This stock was benchmarked in 2020 based on a biomass index which compiled information from survey indices covering Division 3.a. A surplus production model in continuous time (SPiCT) was validated during the benchmark and used for the assessment. According to the assessment, the exploitable biomass (B/B_{MSY}; 35th percentile) has remained above the B/B_{MSY} reference point. The fishing pressure (F/F_{MSY}; 65th percentile) has been below the reference point in recent years, except in 2019 (ICES_TUR 2020b). On that basis, the surveillance team concludes that the stock is highly likely to be above the PRI. **SG60 and SG80 are met.** Because of the uncertainty in the assessment (wide confidence limits in the assessment and stock identity and boundaries remain unclear), there is no high degree of certainty. **SG100 is not met.**

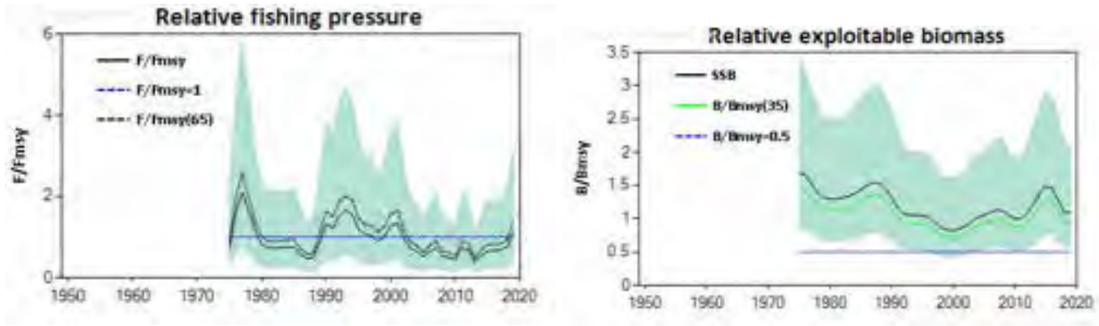


Figure 22. Turbot in Division 3.a. Summary of the stock assessment that includes the period 1975—2019. Relative exploitable biomass (B/B_{MSY}) and relative fishing pressure (F/F_{MSY}) are estimated at the end of each year. From ICES_TUR (2020b)**.**

Whiting 3a: During the initial assessment, this species was assessed with the RBF; however ICES now designates whiting 3a as a category 3 stock with an index of stock size derived from the combination of four surveys: the North Sea International Bottom Trawl Survey (NS-IBTS, Q1 and Q3), the Baltic International Trawl Survey (BITS, Q1 and Q4), and two Danish national surveys targeting cod and sole (Q4) (ICES_WHI 2020). This stock was therefore rescored against the default assessment tree. According to the latest assessment, the stock-size indicator has been fluctuating and is now close to the long-term mean and catches have decreased substantially since the mid-1990s (Figure 23). On that basis, it is highly likely that the stock is above the PRI (**SG60 and SG80 are met**); however no precautionary or MSY reference points are defined to there can be no high degree of certainty. **SG100 is not met**.

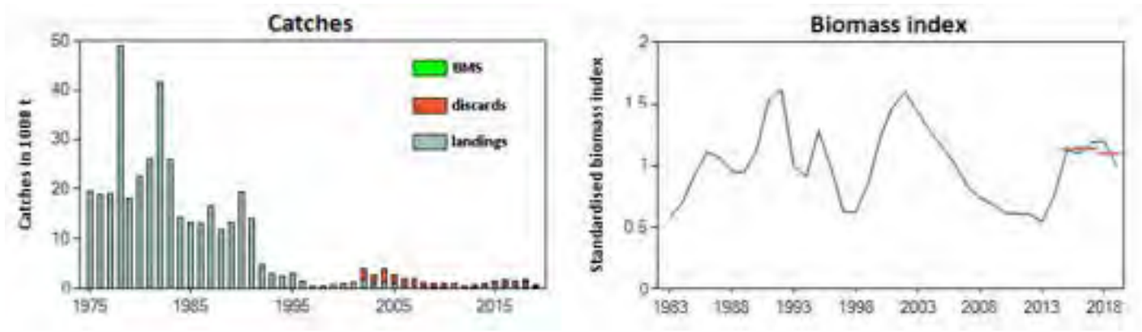


Figure 23. Whiting in Division 3.a. Summary of the stock assessment. Left: ICES estimates of landings, including industrial bycatches (IBC) and discards. Landings below minimum conservation reference size (BMS) are those officially reported. Discard data have been available since 2002 and BMS data since 2018. Right: stock-size indicator of stock biomass from a combination of NS-IBTS (Q1, Q3) BITS (Q1, Q4) and the Danish national surveys targeting cod (Q4) and sole (Q4). The red horizontal lines show the mean stock indicators for 2018–2019 and 2015–2017. From ICES_WHI (2020)**.**

b	**Minor secondary species stock status**			
	Guidepost	SG 60	SG 80	SG 100
				For minor species that are below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			No

No change from initial assessment - Minor secondary species were not evaluated. **Not met**.

References	See scoring issue a for references	
OVERALL PERFORMANCE INDICATOR SCORE:		**DFPO: see Table 16** **SFPO: see Table 17**

	CVO: see Table 18 **EZG: see Table 19**
CONDITION NUMBER (if relevant):	**N/A**

Evaluation Table for PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
Scoring Issue		SG 60	SG 80	SG 100
a	**Management strategy in place**			
	Guidepost	There are **measures** in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **strategy** in place for the UoA for managing main and minor secondary species.
	Met?	Lumpfish 3a – Yes Edible crab 3a – Yes Tub gurnard 3aS, 4 – Yes Pollack 3a – Yes Grey gurnard 4, 7d, 3a – Yes Harbour crab 3a – Yes Greater weever 3a – Yes Turbot 3a – Yes Whiting 3a – Yes	Lumpfish 3a – No Edible crab 3a – Yes Tub gurnard 3aS, 4 – No Pollack 3a – No Grey gurnard 4, 7d, 3a – Yes Harbour crab 3a – Yes Greater weever 3a – Yes Turbot 3a – Yes Whiting 3a – Yes	Lumpfish 3a – No Edible crab 3a – No Tub gurnard 3aS, 4 – No Pollack 3a – No Grey gurnard 4, 7d, 3a – No Harbour crab 3a – No Greater weever 3a – No Turbot 3a – No Whiting 3a – No Minor species - No

MSC definition of a strategy (Table SA8):

"**Measures**" are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.

A "**partial strategy**" represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.

A "**strategy**" represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

Note: In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW."

Lumpfish 3a: A condition is in place on lumpfish (PI 2.2.2) for DFPO and SFPO 3aS-SN. At surveillance this species was also identified as main for SFPO 3aN-SN. The management regime for the Swedish gillnet fishery in the Kattegat applies to the Skagerrak as well. Therefore, the condition should apply to this UoA also. **This species was not rescored**.

Edible crab 3a: SLU review the fishery and trends annually, including commercial CPUE (kg/pot) (SLU 2020). An observer program exists for this fishery (although rates are low). EU technical measures set out a minimum conservation reference size of 140mm. Furthermore, for edible crabs caught in pots or creels, a maximum of 1 % by weight of the total catch of edible crab may consist of detached claws. Most of the catch in the *Nephrops* creel fishery (gear type POT) is discarded with an assumed high survival rate (Valentinsson SLU pers. Comm). These measures constitute a 'partial strategy' under the above definition. SLU consider that the stock is 'relatively high' and being fished sustainably. On this basis, **SG60 and SG80 are met.** Measures and the assessment are not sufficient to constitute a 'strategy', so **SG100 is not met**.

Tub gurnard 3aS, 4: A condition is in place on tub gurnard (PI2.2.2) for CVO 4-TR1 and TR2. At surveillance this species was also identified as main for:

- DFPO 3aS-SDN
- DFPO 4-SDN
- CVO 4-BT2
- CVO 4-TR2
- SFPO 4-SDN

As far as the team are aware, there are no additional measures in place for tub gurnard that apply to newly identified UoAs. Therefore, the condition should apply to these UoAs also. **This species was not rescored**.

Pollack 3a: A condition is in place on pollack (PI2.2.2) for DFPO, SFPO and EZG 3aN-SN. No change since initial assessment – **this species was not rescored**.

Grey gurnard 4, 7d, 3a: No change since initial assessment. This species was not rescored (**SG60 and SG80 met, SG100 not met**).

Harbour crab 3a: Main species for SFPO 3a-POT fishery only. SLU review the pot fishery and trends annually, but because this species is discarded catch rates are known only from UoA observer data analysis. The high discard rates (>99%) and overall low-risk PSA score (see PI2.2.1) including likely high post-release survival (D. Valentinsson (SLU) pers. comm), constitute a 'partial strategy'. SLU consider that the stock is 'relatively high' and being fished sustainably. It is also arguable that the 'if necessary' statement in the SG60 and SG80 is valid here on the basis that the species is not targeted and is returned to the water in good condition. **Overall, SG60 and SG80 are met**. Measures and the assessment are not sufficient to constitute a 'strategy', so **SG100 is not met**.

Greater weever 3a: SLU are in the process of developing a stock assessment for this stock and data collection from the trawl survey and landings data provide the information required for this. Further information is being collected on sexual maturity and length composition (SLU 2020). There is no MCRS for this species at present. For the trawl fishery in which this stock is main 90 mm is the legal minimum mesh size which means only small amounts of juveniles are caught (Daniel Valentinsson (SLU) pers. Comm.). Given the elongate body form of the species and a Lm of 19.1cm (range 14.2-25.6 (fishbase)), there is no reason to think that the gear is anything other than quite selective for them. The lack of targeting and improving status in the region post 2003 also points to them not being impacted severely. Trawl fishing is spatially limited within the 3a region (marine protection areas) and the gear is subject to technical regulations under the EU. Combined the above measures can be considered a partial strategy for the stock and SG60 and SG80 are met. Measures and the assessment are not sufficient to constitute a 'strategy', so **SG100 is not met.**

Turbot 3a: No change since initial assessment. This species was not rescored (**SG60 and SG80 met, SG100 not met**).

Whiting 3a: No change since initial assessment. This species was not rescored (**SG60 and SG80 met, SG100 not met**).

American plaice 3a this stock is no longer a main species in any UoAs and is therefore treated as a minor species

Minor species – Not evaluated **SG100 not met.**

b	Management strategy evaluation			
	Guidepost	SG 60	SG 80	SG 100
		The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	Lumpfish 3a – Yes Edible crab 3a – Yes Tub gurnard 3aS, 4 – Yes Pollack 3a – Yes Grey gurnard 4, 7d, 3a – Yes Harbour crab 3a – Yes Greater weever 3a – Yes Turbot 3a – Yes Whiting 3a – Yes	Lumpfish 3a – No Edible crab 3a – Yes Tub gurnard 3aS, 4 – No Pollack 3a – No Grey gurnard 4, 7d, 3a – Yes Harbour crab 3a – Yes Greater weever 3a – Yes Turbot 3a – Yes Whiting 3a – Yes	Lumpfish 3a – No Edible crab 3a – No Tub gurnard 3aS, 4 – No Pollack 3a – No Grey gurnard 4, 7d, 3a – No Harbour crab 3a – No Greater weever 3a – No Turbot 3a – No Whiting 3a – No

Lumpfish 3a: See scoring issue a – not rescored (**SG60 met, SG80 not met**).

Edible crab 3a: Objective basis of confidence for the partial strategy defined in SIa comes from SLU's annual review the fishery and trends, including commercial CPUE (kg/pot) which shows a stable high level stock (SLU 2020). This information comes directly from the UoA although the information does not cover the entire fleet or year. **SG60 and SG80 are met**. There is no testing undertaken **SG100 not met**

Tub gurnard 3aS, 4: See scoring issue a – not rescored (**SG60 met, SG80 not met**).

Pollack 3a: See scoring issue a – not rescored (**SG60 met, SG80 not met**).

Grey gurnard 4, 7d, 3a: See scoring issue a – not rescored (**SG60 and SG80 met, SG100 not met**).

Harbour crab 3a: The partial strategy is considered likely to work as there is no commercial fishery for this species so no incentive to catch this species (Morgan 2021). This is evidenced with the observer data for the UoA that demonstrate high discard rates (>99%). Discard survival is assumed to be high for the harbour crab (Daniel Valentinsson (SLU) pers. Comm.). **SG60 and SG80 can be met**. There is no testing undertaken so **SG100 not met.**

Greater weever 3a: Evidence that the partial strategy for the stock is working can be found in the peak CPUEs in both the Skagerrak and Kattegat since the early 2000s, and the confidence in this increase which allows SLU increase catches to 591 t a rise of 17% from 2018 (SLU 2020). **SG60 and SG80 can be met**. There is no testing undertaken **SG100 not met**

Turbot 3a: See scoring issue a – not rescored (**SG60 and SG80 met, SG100 not met**).

Whiting 3a (old rationale in blue): Whiting <MCRS has a de minimis exemption from the LO which is supported by evidence and has been approved by STECF, but this only demonstrates that further improvements in selectivity are difficult, not that the partial strategy to avoid impacts on the stock is working overall. The status of the stock is unknown. The stakeholder analysis in the PSA (Appendix 5) provides a plausible argument, as per pollack. SG60 is met but SG80 is not met.

ICES now designates whiting 3a as a category 3 stock with an index of stock size derived from the combination of four surveys: the North Sea International Bottom Trawl Survey (NS-IBTS, Q1 and Q3), the Baltic International Trawl Survey (BITS, Q1 and Q4), and two Danish national surveys targeting cod and sole (Q4) (ICES_WHI 2020). According to the latest assessment, the stock-size indicator has been fluctuating and is now close to the long-term mean and catches have decreased substantially since the mid-1990s and are now at an all-time low (Figure 23). On that basis, there is some objective basis for confidence that the partial strategy is working (**SG60 and SG80 are met**). In the absence of testing, **SG100 is not met.** This condition can therefore be closed.

c	Management strategy implementation			
	Guidepost	SG 60	SG 80	SG 100
			There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
	Met?		All stocks – Yes Edible crab 3a – Yes Harbour crab 3a – Yes Greater weever 3a – Yes	All stocks – No Edible crab 3a – No Harbour crab 3a – No Greater weever 3a – No

No change from initial assessment. All previously assessed species continue to meet SG80, none meet SG100

Edible crab 3a: Evidence of measure implementation are: Observer data from the UoA. SLU confirm that the stock level and catch advice is stable and that there is no evidence of any systematic sanctions against the measures for the fishery related to this stock. **SG80 is met. SG100 is not met** as there is no clear objective for the management of the stock.

Harbour crab 3a: Evidence of measure implementation are: Observer data from the UoA recording the stock as a discard species, which would otherwise be missed. That there is no evidence of any systematic sanctions against the measures for the fishery related to this stock. **SG80 is met. SG100 is not met** as there is no clear objective for the management of the stock.

Greater weever 3a: Evidence of measure implementation are: Observer data from the UoA. SLU catch annual trend analysis and recommended catch levels. That the stock level is stable and catch advice is improved and that there is no evidence of any systematic sanctions against the measures for the fishery related to this stock. **SG80 is met. SG100 is not met** as there is no clear objective for the management of the stock.

d	Shark finning			
	Guidepost	SG 60	SG 80	SG 100
		It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	Not relevant	Not relevant	Not relevant

No change from initial assessment. **Not scored.**

e	Review of alternative measures to minimise mortality of unwanted catch			
	Guidepost	SG 60	SG 80	SG 100
		There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of all secondary species, and they are implemented, as appropriate.
	Met?	All stocks – Yes	All stocks – Yes	All stocks – No

No change from initial assessment. All previously assessed species continue to meet SG80, none meet SG100

Harbour crab and edible crab 3a: An ecological risk assessment (ERA) for the effects of Swedish creel fisheries on invertebrates, including these two species, was carried out in 2020 (Morgan 2021). Although harbour crab are consistently discarded, the species was identified as low-risk in the ERA with SLU confirming their view that post-release survival rates are high (D. Valentinsson, pers. comm.). Although edible crab was assessed as high risk, SLU review the fishery and trends annually, including commercial CPUE (kg/pot). Together, this constitutes a regular review in the context of this scoring issue. **SG60 and 80 are met. SG100 is not met** because the review is not biennial.

Greater weever 3a: Observer data from the UoA, together with SLU catch annual trend analysis and recommended catch levels mean there is a regular review for this species. **SG60 and 80 are met. SG100 is not met** because it is not clear that this review is biennial.

References	See rationale
OVERALL PERFORMANCE INDICATOR SCORE:	**DFPO: see Table 16** **SFPO: see Table 17** **CVO: see** Table 18 **EZG: see Table 19**
CONDITION NUMBER (if relevant):	**No new conditions see existing conditions in section 3.4.2 for lumpfish and pollock.** **Tub gurnard condition extended to new UoAs also see section 3.4.2**

2.2.7.3 PI2.2.3

Evaluation Table for PI 2.2.3 – Secondary species information

PI 2.2.3		**Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.**		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guidepost	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR If RBF is used to score PI 2.2.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR If RBF is used to score PI 2.2.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and **adequate to assess with a high degree of certainty** the impact of the UoA on main secondary species with respect to status.
	Met?	Y – all stocks	Y - all stocks	N – all stocks

There are two elements to this SI, i.e. the information available overall to evaluate stock status, and the information available from the relevant UoA to evaluate its impact on the stock. Alternatively, where the RBF has been used to score 2.2.1a, the two elements are the information required to score productivity (biological information) and the information required to score susceptibility (fishery information from stakeholders). These are considered below in relation to each main secondary species:

Main secondary species	**Relevant UoAs**	**RBF?**	**Information to evaluate stock status OR information to evaluate productivity (RBF)**	**Information to evaluate impact of UoCs on stock OR information to evaluate susceptibility (RBF)**	**Scoring conclusions**
Grey gurnard 4, 7d, 3a	CVO 4-BT1, 3aN-BT1, 4-TR1, 3aN-TR, 4-TR2	N	Stock status is monitored by a survey index and a length-based assessment which gives a proxy for F_{MSY}. These provide information on stock status and trends sufficient to assess fishery impacts	UoA landings and DCF self-sampling discard data analysed by WMR.	No change from initial assessment. **SG60 and SG80 met. SG100 not met.**
Pollack 3a	DFPO, SFPO, EZG: SN	Y	Sufficient biological information was available to score productivity with reasonable certainty – see Public Certification Report.	Stakeholders were able to score susceptibility for all UoAs for which pollack make up >5% of catch (see Appendix 5), based on their knowledge of the fishery, gear and pollack habitat use and behaviour	No change from initial assessment. **SG60 and SG80 met. SG100 not met.**
Whiting 3a	SFPO 3aS-TR	N	During the initial assessment, this species was assessed with the RBF; however following a benchmark in 2020, ICES now designates whiting 3a as a category 3 stock with an index of stock size derived from the combination of four surveys: the North Sea International Bottom Trawl Survey (NS-IBTS, Q1 and Q3), the Baltic International Trawl Survey (BITS, Q1 and Q4), and two Danish national surveys targeting cod and sole (Q4) (ICES_WHI 2020). The stock assessment, however, is not analytical.	According to ICES, this species is mainly discarded by the bottom trawl fleet (ICES_WHI 2020). Observer data are available for the SFPO 3aS-TR UoA.	Quantitative data are adequate to assess the impact of the UoA on the stock (**SG60 and SG80 are met**); but the lack of an analytical stock assessment means there is not a high degree of certainty. **SG100 is not met**.
Lumpfish 3a	DFPO, SFPO: SN	Y	As pollack	As pollack	No change from initial assessment. **SG60 and SG80 met. SG100 not met.**
Edible crab 3a	SFPO: SN, POT	N	Stock trends are monitored via CPUE of the targeted fishery	Landings and discard data are available (see Appendix 5.2).	Quantitative data is adequate to assess the impact of the UoA on the stock; but the lack of an analytical stock assessment (which is difficult for crabs) means there is not a high degree of certainty. **SG60 and SG80 met but SG100 not met**.
Turbot 3a	SFPO: SN	N	Stock status is monitored by a survey index, which provides information on trends sufficient to assess fishery impacts.	Observer data are available for the SFPO 3aN-SN fleet which has the highest catches (see Appendix 5.2.4).	No change from initial assessment. **SG60 and SG80 met. SG100 not met.**

Main secondary species	Relevant UoAs	RBF?	Information to evaluate stock status OR information to evaluate productivity (RBF)	Information to evaluate impact of UoCs on stock OR information to evaluate susceptibility (RBF)	Scoring conclusions
Tub gurnard 3aS, 4	DFPO: SDN; CVO: BT2; SFPO: SDN	Y	As pollack	As pollack	No change from initial assessment. SG60 and SG80 met. SG100 not met.
Harbour crab 3a	SFPO 3a-POT	Y	As pollack	>99% of this species are discarded which can be monitored via observer data which are available for this UoA.	Sufficient information was available from published sources and stakeholders to score the PSA. SG80 is met. The analysis is uncertain (risk-based) so SG100 is not met.
Greater weever 3a	SFPO 3aS-TR	Y	As pollack	Observer data are available for the SFPO 3aS-TR fleet where this species is main.	Sufficient information was available from published sources and stakeholders to score the PSA. SG80 is met. The analysis is uncertain (risk-based) so SG100 is not met.

b	**Information adequacy for assessment of impacts on minor secondary species**			
	Guidepost	SG 60	SG 80	SG 100
				Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			N

No change from initial assessment. **Not met.**

c	Information adequacy for management strategy			
	Guidepost	SG 60	SG 80	SG 100
		Information is adequate to support **measures** to manage **main** secondary species.	Information is adequate to support a **partial strategy** to manage **main** secondary species.	Information is adequate to support a **strategy** to manage **all** secondary species, and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.
	Met?	Lumpfish 3a – Yes Edible crab 3a – Yes Tub gurnard 3aS, 4 – Yes Pollack 3a – Yes Grey gurnard 4, 7d, 3a – Yes Harbour crab 3a – Yes Greater weever 3a – Yes Turbot 3a – Yes Whiting 3a – Yes	Lumpfish 3a – No Edible crab 3a – Yes Tub gurnard 3aS, 4 – Yes Pollack 3a – Yes Grey gurnard 4, 7d, 3a – Yes Harbour crab 3a – Yes Greater weever 3a – Yes Turbot 3a – Yes Whiting 3a – Yes	N – all stocks

Amongst the previously assessed stocks, grey gurnard, turbot and whiting were considered to have a partial strategy in place. None of these species/stocks and UoAs were identified as having inadequate quantitative information available to estimate UoA impact (see scoring issue a). On that basis, the information remains adequate to support a partial strategy to manage these main secondary species at the UoA level and the scoring as per the initial assessment remains valid (**SG60 and SG80 met, SG100 not met**).

Note: In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW."

Pollack 3a: No change from initial assessment. This species was not rescored (**SG60 and SG80 met, SG100 not met**).

Lumpfish 3a: A condition is in place on lumpfish (PI 2.2.3) for DFPO and SFPO 3aS-SN. At surveillance this species was also identified as main for SFPO 3aN-SN. Observer data were available for the SFPO 3aS-SN fleet for 2019 indicating that discarding of this species is likely less than 5%. However, until a more long-term dataset becomes available, this condition remains open for the SFPO fleet (and will apply to the 3aN-SN UoA as well). For DFPO, at the time of the initial assessment, a DTU Aqua lumpfish tagging project was ongoing which was expected to shed light on Danish catches of this species. Because of low tagging returns, this project has however not provided the necessary insight. DFPO is now working with DTU Aqua to see if a project can be set up to meet both conditions on lumpfish. This condition therefore remains open.

Tub gurnard 3aS, 4: No change from initial assessment. This species was not rescored (**SG60 and SG80 met, SG100 not met**).

Edible crab 3a: Information sources for the stock include observer data from key fisheries, SLU's annual review the fishery and trends annually, including commercial CPUE (kg/pot) (SLU 2020). The annual report from SLU includes information on landing trends by country and biometrics of the stock (sizes etc) this information forms an adequate base on which the partial strategy is based **SG60 and SG80 are met**. SG100 is not met as the current measures are not considered a strategy and cannot be evaluated with a high degree of certainty to be achieving the stock objectives which are also absent.

Harbour crab 3a: UoA catch trends can be derived from observer data, there is also qualitative information on discard survival rates which are high according to SLU. A recent ecological risk assessment (Morgan 2021) determined that the risk of the Swedish creel fishery to this species is low. On that basis, the information is adequate to support the partial strategy. **SG60 and SG80 are met**. In the absence of a full strategy **SG100 is not met**.

Greater weever 3a: Information sources for the stock include observer data from key trawl fishery, SLU's annual review of the fishery and trends annually, using trawl survey data. In addition tagging experiments have been conducted which indicate no recaptures north of Skagen or south of latitude 56°N, suggesting that greater weever in the Kattegat constitute a local stock (Bagge 2004). There is also information on size of maturity in relation to net sizes, and continuing work on measuring biotics (size and age classes) in catches as the objective is to develop a full stock assessment. Therefore information is sufficient to support a partial strategy for this stock and **SG60 and SG80 are met. SG100 is not met** as the current measures are not considered a strategy and cannot be evaluated with a high degree of certainty to be achieving the stock objectives which are also absent.

References	See rationale
OVERALL PERFORMANCE INDICATOR SCORE:	**DFPO: see Table 16** **SFPO: see Table 17** **CVO: see** Table 18 **EZG: see Table 19**
CONDITION NUMBER (if relevant):	**See existing condition on lumpfish PI2.3.3 section 3.4.2.2**

2.2.8 Overall scores Secondary species

The assessment team followed the scoring element approach as per FCRv2.0 7.10.7 and Table 4. The following tables summarise the scores for each scoring element per UoA gear type – Client combination based on the preceding evaluation tables. The overall score was then derived in accordance with Table 4 of the FCRv2.0. Scores that changed at this surveillance are shown in red.

Table 16. DFPO Secondary species PI scores (x indicates presence). Condition numbers are shown in between brackets and in orange highlight. Revised scores in red. *this species was not identified as main in the latest datasets 2017 onwards but has been maintained as a main species based on the PCR record and an existing condition on this stock.

Scoring element	Score 2.2.1	Score 2.2.2	Score 2.2.3	4-TR1	4-TR2	4-TR PRAWN	4-BT1	4-SDN	4-SN	4-LL	3aN-TR	3aN-TR PRAWN	3aN-BT1	3aN-SDN	3aN-SN	3aN-LL	3aS-TR	3aS-TR PRAWN	3aS-SDN	3aS-SN
Pollack 3a*	RBF – 99 (capped at 80)	70	80												x					
Tub gurnard 3aS, 4	80	70	80					x											x	x
Lumpfish 3aS	80	70	70																	x
Whiting 3a	80	80	80														x			
Minor species	80	80	80	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Overall score 2.2.1				**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**
Overall score 2.2.2				**80**	**80**	**80**	**80**	**75 (DFPO - 113)**	**80**	**80**	**80**	**80**	**80**	**80**	**75 (DFPO- 1)**	**80**	**80**	**80**	**75 (DFPO - 114)**	**75 (DFPO- 2)**
Overall score 2.2.3				**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**75 (DFPO- 3)**

Table 17. SFPO Secondary species PI scores (x indicates presence). Condition numbers are shown in between brackets and in orange highlight. Revised scores in red. New scoring elements in italics. * No fishery has been present for this UoA between 2017-19; therefore score shown are those of the PCR. # this species was not identified as main in the latest data 2017 onwards but was at the PCR, this species is now considered a minor element and default score of 80 is given.

Scoring element	Score 2.2.1	Score 2.2.2	Score 2.2.3	4-TR1	4-TR2*	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Tub gurnard 3aS, 4	80	70	80			x								
Lumpfish 3a	80	70	70							x			x	
Turbot 3a	80	80	80							x			x	
Pollack 3a	80	70	80							x				
American plaice #	80	80	80				x				x			
Edible crab 3a	80	80	80							x			x	x

Scoring element	Score 2.2.1	Score 2.2.2	Score 2.2.3	4-TR1	4-TR2*	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Harbour crab 3a	80	80	80											x
Greater weever 3a	80	80	80								x			
Whiting 3a	80	80	80								x			
Minor species	80	80	80	x	x	x	x	x	x	x	x	x	x	x
Overall score 2.2.1				**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**
Overall score 2.2.2				**80**	**80**	**75 (SFPO – 74)**	**80**	**80**	**80**	**75 (SFPO- 3) (SFPO – 75)**	**80**	**80**	**75 (SFPO- 4)**	**80**
Overall score 2.2.3				**80**	**80**	**80**	**80**	**80**	**80**	**75 (SFPO - 76)**	**80**	**80**	**75 (SFPO- 5)**	**80**

Table 18. CVO Primary species PI scores. Note: numbering is by client group (x indicates presence). Existing condition numbers are shown in between brackets and in orange highlight. Revised scores in red.

Scoring element	Score 2.2.1	Score 2.2.2	Score 2.2.3	4-BT1	4-BT2	4-SN	4-TR1	4-TR2	3aN-BT1	3aN-TR
Grey gurnard 4, 7d, 3a	80	80	80	x			x	x	x	x
Tub gurnard 3aS, 4	80	70	80		x		x	x		
Minor species	80	80	80	x	x	x	x	x	x	x
Overall score 2.2.1				**80**	**80**	**80**	**80**	**80**	**80**	**80**
Overall score 2.2.2				**80**	**75 (CVO-56)**	**80**	**75 (CVO- 7)**	**75 (CVO- 8)**	**80**	**80**
Overall score 2.2.3				**80**	**80**	**80**	**80**	**80**	**80**	**80**

Table 19. EZG Primary species PI scores (x indicates presence). Existing condition numbers are shown in between brackets and in orange highlight. Revised scores in red.

Scoring element	Score 2.2.1	Score 2.2.2	Score 2.2.3	4-TR1	4-SN	3aN-TR	3aN-SN
Pollack 3a	80	70					x
Minor species	80	80	80	x	x	x	x
Overall score 2.2.1				**80**	**80**	**80**	**80**
Overall score 2.2.2				**80**	**80**	**80**	**75 (EZG- 1)**
Overall score 2.2.3				**80**	**80**	**80**	**80**

2.3 ETP species

2.3.1 Overview

Based on the team's analysis of the aforementioned datasets, an overview of ETP species encounters in the UoA fisheries for 2017-19 is given in Table 20.

Table 20. Overview of ETP species encounters in the UoA fisheries during 2017-19 as extracted from the landings and observer data (see Appendix 5.2). Data are shown in tonnes (2017-19 average), except for CVO where data are shown as the average proportion of number of discards per hour across the metiers within the UoA category. Red x: Indicates presence based on extrapolation from other UoA(s); Green shading: Indicates not previously recorded (in the PCR) for this UoA.

DFPO	3aN-SN	3aS-SN	4-SN	3aN-BT	4-BT1	3aN-LL	3aN-SDN	3aS-SDN	4-SDN	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN
Phoca vitulina	24	x									1.24					
Squalus acanthias	0.01	x	2.07				3.09	x	0.03	32.41	8	16.26	x	0.15		
Phocoena phocoena	2.05	x														
Acipenser sturio	0.78	x														
Dipturus batis	0.02	0.01	0.47					x	0.05	15.2	0.19	14.07		0.1		
Alosa fallax	0.07	x	0.03			0.01	0.01	x	x	0.1	0.04					
Melanitta nigra	0.01	x														
Amblyraja radiata		x	0.87	x	0.27		27.01	x	x	38.18	9.98	716.19	x	8.82	0.01	1.21
Alosa alosa		x	0.02													
Lamna nasus												0.03				
Uria aalge													x			
Observer data?	Yes	No	Yes	No	No	No	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes

SFPO	3a-POT	3aS-SN	3aN-SN	3aN-TR PRAWN	3aS-TR PRAWN	3aS-TR	3aN-TR	4-TR1	3aN-SDN	4-SDN
Amblyraja radiata				24.44	x	0.37	67.45	x	x	x
Dipturus batis				0.83	x	<0.01		x		x
Squalus acanthias				0.56	x	13.86	46.82	x	x	x
Alosa fallax							0.02	x	x	x
Alosa alosa								x		
Acipenser sturio								x		
Lamna nasus								x		
Observer data?	Yes	Yes	No	Yes	No	Yes	Yes	No	No	No

CVO	4-SN	4-BT1	4-BT2	4-TR1	4-TR2	3aN-BT1	3aN-TR
Alosa fallax				<0.01			x
Amblyraja radiata		0.45	0.1	0.17	0.03	x	x
Squalus acanthias				<0.01	<0.01		x
Uria aalge					<0.01		
Independently verified self-sampling data?	No	Yes	Yes	Yes	Yes	No	No

EZG	4-TR1	3aN-TR	4-SN	3aN-SN
Amblyraja radiata	0.01	x		
Squalus acanthias	<0.01	x	0.05	
Observer data?	Yes	No	No	No

Common seal (*Phoca vitulina*)

From the Netherlands through France, harbour seal populations appear to be increasing despite their proximity to human activities and heavy exploitation of the coastal areas that they inhabit. The population in the Wadden Sea is estimated to be between 25,000 and 31,800 individuals and has shown a quick recovery after two Phocine Distemper Virus (PDV) epizootics. The most recent total population estimate in 2019 was 40,800 in the Danish, Dutch and German Wadden Sea. Observation of individuals from neighbouring colonies indicate some exchange with populations from the southern part of the United Kingdom (UK) and the Netherlands. In the UK, the most recent estimate in 2016 was 43,450 (95% CI: 35,550–57,900) seals. Although Scottish colonies have experienced dramatic declines, especially on the east coast (Orkneys and Shetland) where populations have decreased by 85% between 2000 and 2010, colonies on the northwest and southeast coasts appear to be stable or increasing and the population in the Wash, England is increasing as well. Reasons for the decline in the Scottish populations are yet unclear, but research efforts are currently focused on competition with grey seals, predation from killer whales, and exposure to toxins from harmful algal bloom (see Blanchet et al. (2021) and references therein). The surveillance team in review of the rationales from the PCR concluded that there has been no material change with respect to common seal encounters in the UoA fisheries and this species was therefore not rescored.

Spurdog (*Squalus acanthias*)

The ICES Working Group on Elasmobranch Fishes (WGEF) considers that there is a single Northeast Atlantic stock ranging from the Barents Sea (Subarea 1) to the Bay of Biscay (Subarea 8), and that this is the most appropriate unit for assessment and management within ICES (ICES_WGEF 2020). This species is prohibited to be landed (EU 2021) and all specimens must therefore be discarded[1]. Low mortality has been reported for spurdog caught by trawl when tow duration was < 1 h, with overall mortality of about 6%, with higher levels of mortality (ca. 55%) reported for gillnet-caught spurdog (Rulifson, 2007 in ICES_WGEF (2020)). According to the latest ICES assessment (ICES_SPU 2020), recruitment over approximately the last 15 years has been increasing which has been paired with an overall increase in biomass, although this remains below MSY $B_{trigger}$ (Figure 24). Under the current 0-TAC rule, biomass is projected to further increase in 2022-23 (ICES_SPU 2020). On that basis, the team concludes there has been no material change with respect to spurdog encounters in the UoA fisheries from those of the PCR and this species was therefore not rescored.

[1] When accidentally caught in fisheries where picked dogfish is not subject to the landing obligation, specimens shall not be harmed and shall be released immediately, as required by Articles 16 and 52. By way of derogation from Article 16, a vessel engaged in the by-catch avoidance programme that has been positively assessed by the STECF may land not more than 2 tonnes per month of picked dogfish that is dead at the moment when the fishing gear is hauled on board. Member States participating in the by-catch avoidance programme shall ensure that the total annual landing of picked dogfish on the basis of this derogation does not exceed the above amounts. They shall communicate the list of participating vessels to the Commission before allowing any landings. Member States shall exchange information about avoidance areas.

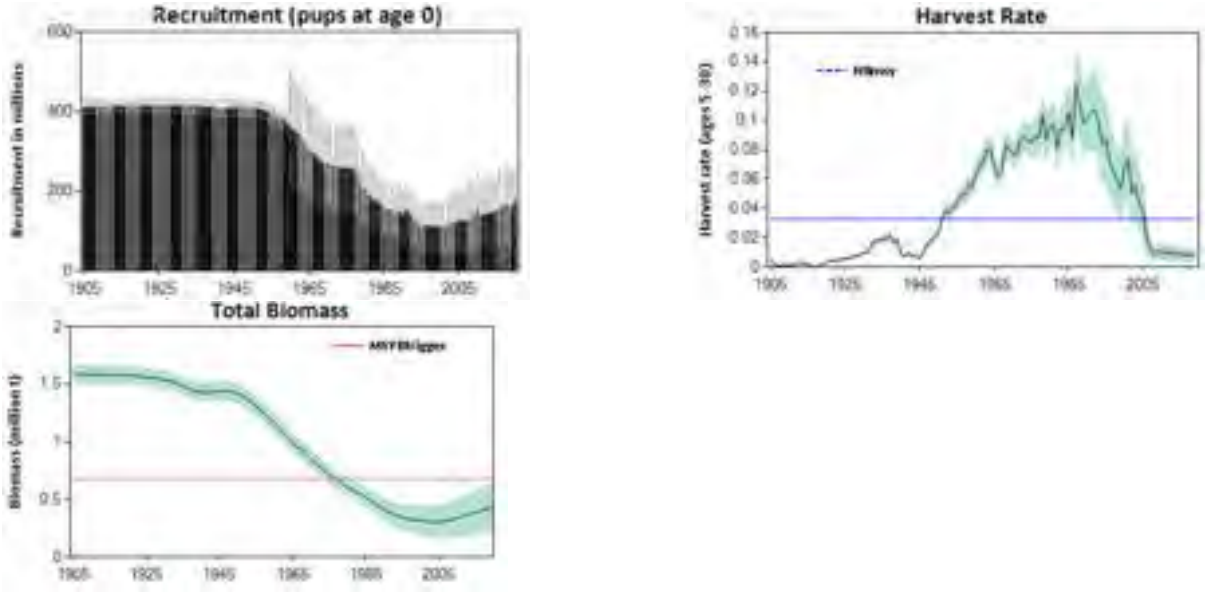


Figure 24. Spurdog in subareas 1–10, 12, and 14. Summary of the stock assessment. Recruitment (number of pups), mean harvest rate (average ages 5–30), and total biomass. Shaded areas in the bottom panels reflect estimates of precision (±2 standard deviation) and horizontal lines indicate the associated MSY reference points. The final-year recruitment estimate is provisional, taken from the estimated stock–recruitment relationship. From ICES_SPU (2020)**.**

Harbour porpoise (*Phocoena phocoena*)

There has been no updated population assessment for this species since the initial assessment (Sieben, Gascoigne, et al. 2019). During this surveillance, harbour porpoise only appeared in the data for the DFPO set net fisheries in the Kattegat and Skagerrak. According to the latest ICES working group on bycatch of protected species, Denmark is continuing trials of both pingers and lights as a means to mitigate bycatch of harbour porpoises (and seabirds), as well as conducting research on the behaviour of porpoises around pingers. Denmark is also continuing the development and testing of fishing gear as alternatives to gillnets primarily for catching cod and flatfish. This includes both small-scale Danish seines and baited pots (ICES_WGBYC 2020). According to the DTU observer data, 6,164 kg of harbour porpoise were observed encountered by the 3aN-SN UoA in 2017 (more specifically the larger 120-219 mm mesh metier). No other harbour porpoises were observed in the entire observer programme over the 2017-19 period. During the initial assessment, the annual average encounter rate was estimated at 8 tonnes. On this basis, the team concludes there has been no material change with respect to harbour porpoise encounters in the UoA fisheries and this species was therefore not rescored.

European sea sturgeon *(Acipenser sturio)*

This species appeared in the DFPO set net data alone for 2017-2019, but was present in other UoA at the PCR (TR gear in 4). As was the case at the initial assessment, there are no set catch limits for sturgeon and they are not targeted. Bycatch numbers are extremely low, as evidenced by the low encounter rate in Table 20, and the main conservation concerns for these species relate to changes in their riverine habitats (weirs and dams which block migration pathways and pollution). Therefore, the team concludes there has been no material change with respect to European sea sturgeon encounters in the UoA fisheries and this species was therefore not rescored.

Common skate (*Dipturus batis*)

According to the latest ICES assessment (ICES_COM 2020), although 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_COM 2019). Furthermore, the Spanish Porcupine Bank survey (SpPGFS-WIBTS-Q4) has seen increasing catch rates of *Dipturus* spp., although this survey may not be representative of the whole stock area. The UK southwestern beam trawl survey (UK-Q1-SWBeam) further caught immature common skate, with preliminary studies indicating an increasing trend in Division 7.e (ICES_COM 2020). Although stock status indicators remain lacking, it is apparent that the data availability on this species complex may be gradually improving. At this surveillance, the species was observed encountered in the SFPO and DFPO UoAs only, all of which had already been assessed against this species during the initial assessment. It is noted that conditions on common skate are in place for the relevant UoAs against 2.3.1 (ETP species outcome), 2.3.2 (ETP species management) and 2.3.3 (ETP species information). Progress against these conditions is further discussed in Section 3.4.2.

Twaite and allis shad (*Alosa fallax, Alosa alosa*)

Although both species were recorded for some new UoAs at this surveillance (see Table 20), the very low level of encounter rates remain within the bounds of what was assessed during the initial assessment. The team concludes there has been no material change with respect to shad species in the UoA fisheries and these species were therefore not rescored.

Seabirds (common scoter - *Melanitta nigra*; common murre - *Uria aalge*)

At this surveillance two seabird species appeared in the UoA data. Both common scoter - *Melanitta nigra* and common murre - *Uria aalge* are considered an ETP species on the basis of national protection in UK waters under The Wildlife and Countryside Act 1981 and that these populations will likely overlap into these waters of the UoAs.

In the DFPO 3aN-SN fishery, 28 kg of common scoter (*Melanitta nigra*) were observed encountered in 2018. It is unclear how many individuals this might be. No other records of seabird encounters were made for the remainder of the DFPO UoAs during 2017-19. It is noted that conditions on seabirds (all species) are in place for the EZG, SFPO and DFPO SN UoAs against 2.3.1 (ETP species outcome) and 2.3.2 (ETP species management). Progress against these conditions is further discussed in Section 3.4.2.

For the CVO 4-TR2 fishery, based on self-sampling data in the Dutch reference fleet (van_Overzee et al. 2021), 0.27 common murre (*Uria aalge*) (in numbers) were estimated to be discarded per hour in 2019 (this is a raised estimate based on self-sampling of 11 trips of the OTB_CRU_70-99 metier). No other encounters of this species were recorded. BirdLife_International (2021) lists this species as Least Concern, with a population trend that appears to be increasing and a European population estimated at 2,350,000-3,060,000 mature individuals (based on 2015 data), but it remains on the EU birds directive Annex 1 list. The team concludes that this level of encounter does not constitute a material change for the otter trawl fishery and this UoA was therefore not rescored.

Starry ray (*Amblyraja radiata*)

Starry ray in Subareas 2 and 4 and Division 3.a (Norwegian Sea, North Sea, Skagerrak, and Kattegat) is assessed by ICES as a Category 3 stock, with abundance indices derived from two surveys (NS–IBTS–Q1 and NS–IBTS–Q3) to provide an overall stock size indicator. In the absence of landings data (this

species is listed as forbidden to land - EU (2021)), fishery-independent trawl surveys provide the longest time-series of species-specific information and cover most of the stock area. According to the latest assessment, this indicator has been in continuous decline since 1990 (Figure 25; ICES_STA (2019)). In the context of the Dutch MSC certified fisheries which all have conditions in relation to this species (i.e. the Dutch MSC certified twinrig, outrig and flyshoot fisheries by CVO, Osprey and Ekofish), H. M. J. van_Overzee et al. (2019) estimated the starry ray population size for the North Sea, based on the data collected within the International Bottom Trawl Survey (IBTS) and the Beam Trawl Survey (BTS). The estimates concern a minimum estimate of the starry population size as the model assumes a catchability of 1, i.e. assuming that all fish encountered by the gear in the surveys were caught. On that basis, the total stock weight for 2017 was estimated at 19,388 tonnes (97.5% CI: 13,029 – 39,127 t – see Figure 26).

At this surveillance, starry ray was observed encountered in the same UoAs that had already been assessed against this species during the initial assessment. It is noted that conditions on starry ray are in place for the relevant UoAs against 2.3.1 (ETP species outcome), 2.3.2 (ETP species management) and 2.3.3 (ETP species information). Progress against these conditions is further discussed in Section 3.4.2.

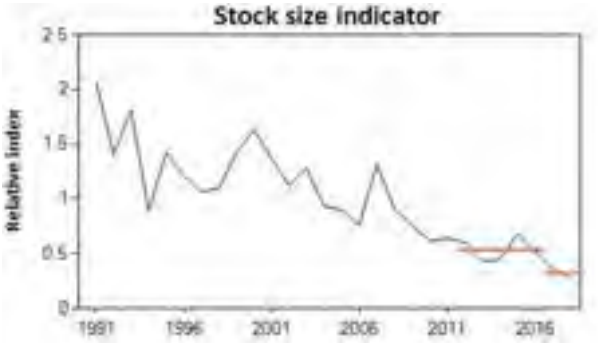


Figure 25. Starry ray in Subareas 2 and 4 and Division 3.a. Average of survey indices of abundance (n h−1, relative to the time-series mean) from trawl surveys (NS–IBTS–Q1, NS–IBTS–Q3). The horizontal lines show the mean stock indicators for 2017–2018 and 2012–2016. From ICES (2019c)**.**

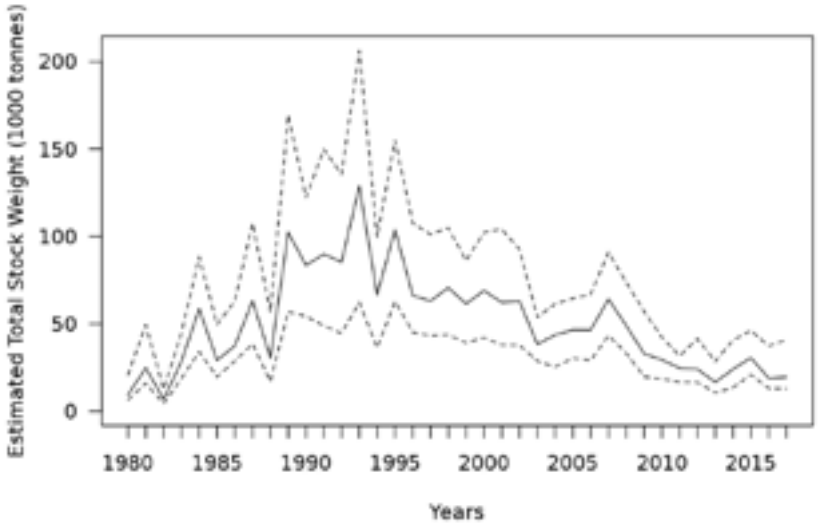


Figure 26. Estimated total starry ray stock weight for the North Sea (median – solid line) and corresponding uncertainty (0.025 quant and 0.975 quant – lower and upper dotted line) expressed in 1000 tonnes. From H. M. J. van_Overzee et al. (2019)**.**

Porbeagle (*Lamna nasus*)

As was the case at the initial assessment, UoA observer data suggest porbeagle encounters are infrequent (a low level of encounters was recorded for the DFPO 4-TR1 fleet at this surveillance – see Table 20); however stock status remains unknown and the low productivity and aggregating nature of this species makes it particularly vulnerable to overexploitation (ICES_POR 2019). Since 2010, landings by EU vessels have not been allowed (Figure 27). At this surveillance, porbeagle was observed encountered in the same UoAs that had already been assessed against this species during the initial assessment, however based on its appearance in the DFPO 4-TR1 fleet data this species has been added to the SFPO 4-TR1 gear also as a precaution. It is noted that conditions on porbeagle are in place for the relevant UoAs against 2.3.1 (ETP species outcome), 2.3.2 (ETP species management) and 2.3.3 (ETP species information) and now extended to the SFPO 4-TR1 gear also. Progress against these conditions is further discussed in Section 3.4.2.

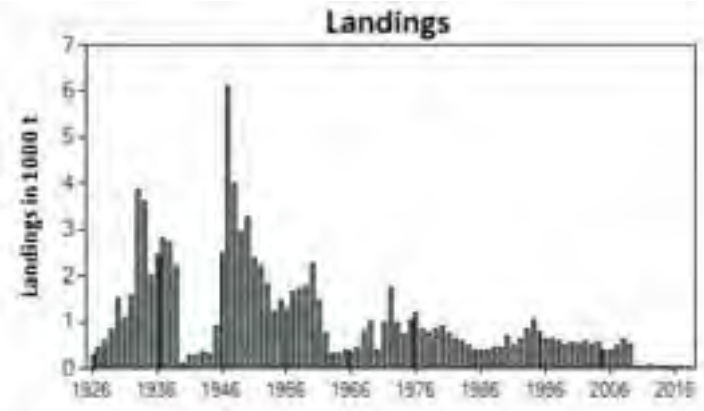


Figure 27. Porbeagle in the Northeast Atlantic. Available landings data (tonnes). From ICES_POR (2019)**.**

2.3.2 Rescoring tables ETP species

2.3.2.1 PI2.3.1

Evaluation Table for PI 2.3.1 – ETP species outcome (North Sea - Subarea 4).

NOTES this PI is rescored for SIb in relation to conditions on CVO TR1 and TR2 gear only for the starry ray element of condition (CVO- 11) and (CVO -12). All other scores remain the same as the PCR.

Rationales for the other UoAs and SI's are not updated and remain as per the PCR (Sieben, Gascoigne, et al. 2019) **condition updates are shown in section 3.4.2.3.**

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 - Harbour porpoise (set nets)	Y - Harbour porpoise (set nets)	N - Harbour porpoise (set nets)

No change from PCR

b	Direct effects			
	Guidepost	SG 60	SG 80	SG 100
		Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	Set Nets	Y – starry ray, common skate, spurdog, porbeagle, twaite shad, allis shad, lampreys, sturgeon, harbour porpoise, grey seal, common seal, seabirds	N – starry ray, common skate, seabirds, porbeagle Y – spurdog, twaite shad, allis shad, lampreys, sturgeon, harbour porpoise, grey seal, common seal	N – starry ray, common skate, spurdog, porbeagle, twaite shad, allis shad, lampreys, sturgeon, harbour porpoise, grey seal, common seal, seabirds
	TR1	Y – starry ray, common skate, porbeagle, spurdog, twaite shad, allis shad	N – starry ray (DFPO, SFPO, CVO), common skate, porbeagle Y – starry ray (EZG), spurdog, twaite shad, allis shad Y – starry ray CVO TR1 and 2	N – starry ray, common skate, porbeagle, spurdog, twaite shad, allis shad
	BT	Y – starry ray, common skate, spurdog, twaite shad, allis shad, sea lamprey	Y – spurdog, twaite shad, allis shad, sea lamprey N – common skate, starry ray	N – starry ray, common skate, spurdog, sea lamprey, twaite shad, allis shad
	SDN	Y – starry ray, spurdog, porbeagle, sturgeon, river lamprey, common skate	N – starry ray, common skate, porbeagle Y – spurdog, sturgeon, river lamprey	N – starry ray, spurdog, porbeagle, sturgeon, river lamprey, common skate
	LL	Y – spurdog, porbeagle	Y – spurdog N – porbeagle	N – spurdog, porbeagle

Note: In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW

Only text which has changed since PCR is shown below:

A survivability exemption on skates and rays is in place for all North Sea fisheries under the North Sea discard plan (EU 2019). With a few exceptions (e.g. cuckoo ray), the STECF considers the survival rates to be generally robust, although it highlighted the risks in extrapolating survival evidence between species, fisheries and seasons. STECF notes that the latest evidence suggest that skate and ray survival rates can be highly variable between species and fisheries. Studies indicate that smaller individuals and smaller species have lower survival, inshore static nets are associated with higher survival and shorter tow durations are associated with higher survival. It is indicated that for some fisheries and species combinations the survival may be close to zero (STECF 2019). Note that the Dutch VisNed 2016-18 research programme "Overleving Platvis, Noorse Kreeft en Rog"[2] carried out on behalf of the Dutch trawler sector by Wageningen Marine Research (WMR) and the Vlaamse Instituut voor Landbouw-, Visserij- en Voedingsonderzoek (ILVO) contributed to this survivability exemption based on post-release survival estimates for thornback ray and spotted ray (for thornback ray this was 53% (95%CI 40-65%); spotted rays were only sampled on two trips, with the chances of survival on one trip being 21% and 67% on the other - Steins et al. (2018)). However, this project has limited relevance for the JDF as all estimates were based on the pulse fishery which is not part of the certified fishery. More recently, VisNed and the *Nederlandse Vissersbond* have begun participating in a new research project to gain a better understanding of post-release survival of rays and the life cycle and distribution of rays and sharks. The kick-off meeting of this project took place at the end of January 2021. This EMFF-funded project "Bridging knowledge gaps for Sharks and Rays in the North Sea" runs from 2021 until 2023. It supports the temporary exemption on rays by providing information on discarding survivability, longer-term stock development, and habitat use & migration patterns of rays in the North Sea. The project consists of two main pillars: 1) Determination of survivability of two ray species when discarded in two metiers. Exploratory research trips in Q2 of 2021 using on-board health condition assessment in twinrig, flyshoot, and quadrig will provide initial survivability estimates. A brief desk study will be carried out to collate available survivability estimates in the beam trawl fisheries, where the current expectation is that previous work already provides sufficient information for this metier. Based on the results of the exploratory work two of the metiers will be selected for a full survivability assessment study involving on-board holding facilities and shore-based follow-up monitoring in a climate-controlled facility for a period of two weeks. 2) Spatial and temporal distribution will be assessed using two methods: a) Using video catch monitoring as well as genetic techniques and b) Using satellite or recapture tags (NSAC 2021).

CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4

As already mentioned, together with other Dutch MSC certified fisheries which also have conditions in relation to starry ray (i.e. the Dutch MSC certified twinrig, outrig and flyshoot fishery by Osprey and Ekofish), CVO commissioned WMR to develop a tool that can be used to estimate the impact of the three MSC client fisheries on the starry ray population, where the impact is defined as the % of removal from the starry ray population. In this context, H. van_Overzee et al. (2019) estimated the starry ray population size for the North Sea, based on the data collected within the International Bottom Trawl Survey (IBTS) and the Beam Trawl Survey (BTS). The estimates concern a minimum estimate of the starry population size as the model assumes a catchability of 1, i.e. assuming that all fish encountered by the gear in the surveys were caught. On that basis, the total stock weight for 2017 was estimated at 19,388 tonnes (97.5% CI: 13,029 – 39,127 t). Starry ray discard estimates by trip for the existing DCF self-sampling and observer programme (see Section 2.1.3) have been used to predict the starry ray discards rate (expressed in kg/day and kg/kg plaice landed) by year and metier (see H. M. J. van_Overzee et al. (2019)). As it is assumed that starry ray is exclusively discarded, the model predictions refer to a starry ray catch rate rather than a starry ray discards rate. The total starry ray catch rate of the CVO fishery was then estimated based on either 1) the relationship between the predicted catch rate (expressed in kg/kg plaice landed) and actual plaice landings of the fishery by year and metier, or 2) the relationship between the predicted catch rate (expressed in kg/days at sea) and the effort of the CVO fishery by year and metier. A proxy for starry ray mortality rate of 0.60 was then applied for the otter trawl fishery and 0.20 was applied for the flyshoot fishery (the authors note, however, that these proxies should be used with extreme caution as they concern extrapolations from survival studies of other species and fisheries). The total removal of dead starry ray could then be calculated for each fishery as a % of the estimated North Sea starry population. The H. M. J. van_Overzee et al. (2019) study does not include the final impact assessment for CVO; however these results were provided during the surveillance audit: Table 21 shows that for all fleet segments within the TR1/TR2 categories, the impact on the starry ray population is estimated at less than 0.1%. This remains the case when all TR1 gears are combined. It can therefore be concluded that the CVO UoAs are highly likely to not hinder recovery of the North Sea starry ray population and **SG60 and SG80 are met. SG100 is not** met because there remain important uncertainties in the assessment (particularly the post-release survival rates) and the UoA data were derived from the DCF self-sampling and observer data for which the coverage is too restricted to provide a high degree of certainty. Overall, the surveillance team determines that this condition can be closed for CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4.

Table 21. WMR calculation of the CVO TR1/TR2 fisheries 2015-17 impact on the North Sea starry ray population. The population estimate is explicitly a minimum estimate, therefore impact estimates reflect maximum estimates. From WMR.

Year	Twinrig 80-99 (TR2)			Twinrig 100-119 (TR1)			Twinrig >120 (TR1)			Flyshoot 100-119 (TR1)			Flyshoot >120 (TR1)		
Maximum impact of the fishery (% removal) calculated by plaice landings															
2015	<0.001	<0.001	0.001	0.001	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2016	0.001	<0.001	0.004	0.005	0.001	0.014	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001
2017	<0.001	<0.001	0.001	0.004	0.001	0.018	<0.001	<0.001	0.001	0.003	0.001	0.009	<0.001	<0.001	<0.001
Maximum impact of the fishery (% removal) calculated by effort															
2015	<0.001	<0.001	0.001	0.003	0.001	0.008	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
2016	0.001	0.001	0.003	0.011	0.004	0.022	0.001	<0.001	0.002	0.001	<0.001	0.002	<0.001	<0.001	0.001
2017	0.001	<0.001	0.002	0.008	0.003	0.016	0.001	<0.001	0.001	0.001	<0.001	0.002	<0.001	<0.001	0.001

c	Indirect effects			
		SG 60	SG 80	SG 100

[2] https://www.visned.nl/project/overlevingsproject

	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 scoring elements and gears	N – all scoring elements and gears

Note: In an effort to keep the length of this report at manageable levels for readers, the original text from the PCR has not been included with the revised rationales below. The original text is available in the Principle 2 part of the PCR, which is available on the MSC website, here: https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6Mft6/9vE6lB7tpcpZ9xnK/h3feUhAo6LtQLHw7WSK6+77+oO8DSpy7D2iAu6DlW

References	(ICES 2015; Enever et al. 2009; OSPAR 2010b; Rulifson 2007; Hansen et al. 2016; Maitland 2003; STECF 2017; WDC 2017; Catchpole et al. 2017; Macfadyen et al. 2009)
OVERALL PERFORMANCE INDICATOR SCORE:	**CVO: see Table 35** **SFPO: no change from PCR see Table 34** **CVO: no change from PCR see Table 22** **EZG: no change from PCR Table 36**
CONDITION NUMBER (if relevant):	**See existing condition section 3.4.2.3**

2.3.2.2 PI2.3.3

Appendix 1.3.5.1 Evaluation Table for PI 2.3.3 – ETP species information (North Sea - Subarea 4)

NOTES this PI is rescored for SIa in relation to conditions on CVO TR1 and TR2 gear only for the starry ray element of condition (CVO- 26) and (CVO -27) this is shown in red. All other scores remain the same as the PCR.

Rationales for the other UoAs and SI's are not updated and remain as per the PCR (Sieben, Gascoigne, et al. 2019) **condition updates are shown in section 3.4.2.3.**

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.
	Set net	Y – DFPO, CVO, EZG	DFPO (see table below for scoring elements) N – EZG, CVO	N - all

	Otter trawl	Y – DFPO, SFPO, CVO, EZG	DFPO, CVO, EZG (see table below for scoring elements) N – SFPO	
	Beam trawl	Y – DFPO, CVO	DFPO, CVO (see table below for scoring elements)	
	Danish seine	Y – DFPO, SFPO	DFPO (see table below for scoring elements) N – SFPO	
	Longline	Y – DFPO	N – DFPO	

Justification

SG100 is not met in any of the scoring rationales below as observer coverage is insufficient to provide a high degree of certainty regarding injury and survival of ETP species encountered. At SG80 level, the assessment considered scoring in two parts:

1) *Some quantitative information is **adequate to assess** the UoA related mortality and impact*: Here each UoA is scored on the adequacy of the information available

In assigning scores of SG60 or SG80 below the following criteria were applied:

- SG60: - available data include non-audited self-sampling data or STECF landings / discard data (which often include non-UoA data). Any observer data available are minimal (i.e. only a small number of trips sampled) and are not part of a statistically sound sampling programme (see Section 2.1), thereby reducing confidence in assessment of UoA impacts on ETP species. Where no data are available, other fleets operating similar gears in similar areas have been used as a proxy, providing qualitative information to estimate UoA related mortality on ETP species.
- SG80: - available data include self-sampling data audited by an independent third party, or independent, quantitative and statistically sound observer data to provide confidence in the assessment of UoA impacts on ETP species.

2) *Some quantitative information is **adequate** to determine whether the UoA may be a threat to protection and recovery of the ETP species*: Here the assessment team considered the known population data available for each scoring element, combined with the fishery data. Note this part was only scored when the 1st part of SG80 was considered to be met.

<u>Part 1: Some quantitative information is adequate to assess the UoA related mortality and impact</u>

<u>Set net</u>

DFPO: independent observer data (2013-16, 44 trips), self-sampling data (2015-17) but data for non-bird/mammal species are non-gear-specific – the 1st part of SG80 is met.

EZG: no data, use DFPO as a qualitative proxy, STECF data also consulted – **only SG60 is met.**

CVO: no independent observer coverage but in addition to STECF data, In 2011 - 2013, a self-sampling and CCTV pilot study was carried out on the CVO set net fleet to monitor bycatch in its fisheries. Data were collected using three methods: self-sampling, CCTV and monitoring under the Data Collection Framework. Self-sampling data from 2011 to 2012 revealed no ETP interactions. CCTV systems only captured six fishing days on one vessel in the sole fishery during which no ETP interactions were recorded. The vessels in the Dutch gillnet fishery are relatively small which complicates having observers on board meaning that in 2011 and 2012 no observer trips were undertaken in the sole fishery. The report authors noted that data collected in future required verification and that any marine mammal interactions should be noted (Quirijns 2011; Quirijns 2012). In the 2013 study which included two observer trips and 162 self-sampling trips, no ETP interactions were recorded (Uhlmann 2013). Although these studies provide valuable insight into interactions with harbour porpoise in particular, the bycatch study is now somewhat out of date. In the absence of more systematic and more importantly, independent monitoring of ETP interactions, the assessment team **did not consider that the 1st part of SG80 is met**.

<u>Otter trawl</u>

DFPO: observer data (TR1 - 2013-16, 63 trips; TR2 – 2013, 2015-16, 5 trips), self-sampling data (2015-17) but data for non-bird/mammal species are non-gear-specific – the 1st part of **SG80 is met**.

EZG: observer data (2014-16, 19 trips). The 1st part of **SG80 is met**.

CVO: audited self-sampling data for the reference fleet TR1 and TR2 (2014-16); STECF data also consulted. The 1st part of **SG80 is met.**

SFPO: observer data (TR PRAWN – 2014 – 16, 3 trips); STECF data record ETP species between 2004-08; there are no recent independent data. Based on the limited recent observer coverage of the TR fleet, only **SG60 is met**.

<u>Beam trawl</u>

DFPO: observer data (2013-16, 53 trips). The 1st part of **SG80 is met**.

CVO: audited self-sampling data (2014-16), annual catch data (2013-15). The 1st part of **SG80 is met.**

Danish seine

SFPO: no observer or STECF data, use DFPO data as a proxy. **Only SG60 is met.**

DFPO: observer data (2013-16, 5 trips), self-sampling data (2015-17) although data for non-bird/mammal species are non-gear-specific. The 1st part of **SG80 is met**.

Longline

DFPO: no recent observer or self-sampling data. STECF data only cover 2003-09. **Only SG60 is met**.

Part 2: Some quantitative information is adequate to determine whether the UoA may be a threat to protection and recovery of the ETP species

The **1st part of SG80 is met** for the following client-gear categories, with the corresponding scoring elements also shown. The part 2 analysis therefore only applies to these UoAs:

Set net	DFPO	Starry ray, common skate, spurdog, porbeagle, sturgeon, twaite shad, river lamprey, harbor porpoise, grey seal, common seal, seabirds
Otter trawl	DFPO	Starry ray, common skate, spurdog, porbeagle, sturgeon, river lamprey, sea lamprey
	CVO	Starry ray, common skate, spurdog, porbeagle, allis shad, twaite shad
	EZG	Starry ray, spurdog, allis shad
Beam trawl	DFPO	Sea lamprey
	CVO	Starry ray, common skate, spurdog, allis shad, twaite shad
Danish seine	DFPO	Starry ray, common skate, spurdog, porbeagle, sturgeon, river lamprey

The determination as to whether the UoA may be a threat to the protection and recovery of the ETP species scoring elements is shown in the following table:

Scoring element	Stock status estimates or surveys available?	Can fishery impact be estimated?	SG80 met in full?
Starry ray	Yes – survey abundance index	Amongst the selected categories, starry ray appears in data for DFPO set nets, otter trawls and Danish seine. For these gears a statistically sound observer programme is in place that enables the fishery impact to be estimated. **SG80 is met in full for DFPO**. For CVO otter trawls and beam trawls, an audited self-sampling programme is in place. The main issue with this dataset however, is that impacts at fishery level cannot be estimated (the data are provided in numbers captured per hour which means they cannot be scaled up to fleet level). Given the fact that the UoAs' impacts on this species may be non-negligeable, the team considered that the information available does not enable determining whether the fishery may be a threat to the recovery of this species. **SG80 is not met in full** For **CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4:** Based on H. M. J. van_Overzee et al. (2019), Table 21 shows that for all fleet segments within the TR1/TR2 categories and over the 2015-17 period, the impact on the starry ray population is estimated at less than 0.1%. This remains the case when all TR1 gears are combined. A report evaluating the effect of the fishery on starry rays and including a quantified estimate of mortality and an indication of trends has thus been provided (i.e. the condition milestone is met), and 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 North Sea starry ray population. **SG60 and SG80 are met. SG100 is not met** because there remain important uncertainties in the assessment (particularly the post-release survival rates) and the UoA data were derived from the DCF self-sampling and observer data for which the coverage is too restricted to provide a high degree of certainty. Overall, the surveillance team determines that this condition can be closed for CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4. For EZG otter trawls, a statistically-sound observer programme is in place, enabling impacts to be estimated. **SG80 is met in full**.	Yes (DFPO) Yes (CVO otter trawls TR1 and 2) No (all other CVO) Yes (EZG)
Common skate	No (Section 2.3.1)	The lack of population level data on this species **precludes SG80 from being met in full** for all UoAs concerned.	No

Scoring element	Stock status estimates or surveys available?	Can fishery impact be estimated?	SG80 met in full?
Spurdog	Yes – quantitative stock assessment	Amongst the selected categories, spurdog appears in DFPO set nets, otter trawls and Danish seine, CVO otter trawls and beam trawl, EZG otter trawl. For all UoAs concerned, an observer or audited self-sampling programme is in place. This, coupled with the presence of a stock assessment and signs of stock recovery, enables the team to determine whether the UoAs are a threat to the recovery of this stock. **SG80 is met**	Yes
Porbeagle	No	Amongst the selected categories, porbeagle appears in data for DFPO set nets, otter trawls and Danish seine, and CVO otter trawls. For DFPO (All gears), a statistically sound observer programme is in place. For CVO, an audited self-reporting programme is in place. For all UoAs, encounters are very low and infrequent (see Appendix 1.3.1.1). The data illustrate a low level of interaction of the UoAs with porbeagle sharks. However, the lack of population level data on this species **precludes SG80 from being met in full** for all UoAs concerned.	No
Harbour porpoise	Yes	DFPO have in place a statistically sound observer programme for the set net fisheries (see above), so on this basis, the fishery impact can be estimated. **SG80 is met**.	Yes
Grey seal	Yes		
Common seal	Yes		
Seabirds	Seabird populations are subject to regular monitoring, particularly within SPAs where numbers must meet favourable conservation status. Therefore population trends can be monitored and used to support management measures.	Reliable quantitative data are somewhat deficient with regard to seabird interactions with the set net fisheries and numerous advisory bodies / groups (e.g. ICES and the FIMPAS project) acknowledge that more data are required to understand fishing-related mortality and the management measures required. DFPO have in place a statistically sound observer programme for the set net fisheries, so on this basis, the fishery impact can be estimated. **SG80 is met.**	Yes
Sturgeon	For species such as lampreys, shads and sturgeons with very low encounter rates, measures and strategies do not rely on information gathering but rather on riverine conservation measures to control factors such as freshwater pollution and barriers to migration, which are more of a concern for these species than fisheries interactions; however, on-going collection of ETP data as well as population monitoring allow determining whether the UoA may be a threat to recovery.		Yes
Allis shad			
twaite shad			
river lamprey			
Sea lamprey			

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

No change from the PCR

References	Quirijns, 2011, 2012; Uhlmann, 2013
OVERALL PERFORMANCE INDICATOR SCORE:	**DFPO: see Table 30** **SFPO: Table 31** **CVO:** Table 32 **EZG: Table 33**

CONDITION NUMBER (if relevant):	See existing conditions section 3.4.2.3

2.3.3 Overall ETP outcome scores

Only changes to PI2.3.1 and PI 2.3.3 for CVO TR 1 and 2 in subarea 4 for starry ray were recorded at this audit for the ETP component. All other client group scores remain as per the PCR

The assessment team followed the scoring element approach as per FCRv2.0 7.10.7 and Table 4. The following tables summarise the scores for each scoring element per UoA gear type – Client combination based on the preceding evaluation tables. The overall score was then derived in accordance with Table 4 of the FCRv2.0.

Table 22. DFPO ETP Outcome PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-TR2	4-TR PRAWN	4-BT1	4-SDN	4-SN	4-LL	3aN-TR	3aN-TR PRAWN	3aN-BT1	3aN-SDN	3aN-SN	3aN-LL	3aS-TR	3aS-TR PRAWN	3aS-SDN	3aS-SN
Starry ray	70	70	70		70	70		70	70	70	70	70		70	70	70	70
Thornback ray								80	80			80		80	80		80
Common skate	70	70	70		70	70		70	70	70	80	70		70	70	80	70
Spurdog	80	80	80		80	80	80	80	80	80	80	80	80	80	80	80	80
Porbeagle	70	70	70		70	70	70									70	
Sturgeon	80	80	80		80	80						80		80	80		80
Allis Shad										80		80					
Twaite shad						80		80	80	80				80	80		
River lamprey	80	80	80		80	80						80				80	
Sea lamprey	80	80	80	80						80							
Harbour porpoise						80						80					80
Grey seal						80											
Common seal						80						80					80
Seabirds						70						70					70
Overall score 2.3.1	**75 (DFPO- 4)**	**75 (DFPO- 5)**	**75 (DFPO- 6)**	**80**	**70 (DFPO- 7)**	**75 (DFPO- 8)**	**70 (DFPO- 9)**	**75 (DFPO- 10)**	**75 (DFPO- 11)**	**75 (DFPO- 12)**	**75 (DFPO- 13)**	**75 (DFPO- 14)**	**80**	**75 (DFPO- 15)**	**75 (DFPO- 16)**	**75 (DFPO- 17)**	**75 (DFPO- 18)**

Table 23. SFPO ETP Outcome PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-TR2	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Starry ray	70	70	70	70	70	70	70	70	70	70	
Thornback ray				80	80		80	80	80	80	
Common skate	70	70	70			80	70			70	
Spurdog	80	80	80	80	80	80	80	80	80	80	80
Porbeagle	70		70								
Sturgeon	80		80				80			80	
Allis Shad							80				
Sea lamprey	80										
River lamprey	80		80				80				
Harbour porpoise							80			80	
Common seal							80			80	
Seabirds							70			70	
Overall score 2.3.1	**75 (SFPO- 8)**	**70 (SFPO- 9)**	**70 (SFPO- 10)**	**75 (SFPO-11)**	**75 (SFPO- 12)**	**75 (SFPO- 13)**	**75 (SFPO- 14)**	**75 (SFPO- 15)**	**75 (SFPO- 16)**	**75 (SFPO- 17)**	**80**

Table 24. CVO ETP Outcome PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group. Rescore at this audit shown in red.

Scoring element	4-BT2	4-BT2	4-SN	4-TR1	4-TR2	3aN-BT1	3aN-TR	7d-TR1	7d-TR2
Starry ray	70	70		80	80	70		70	70
Thornback ray							80		
Common skate	70	70		70	70	70		70	70
Spurdog	80	80	80	80	80	80		80	80
Porbeagle				70	70				
Allis Shad	80	80	80	80	80	80		80	80
Twaite shad	80	80	80	80	80	80		80	80
Sea lamprey						80			
Overall score 2.3.1	**75 (CVO- 1)**	**75 (CVO- 2)**	80	**70 (CVO- 3)**	**70 (CVO- 4)**	**75 (CVO- 5)**	80	**75 (CVO- 6)**	**75 (CVO- 7)**

Table 25. EZG ETP Outcome PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-SN	3aN-TR	3aN-SN
Starry ray	80	70	80	70
Thornback ray				80
Common skate		70		70
Spurdog	80	80	80	80
Porbeagle		70		
Sturgeon		80		80
Allis Shad	80			80
Twaite shad		80		
River lamprey		80		80
Harbour porpoise		80		80
Grey seal		80		
Common seal		80		80
Seabirds		70		70
Overall score 2.3.1	**85**	**75 (EZG- 2)**	80	**75 (EZG- 3)**

2.3.4 Overall ETP management scores

No changes at this audit

The assessment team followed the scoring element approach as per FCRv2.0 7.10.7 and Table 4. The following tables summarise the scores for each scoring element per UoA gear type – Client combination based on the preceding evaluation table. The overall score was then derived in accordance with Table 4 of the FCRv2.0.

Table 26. DFPO ETP Management Strategy PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-TR2	4-TR PRAWN	4-BT1	4-SDN	4-SN	4-LL	3aN-TR	3aN-TR PRAWN	3aN-BT1	3aN-SDN	3aN-SN	3aN-LL	3aS-TR	3aS-TR PRAWN	3aS-SDN	3aS-SN
Starry ray	75	75	75		75	75		75	75	75	75	75		75	75	75	75
Thornback ray								95	95			95		95	95		95
Common skate	75	75	75		75	75		75	75	75	75	75		75	75	75	75
Spurdog	80	80	80		80	80	80	80	80	80	80	80	80	80	80	80	80
Porbeagle	75	75	75		75	75	75									75	
Sturgeon	80	80	80		80	80						80		80	80		80
Allis Shad										80		80					
Twaite shad						80		80	80	80				80	80		
River lamprey	80	80	80		80	80						80				80	
Sea lamprey	80	80	80	80						80							
Harbour porpoise						80						80					80
Grey seal						90						90					
Common seal																	90
Seabirds						75						75					75
Overall score 2.3.2	**75 (DFPO- 19)**	**75 (DFPO- 20)**	**75 (DFPO- 21)**	**80**	**75 (DFPO- 22)**	**75 (DFPO- 23)**	**75 (DFPO- 24)**	**75 (DFPO- 25)**	**75 (DFPO- 26)**	**75 (DFPO- 27)**	**75 (DFPO- 28)**	**75 (DFPO- 29)**	**80**	**75 (DFPO- 30)**	**75 (DFPO- 31)**	**75 (DFPO- 32)**	**75 (DFPO- 33)**

Table 27. SFPO ETP Management Strategy PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-TR2	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Starry ray	75	75	75	75	75	75	75	75	75	75	
Thornback ray				90	90		90	90	90	90	
Common skate	75	75	75			75	75			75	
Spurdog	80	80	80	80	80	80	80	80	80	80	80
Porbeagle	75		75								
Sturgeon	80		80				80			80	
Allis Shad							80				
River lamprey	80						80				
Sea lamprey	80										
Harbour porpoise							80			80	
Common seal							90			90	
Seabirds							75			75	
Overall score 2.3.2	**75 (SFPO- 6)**	**75 (SFPO- 7)**	**75 (SFPO- 8)**	**75 (SFPO- 9)**	**75 (SFPO- 10)**	**75 (SFPO- 11)**	**75 (SFPO- 12)**	**75 (SFPO- 13)**	**75 (SFPO- 14)**	**75 (SFPO- 15)**	**80**

Table 28. CVO ETP Management Strategy PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-BT2	4-BT2	4-SN	4-TR1	4-TR2	3aN-BT1	3aN-TR	7d-TR1	7d-TR2
Starry ray	75	75		75	75	75		75	75
Thornback ray							90		
Common skate	75	75		75	75	75		75	75
Spurdog	80	80	80	80	80	80		75	75
Porbeagle				75	75				

Allis Shad	80	80	80	80	80	80		75	75
Twaite shad	80	80	80	80	80	80		75	75
Sea lamprey						80			
Overall score 2.3.2	**75 (CVO- 8)**	**75 (CVO- 9)**	**80**	**75 (CVO- 10)**	**75 (CVO- 11)**	**75 (CVO- 12)**	**90**	**75 (CVO- 13)**	**75 (CVO- 14)**

Table 29. EZG ETP Management Strategy PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-SN	3aN-TR	3aN-SN
Starry ray	75	75	75	75
Thornback ray				90
Common skate		75		75
Spurdog	80	80	80	80
Porbeagle		75		
Sturgeon		80		80
Allis Shad	80			80
Twaite shad		80		
River lamprey		80		80
Harbour porpoise		80		80
Grey seal		90		
Common seal		90		90
Seabirds		75		75
Overall score 2.3.2	**75 (EZG- 4)**	**75 (EZG- 5)**	**75 (EZG- 6)**	**75 (EZG- 7)**

2.3.5 Overall ETP Information scores

The assessment team followed the scoring element approach as per FCRv2.0 7.10.7 and Table 4. The following tables summarise the scores for each scoring element per UoA gear type – Client combination based on the preceding evaluation tables. The overall score was then derived in accordance with Table 4 of the FCRv2.0.

Table 30. DFPO ETP Information PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-TR2	4-TR PRAWN	4-BT1	4-SDN	4-SN	4-LL	3aN-TR	3aN-TR PRAWN	3aN-BT1	3aN-SDN	3aN-SN	3aN-LL	3aS-TR	3aS-TR PRAWN	3aS-SDN	3aS-SN
Starry ray	80	80	80		80	80		80	80	70	80	80		80	80	70	80
Thornback ray								80	80			80		80	80		80
Common skate	70	70	70		70	70		70	70	70	70	70		70	70	70	70
Spurdog	80	80	80		80	80	70	80	80	70	80	80	70	80	80	70	80
Porbeagle	70	70	70		70	70	70									70	
Sturgeon	80	80	80		80	80						80		80	80		80
Allis Shad										70		80					
Twaite shad						80		80	80	70				80	80		
River lamprey	80	80	80		80	80						80				70	
Sea lamprey	80	80	80	80						70							
Harbour porpoise						80						80					80
Grey seal						80						80					
Common seal																	80
Seabirds						80						80					80
Overall score 2.3.3	**75 (DFPO-34)**	**75 (DFPO-35)**	**75 (DFPO-36)**	**80**	**75 (DFPO-37)**	**75 (DFPO-38)**	**70 (DFPO-39)**	**75 (DFPO-40)**	**75 (DFPO-41)**	**70 (DFPO-42)**	**75 (DFPO-43)**	**75 (DFPO-44)**	**70 (DFPO-45)**	**75 (DFPO-46)**	**75 (DFPO-47)**	**70 (DFPO-48)**	**75 (DFPO-49)**

Table 31. SFPO ETP Information PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-TR2	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Starry ray	70	70	70	80	80	70	70	80	80	70	
Thornback ray				80	80		70	80	80	70	
Common skate	70	70	70			70	70			70	
Spurdog	70	70	70	80	80	70	70	80	80	70	80
Porbeagle	70		70								
Sturgeon	80		70				70			70	
Allis Shad							70				
River lamprey	80						70				
Sea lamprey	80										
Harbour porpoise							70			70	
Common seal							70			70	
Seabirds							70			70	
Overall score 2.3.3	**75 (SFPO- 16)**	**70 (SFPO- 17)**	**70 (SFPO- 18)**	**80**	**80**	**70 (SFPO- 19)**	**70 (SFPO- 20)**	**80**	**80**	**70 (SFPO- 21)**	**80**

Table 32. CVO ETP Information PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group. Rescore shown in red.

Scoring element	4-BT1	4-BT2	4-SN	4-TR1	4-TR2	3aN-BT1	3aN-TR	7d-TR1	7d-TR2
Starry ray	70	70		80	80	70		70	70
Thornback ray							70		
Common skate	70	70		70	70	70		70	70
Spurdog	80	80	70	80	80	70		70	70
Porbeagle				70	70				
Allis Shad	80	80	70	80	80	70		70	70
Twaite shad	80	80	70	80	80	70		70	70
Sea lamprey						70			
Overall score 2.3.3	**75 (CVO- 15)**	**75 (CVO- 16)**	**70 (CVO- 17)**	**70 (CVO- 18)**	**70 (CVO- 19)**	**70 (CVO- 20)**	**70 (CVO- 21)**	**70 (CVO- 22)**	**70 (CVO- 23)**

Table 33. EZG ETP Information PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-SN	3aN-TR	3aN-SN
Starry ray	80	70	80	70
Thornback ray				70
Common skate		70		70
Spurdog	80	70	80	70
Porbeagle		70		
Sturgeon		70		70
Allis Shad	80			70
Twaite shad		70		
River lamprey		70		70
Harbour porpoise		70		70
Grey seal		70		
Common seal		70		70
Seabirds		70		70

Scoring element	4-TR1	4-SN	3aN-TR	3aN-SN
Overall score 2.3.3	80	70 (EZG- 8)	80	70 (EZG- 9)

Table 34. SFPO ETP Outcome PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-TR2	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Starry ray	70	70	70	70	70	70	70	70	70	70	
Thornback ray				80	80		80	80	80	80	
Common skate	70	70	70			80	70			70	
Spurdog	80	80	80	80	80	80	80	80	80	80	80
Porbeagle			70								
Sturgeon			80				80			80	
Allis Shad							80				
River lamprey			80				80				
Harbour porpoise							80			80	
Common seal							80			80	
Seabirds							70			70	

Scoring element	4-TR1	4-TR2	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Overall score 2.3.1	**70 (SFPO-22)**	**70 (SFPO-23)**	**70 (SFPO-24)**	**75 (SFPO-25)**	**75 (SFPO-26)**	**75 (SFPO-27)**	**75 (SFPO-28)**	**75 (SFPO-29)**	**75 (SFPO-30)**	**75 (SFPO-31)**	**80**

Table 35. CVO ETP Outcome PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group. Rescore at this audit shown in red.

Scoring element	4-BT2	4-BT2	4-SN	4-TR1	4-TR2	3aN-BT1	3aN-TR	7d-TR1	7d-TR2
Starry ray	70	70		80	80	70		70	70
Thornback ray							80		
Common skate	70	70		70	70	70		70	70
Spurdog	80	80	80	80	80	80		80	80
Porbeagle				70	70				
Allis Shad	80	80	80	80	80	80		80	80
Twaite shad	80	80	80	80	80	80		80	80
Sea lamprey						80			
Overall score 2.3.1	**75**	**75**	80	**70**	**70**	**75**	80	**75**	**75**

Scoring element	4-BT2	4-BT2	4-SN	4-TR1	4-TR2	3aN-BT1	3aN-TR	7d-TR1	7d-TR2
	(CVO- 24)	(CVO- 25)		(CVO- 26)	(CVO- 27)	(CVO- 28)		(CVO- 29)	(CVO- 30)

Table 36. EZG ETP Outcome PI scores. Condition numbers are shown in between brackets. Note: numbering is by client group

Scoring element	4-TR1	4-SN	3aN-TR	3aN-SN
Starry ray	80	70	80	70
Thornback ray				80
Common skate		70		70
Spurdog	80	80	80	80
Porbeagle		70		
Sturgeon		80		80
Allis Shad	80			80
Twaite shad		80		
River lamprey		80		80
Harbour porpoise		80		80
Grey seal		80		

Scoring element	4-TR1	4-SN	3aN-TR	3aN-SN
Common seal		80		80
Seabirds		70		70
Overall score 2.3.1	**85**	**75 (EZG- 10)**	80	**75 (EZG- 11)**

2.4 Habitats

2.4.1 Overview

For the assessment of the JDF fisheries, the 'habitat under consideration' (SA3.13.5, MSC FCR v.2.0) was defined as habitats within the North Sea ecoregion (ICES 2016b) and habitats within the Celtic Seas ecoregion (ICES 2016a) that are similar and contiguous (see Figure 28).

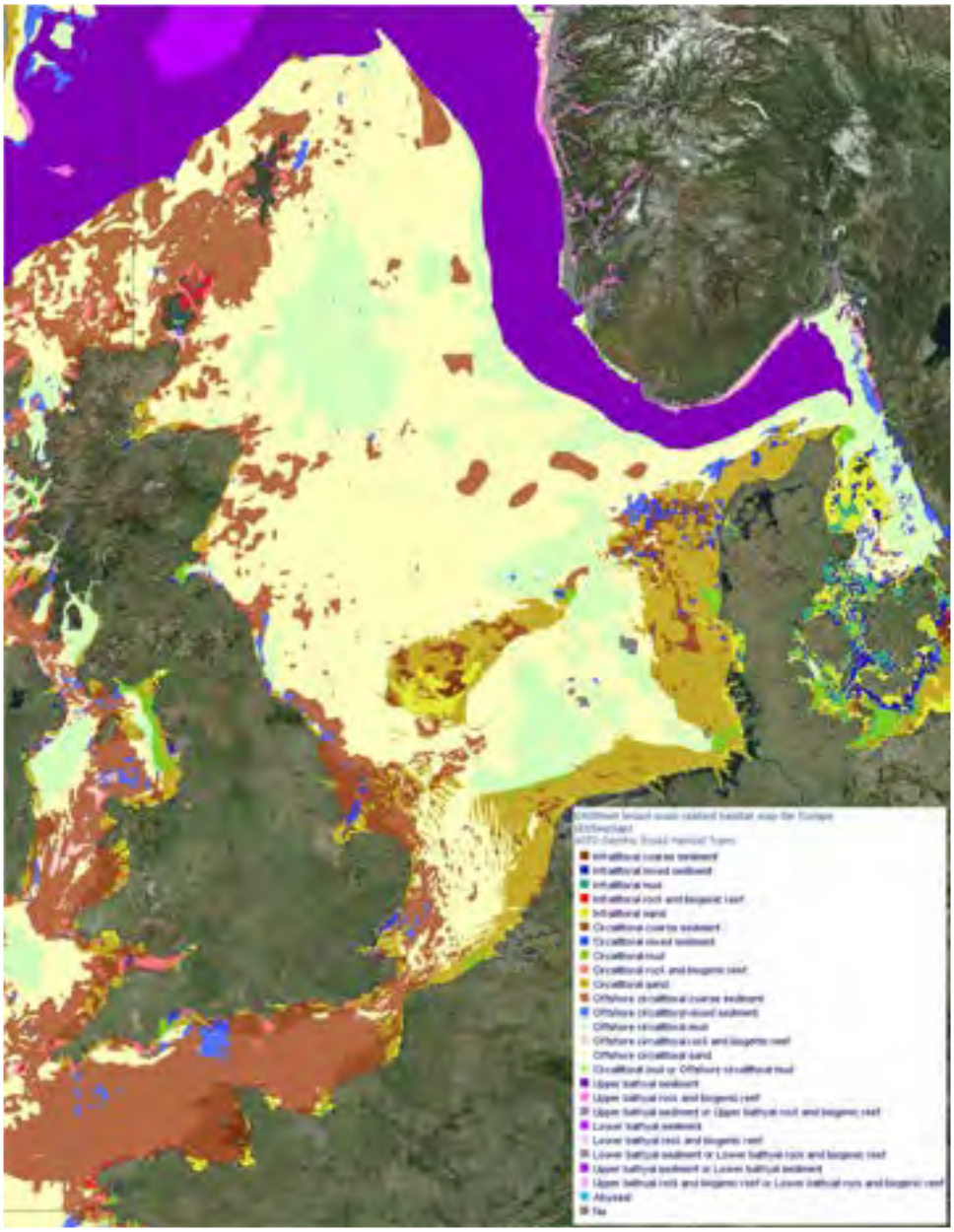


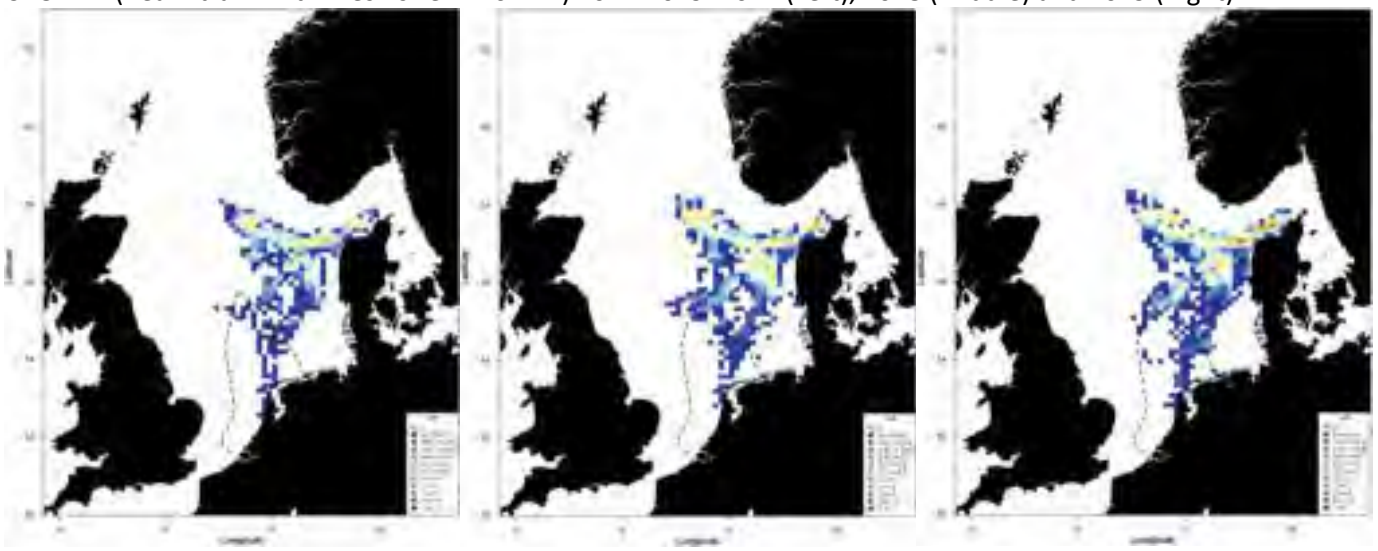
Figure 28: Map showing Marine Strategy Framework Directive (MSFD) benthic broad habitat types within the Greater North Sea. Source: http://www.emodnet-seabedhabitats.eu.

It was noted for the original assessment that in ICES Divisions 4a and 6a, these similar, contiguous habitats were considered to comprise the mainly offshore circalittoral sand and coarse sediment habitats to the north of the Scottish mainland / west of the Shetland Islands, while in the English Channel it was the mainly offshore circalittoral sand and coarse sediment habitats that comprise the part of ICES Division 7e that is not in the Greater North Sea ecoregion (Sieben, Gascoigne, et al. 2019).

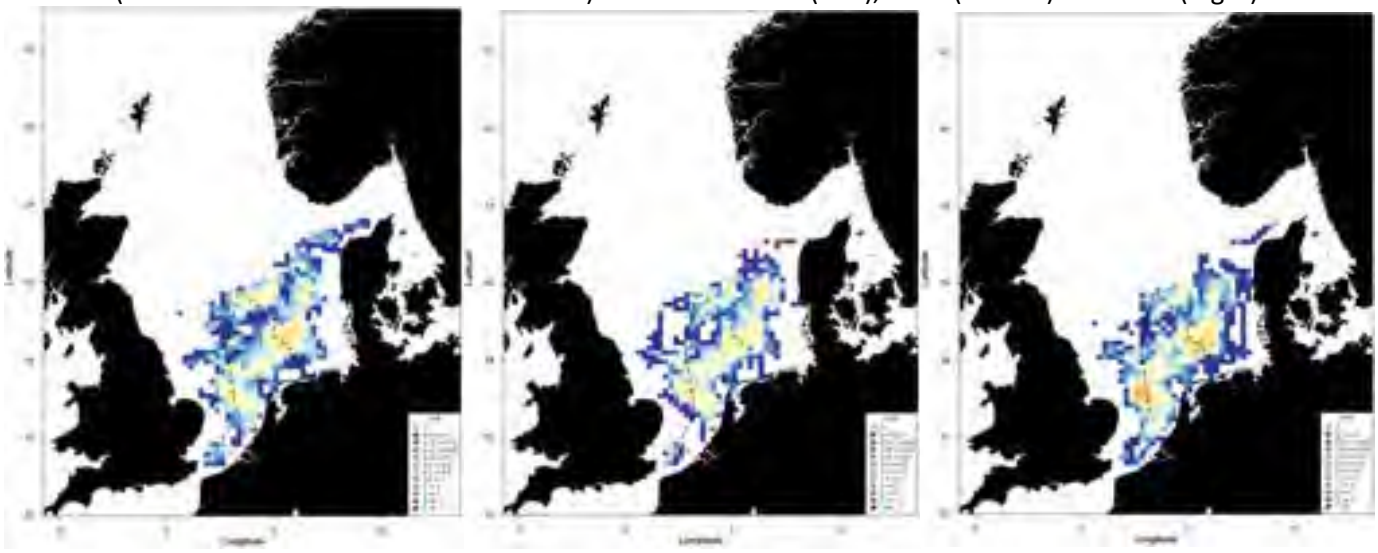
Fishing activity maps for 2014-2016 were provided for the original assessment, and these were updated for this audit with annual data for most fleets for 2017-2019 (see below). For the towed gear, these maps were created using VMS data and standardised methodology (ICES 2019b) whilst the static gear maps were created with a combination of VMS, AIS and blackbox recorder data, with intensity calculated as the number of km fished in a given c-square divided by the size of the c-square.

For the CVO beam trawl fleet (top two rows, Figure 29), recent activity is shown to occur across the eastern North Sea, which is consistent with the previous distribution of effort (Figure 39 in Sieben, Gascoigne et al. 2019). Activity in the CVO otter trawl fleet (bottom two rows, Figure 29) is distributed further to the north in the recent period in comparison to previous years (Figure 34 in Sieben, Gascoigne et al. 2019), but is nevertheless within the area that is fished extensively by otter trawlers operating in the JDF (e.g., Figure 31 in Sieben, Gascoigne et al. 2019).

CVO BT1 (Beam trawl with mesh size ≥120 mm) 2017-2019. 2017 (Left), 2018 (Middle) and 2019 (Right).



CVO BT2 (Beam trawl with mesh size 70-119 mm) 2017-2019. 2017 (Left), 2018 (Middle) and 2019 (Right).



CVO TR1 (Otter trawl with mesh size >100 mm) 2017-2019. 2017 (Left), 2018 (Middle) and 2019 (Right).

CVO TR2 (Otter trawl with mesh size 70-100 mm) 2017-2019. 2017 (Left), 2018 (Middle) and 2019 (Right).

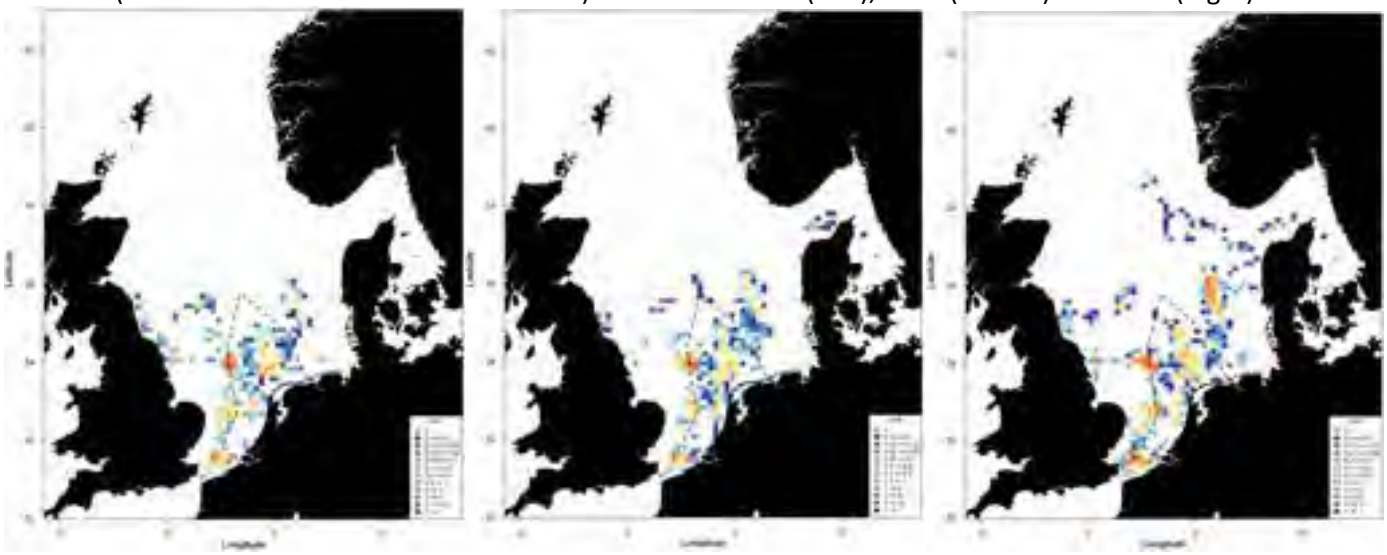


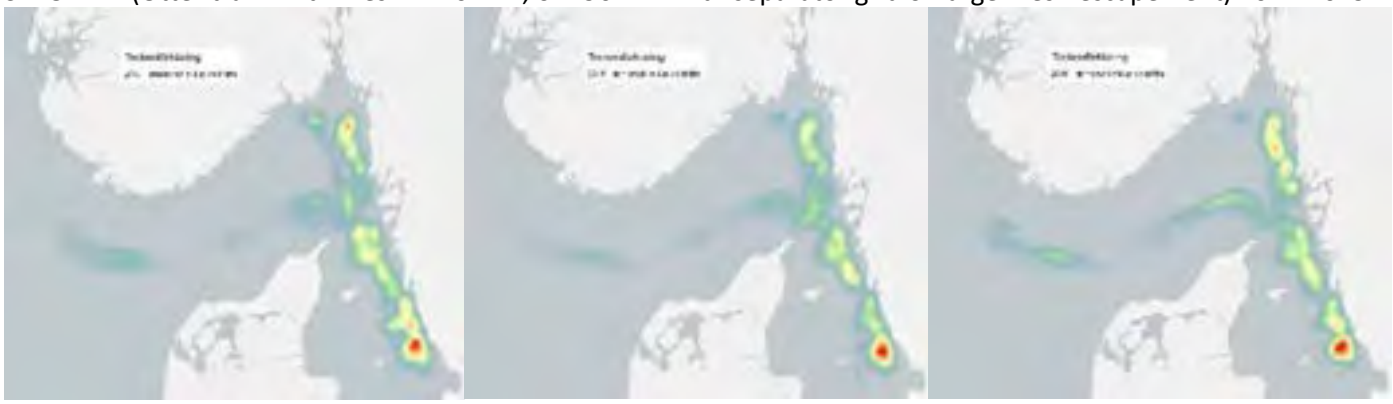
Figure 29. Distribution of activity in the CVO fisheries 2017 (left), 2018 (middle) and 2019 (right) – BT1 beam trawl (top row), BT2 beam trawl (second row), TR1 otter trawl (third row) and TR2 otter trawl (bottom row). Source: Wageningen Marine Research (WMR).

Activity in the CVO gillnet fleet was described in Sieben, Gascoigne et al. 2019 as occurring mainly (90 %) in the nearshore area off the Dutch coast. Further information was obtained for this year's audit, based on logbook landings data, showing presence/absence of activity in the 2017-2019 period (Figure 30). Although these new data suggest that activity is more widespread than previously reported, it is noted that the spatial data as presented have no quantification and much of the activity is undertaken by relatively small vessels that are generally limited to working in nearshore, near-port regions by weather and safety constraints.

Figure 30. CVO Gillnet landing records 2017-19 based on ICES rectangle (presence / absence) taken from data supplied by WMR.

Activity in the SFPO otter trawl fleet in the most recent period is very consistent with that as reported previously (Figure 33 in Sieben, Gascoigne et al. 2019), with effort spread mainly across the eastern Kattegat and north-eastern Skagerrak (Figure 31). No new data were provided for SFPO static gears.

SFPO – TR (Otter trawl with mesh >120 mm, or >90 mm with separator grid or large mesh escapement) 2017-2019.



SFPO – TR Prawn (Otter trawl for northern shrimp)

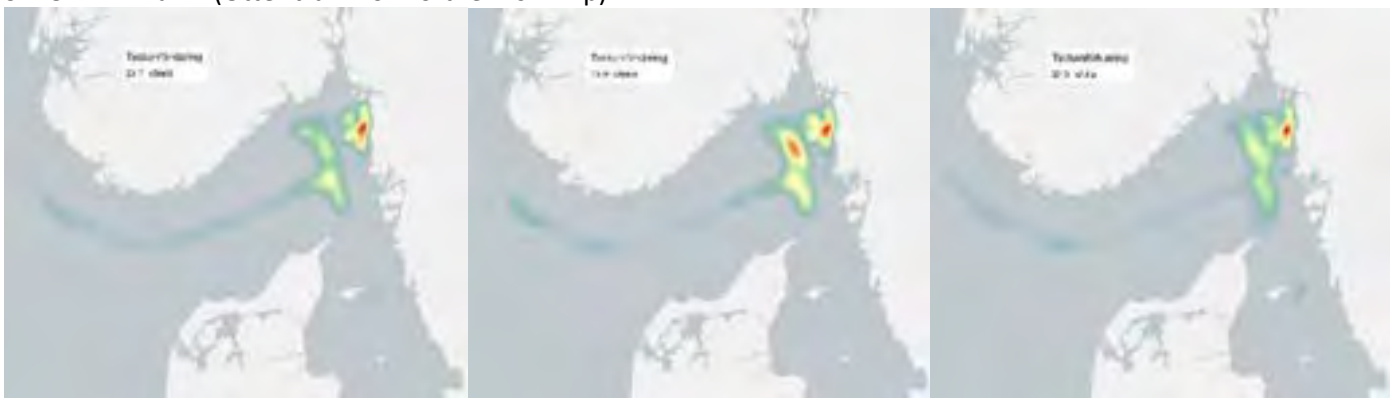


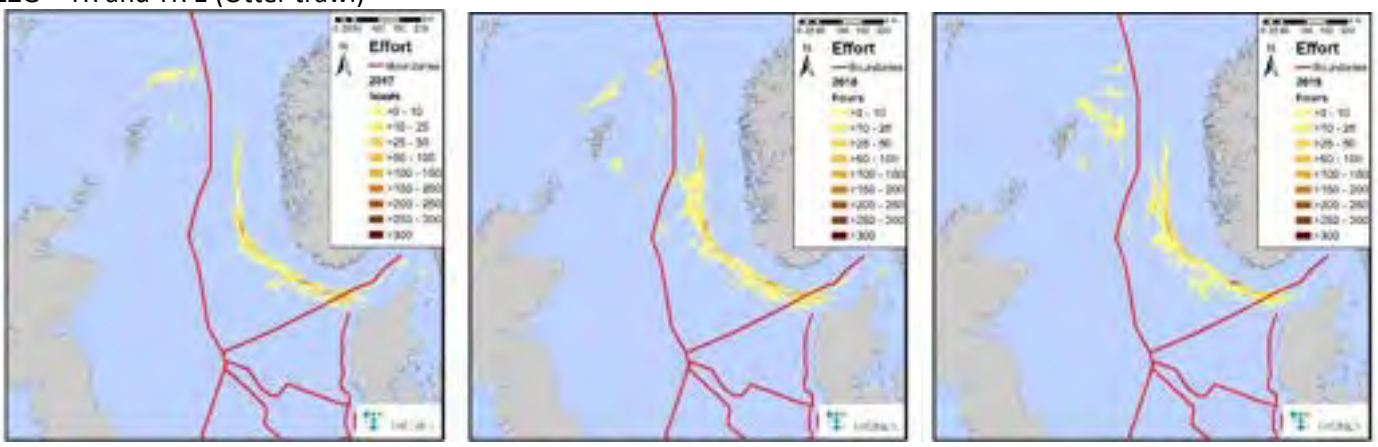
Figure 31. Distribution of activity in the SFPO fisheries 2017 (left), 2018 (middle) and 2019 (right) – TR otter trawl (top row) and TR prawn otter trawl (bottom row). Source: Swedish University of Agricultural Science (SLU).

Activity in the EZG otter trawl fleet in the most recent period is also very consistent with that as reported previously (Figure 35 in Sieben, Gascoigne et al. 2019), with effort spread mainly within ICES

Division 4a, from the southern Skagerrak, along the edge of the Norwegian Trench to the northern North Sea and across to the north of Shetland (top row in Figure 32).

Spatial data for the EZG gillnet fleet were not previously reported, but new data for 2017-2019 were provided to the team for this audit (bottom row in Figure 32). These data show that the activity occurs mainly in the community waters of Denmark, Netherlands and Belgium, which is very similar to that reported previously for the Danish and Dutch gillnet fisheries (Figure 41 and Figure 42, respectively in in Sieben, Gascoigne et al. 2019).

EZG – TR and TR 1 (Otter trawl)



EZG SN (Set net)

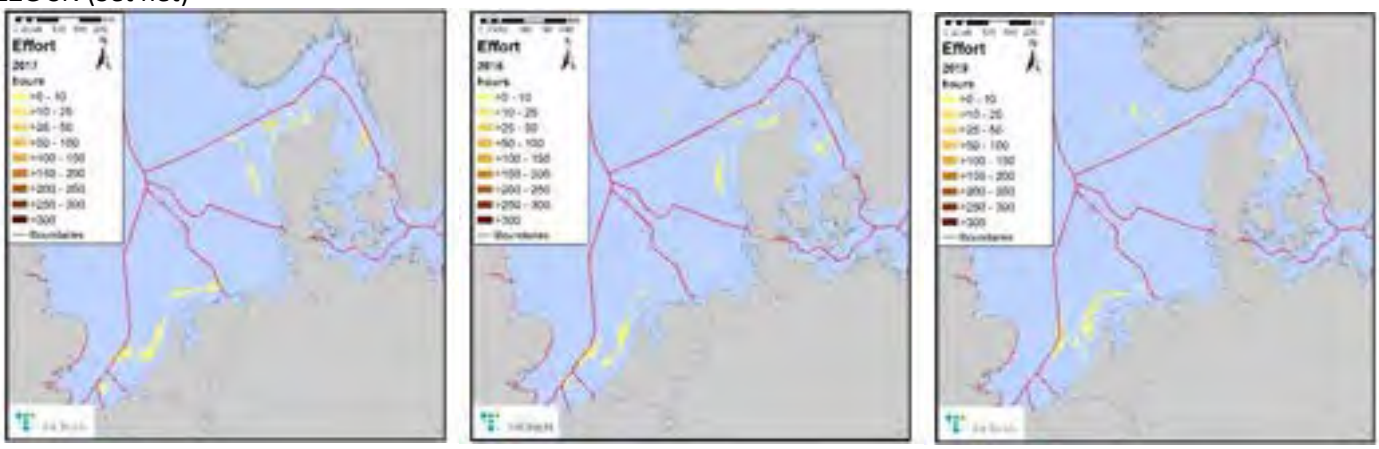
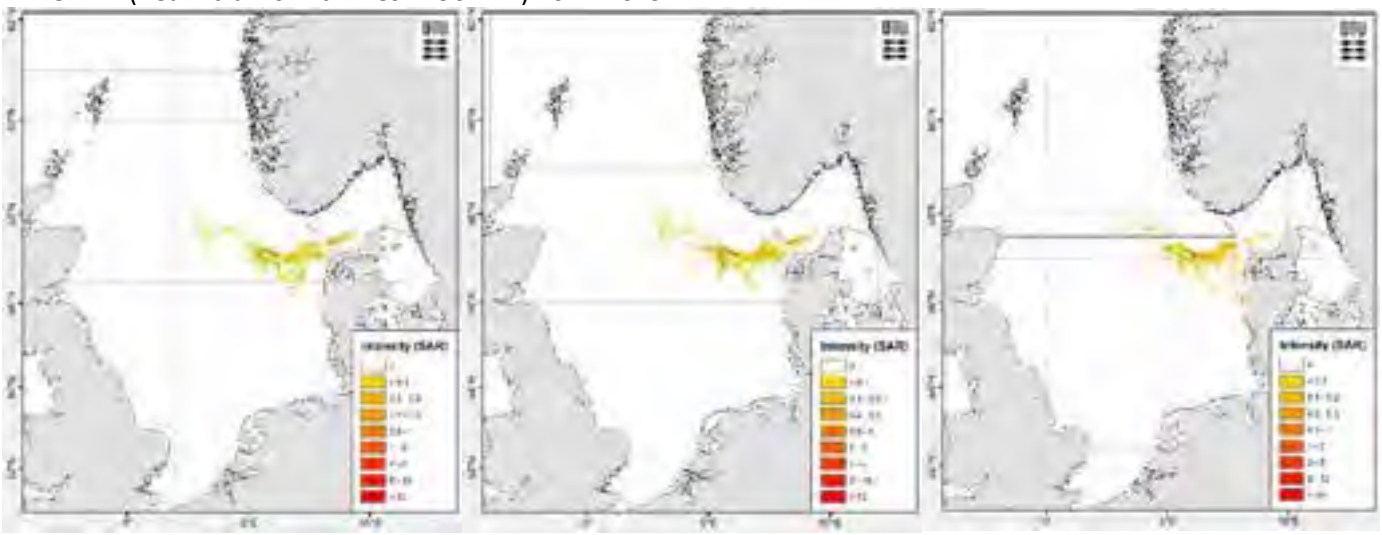


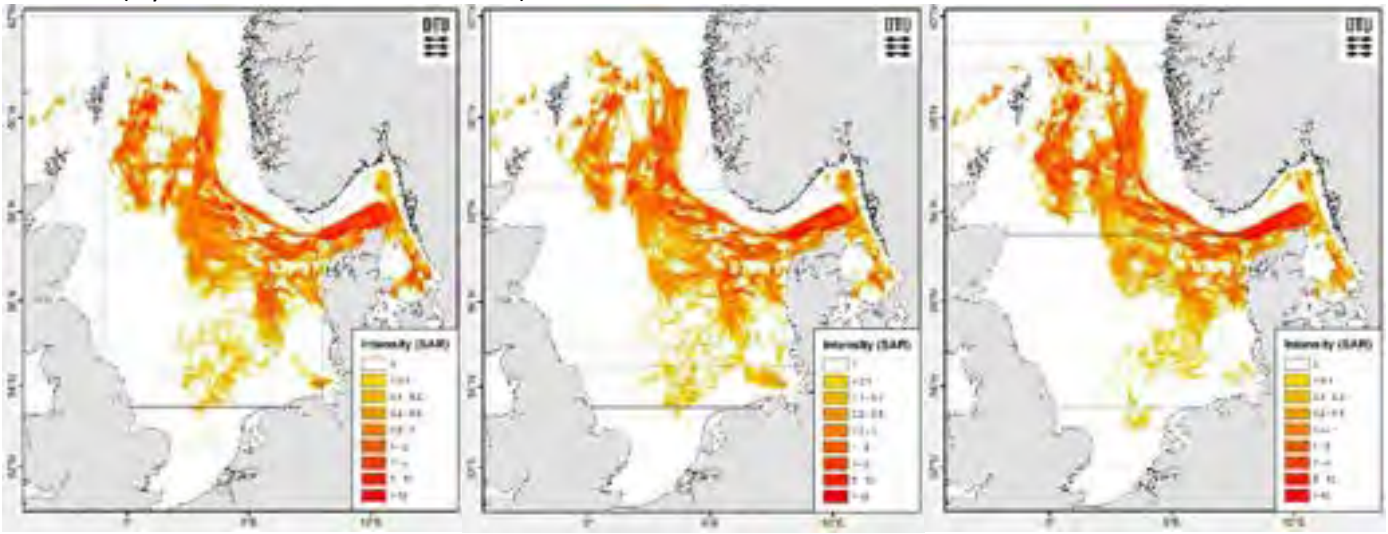
Figure 32. Distribution of activity in the EZG fisheries 2017 (left), 2018 (middle) and 2019 (right) – TR and TR1 otter trawl (top row) and SN set net (bottom row). Source: Thünen-Institut.

DFPO provided maps of activity for all fleets for the 2017-2019 period (see below), including better data for the beam trawl fleet (top row in Figure 33) and for the *Nephrops* trawl and northern shrimp fisheries (third and fourth rows, respectively, in Figure 33). New data were also supplied for the DFPO demersal longline fishery, which has a very small footprint and operates in the southern Skagerrak off the coast of North Jutland (sixth row in Figure 33). In comparison to the activity data as reported previously (Figures 31, 32, 36, 37, 38 and 41 in Sieben, Gascoigne et al. 2019), the data for the most recent period indicate that there has been no change in the areas targeted by the different fleets.

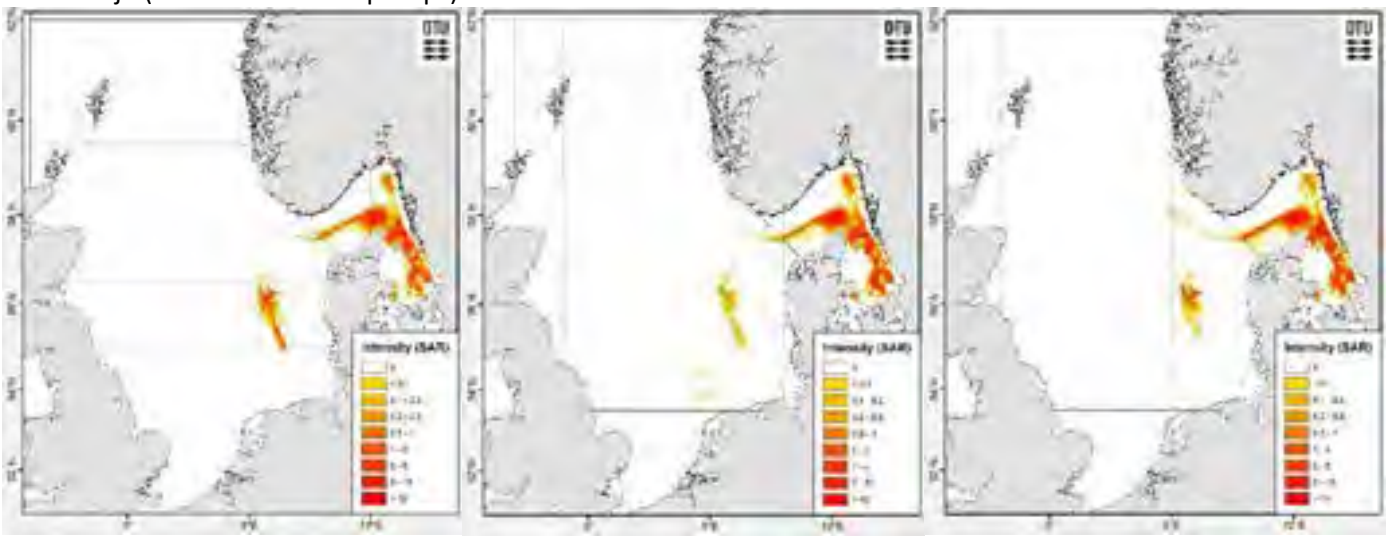
DFPO TBB (Beam trawls with mesh >90 mm) 2017-2019



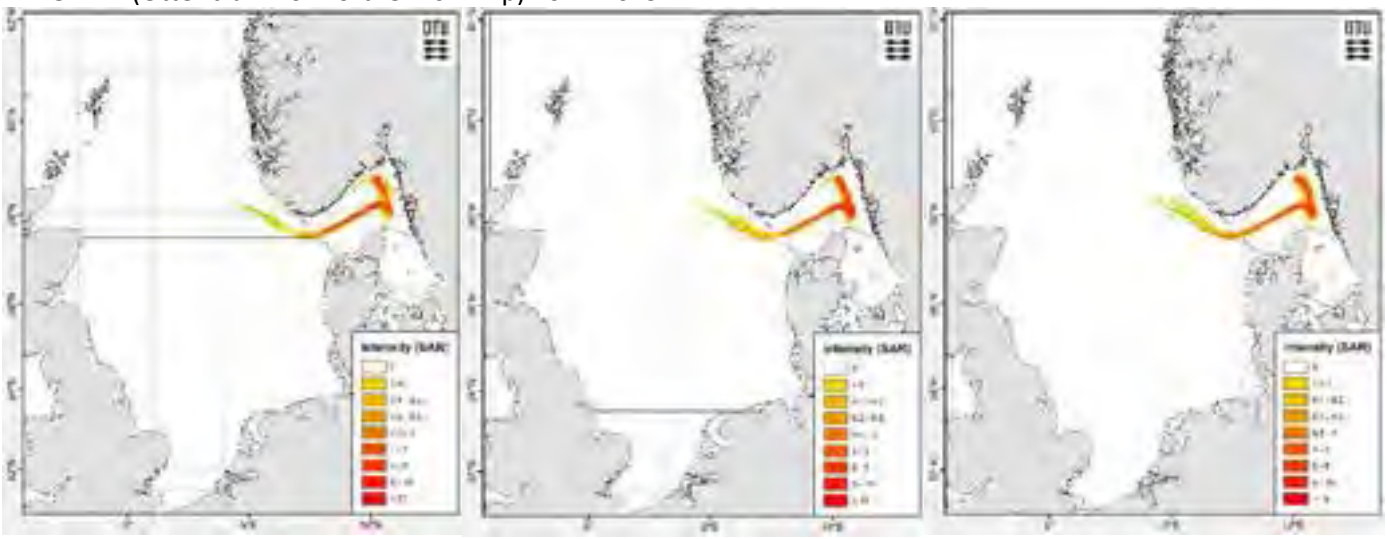
DFPO Tra (Flyshooter or bottom otter trawl) 2017-2019



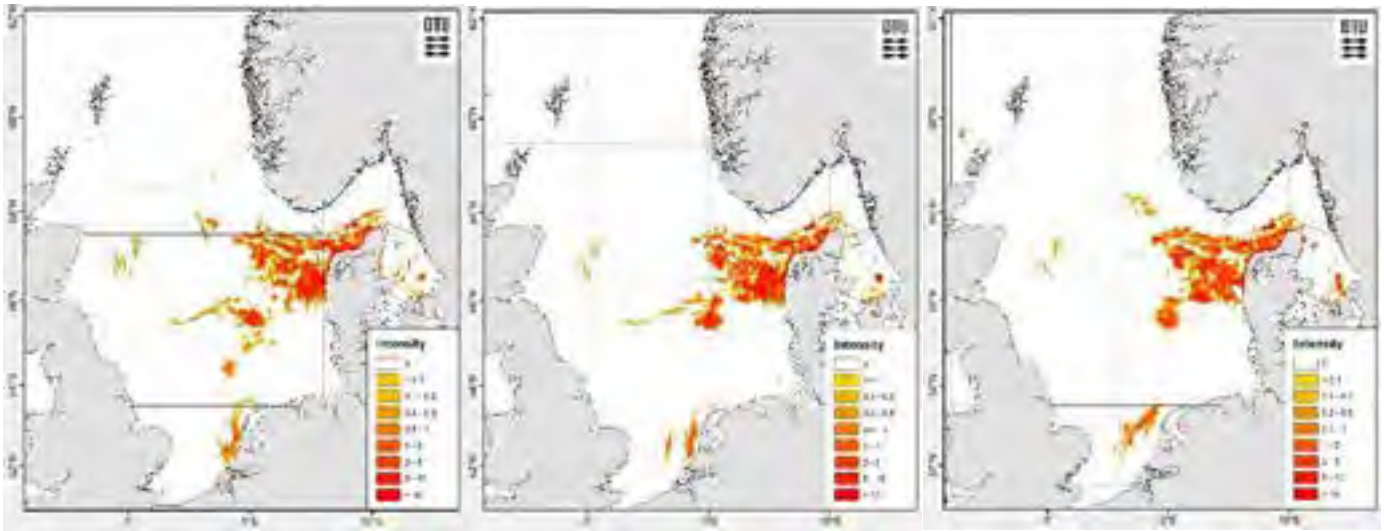
DFPO TR-jh (Otter trawl for Nephrops) 2017-2019



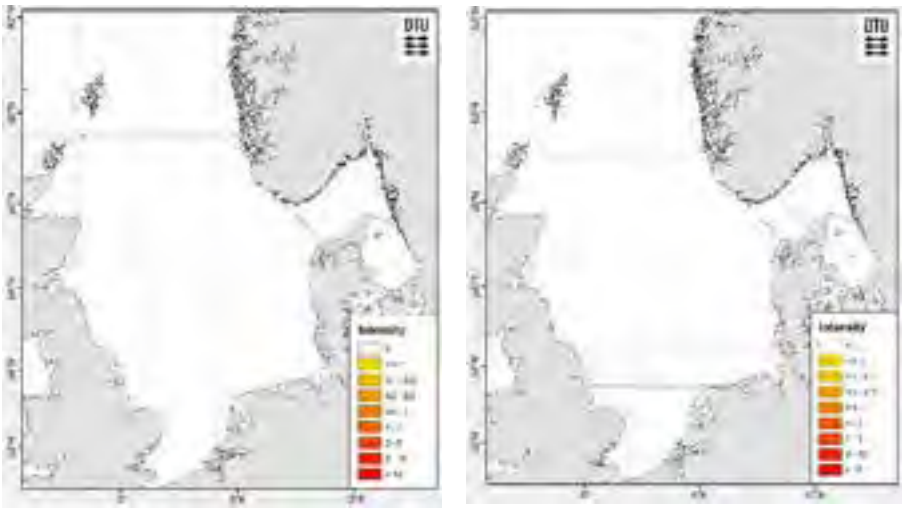
DFPO TR-r (Otter trawl for northern shrimp) 2017-2019



DFPO Gillnet 2017-2019



DFPO – Longline 2018-2019



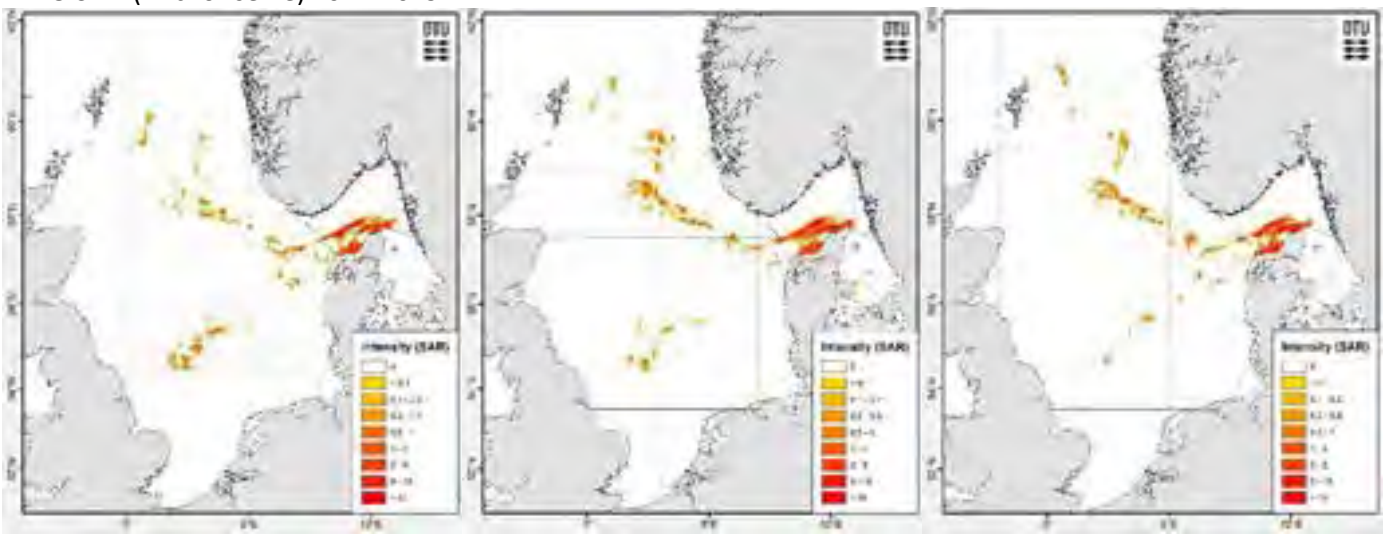


Figure 33. Distribution of activity in the DFPO fisheries 2017 (left), 2018 (middle) and 2019 (right) – TBB beam trawls (top row), Tra fly shooter or otter trawl (second row), TR-jh Nephrops otter trawl (third row), TR-r northern shrimp otter trawl (fourth row), gillnet (fifth row), longline (sixth row) and SDN anchor seine (bottom row). Source: DTU Aqua

2.4.2 Commonly encountered and minor habitats

For each fleet, the commonly encountered and minor habitats encountered were characterised in the initial assessment as per Table 37, below (reproduced from Table 29 in Sieben, Gascoigne et al. 2019). Based on the similarity in the patterns of the activity between 2014-2016 and 2017-2019, no change to the commonly encountered habitats is warranted or needed for any fleet at the Year 1 audit.

Table 37. Substratum, geomorphology and biota descriptors for commonly encountered and minor habitats for each fleet.

Gear type	Habitat type	Descriptor	Description
Trawls	Commonly encountered	Substratum	Fine (mud, sand)
		Geomorphology	Flat
			Low relief
		Biota	Small erect / encrusting or burrowing
	Minor	Substratum	Medium
		Geomorphology	Flat
			Low relief
		Biota	Small erect / encrusting or burrowing
Gillnet and longline (including handline)	Commonly encountered	Substratum	Fine (mud, sand)
			Medium
		Geomorphology	Flat
			Low relief
		Biota	Small erect / encrusting or burrowing
	Minor	Substratum	Large
		Geomorphology	Low relief

Gear type	Habitat type	Descriptor	Description
		Biota	Small erect / encrusting or burrowing
Pot	Commonly encountered	Substratum	Fine (mud, sand)
		Geomorphology	Flat
			Low relief
		Biota	Small erect / encrusting or burrowing

2.4.3 Vulnerable marine ecosystems (VMEs)

A full discussion on the process of selecting vulnerable marine ecosystems (VMEs) for scoring is provided in Section 5.3.2 of the assessment report for the JDF fishery (Sieben, Gascoigne et al. 2019). It was noted that there is no definitive list of VME habitats within EU coastal waters, but in the generally much shallower waters of the Greater North Sea the OSPAR list of threatened and/or declining habitats (https://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats), together with other habitats identified in the HELCOM red list of Baltic Sea underwater biotopes, habitats and habitat complexes (HELCOM 2013) allows for consideration of impacts to VME or VME-like indicator species and habitats (Table 38). It was also noted that those OSPAR and HELCOM habitats that do not overlap with the fishery were not considered in the scoring. For example, there is no evidence that the North Sea fisheries under assessment occur in areas where *Zostera* spp. or intertidal mussel beds are found, so those habitats were not considered in the assessment.

Table 38. List of OSPAR threatened and/or declining subtidal habitats occurring in Region II (Greater North Sea), and additional habitats for the Kattegat that are included on the HELCOM Red List of underwater biotopes, habitats and habitat complexes.

Habitat	Risk of impact as assessed for all fleets
Coral gardens	Very low across the Greater North Sea.
***Lophelia pertusa* reefs**	Very low across the Greater North Sea.
Maërl beds	Very low in the majority of the Greater North Sea. Potential for impact in the Kattegat / Skagerrak
***Modiolus modiolus* beds**	Very low in the majority of the Greater North Sea. Potential for impact in the Kattegat / Skagerrak.
***Ostrea edulis* beds**	Very low.
***Sabellaria spinulosa* reefs**	Very low in the majority of the Greater North Sea. There is potential for impact off the east coast of England based on known occurrence.
Sea-pen and burrowing megafauna communities	There is potential for impacts to occur in the northern North Sea and central North Sea.
Gas (or bubble) reefs	Very low across the Greater North Sea.
Deep-sea sponge aggregations	Very low across the Greater North Sea.
***Haploops* communities**	Very low in the majority of the Greater North Sea. Potential for impact in the Kattegat / Skagerrak

As for commonly encountered and minor habitats, based on the similarity in the patterns of the activity between 2014-2016 and 2017-2019, no change to the VME habitats that are assessed is warranted or needed for any fleet at the Year 1 audit.

2.4.4 Habitat management

Each JDF client (i.e., DFPO, SFPO, CVO and EZG) provided updates to the audit team of the situation regarding existing MPAs and marine planning in the respective country waters. Of particular note at this Year 1 audit is that the Danish Marine Strategy II: 2018-2024[3] was published, which outlines Denmark's approach to achieving good environmental status under the EU Marine Strategy Framework Directive. The document includes an assessment of the current status of Danish marine areas, and Topic 6 is focused on sea floor integrity. Additional monitoring was planned for 2020, and an action programme was planned for 2021. More information will be sought in the next audit. In Sweden, a consultation on proposals for an update of the Programme of Measures for the Marine Strategy Framework Directive was undertaken in late 2020-early 2021[4]. Proposals include for the implementation of new measures for marine food webs, physical disturbance and loss and biodiversity, all of which potentially have implications for the management of fishing activity with respect to marine habitats. Again, more information will be sought at the next audit.

The client group also maintains or monitors up to date lists on the location of closed areas or areas with particular management requirements (e.g., https://fiskeriforening.dk/msc-side/for-fiskere/vaer-opmaerksom-paa-beskyttede-omraader/, and https://www.havochvatten.se/en/policy-and-regulation/commercial-fishing/fishing-regulations-in-marine-protected-areas.html), and are active within industry groups in sharing relevant information.

The client group has also been active in developing a catch application ('Mofi', i.e., 'Mobile fisheries', by Anchor Labs and available on Android only, currently, but also planned for the Apple app stores). Whilst it is understood that the app is focused mainly on collecting spatial data and information on bycatch and ETP species, it will also include the facility to record catches of VME indicator species. The app is in the relatively early stages of development, and it is noted that the team was not able to get the app to work when tested in July 2021.

The client group is also involved in various projects of relevance to understanding and minimising habitat impacts (Table 39). These projects are not necessarily related specifically to meeting conditions but are indicative of the approach taken generally by the client groups to sustainability and good practice.

Table 39. List of research projects and programmes with habitat elements.

Client	Project title	Summary
DFPO	Danish fisherman-researcher network.	https://orbit.dtu.dk/en/publications/dansk-fisker-forsker-netv%C3%A6rk-fase-1-slutrapport). The purpose of the project is to support networking activities that bring the executive Danish fisheries industry and operational fisheries research closer together through fisher-researcher alliances. The idea is to target research against the practical challenges in the fishing industry and to streamline the development of business and ease of generation through the synergy arising from dialogue, common problem formulation and resolution. The project will also streamline and professionalize the work of the various Thematic and Regional Advisory Councils with Danish interests in collaboration between the fishing industry and DTU Aqua experts before and during the meetings.

[3] https://mim.dk/natur/hav/

[4] https://www.havochvatten.se/download/18.58cb8632175e1b2ac83f0ece/1607348153057/english-summary-proposal-swedish-update-programme-measures-according-marine-strategy-framework-directive.pdf

Client	Project title	Summary
		The project is divided into six work packages, including: • Teaching/communication seminars as well as knowledge and technology transfer across the sector and generations. • Workshops, after-work meetings, demonstration seminars with idea collection for collaborative projects on current and future challenges for fisheries and management, as well as knowledge sharing at organisational level. • Development of easily accessible platform with electronic sea maps illustrating fishing patterns and environmental impact, as well as habitat and resource allocation for spatial planning of sustainable fisheries and other maritime activities.
DFPO	Quantifying and reducing the physical impact of mobile fishing gears.	https://orbit.dtu.dk/en/projects/quantifying-and-reducing-the-physical-impact-of-mobile-fishing-ge This project will quantitatively assess the physical impact, at the gear component level, of the main gears used by the Danish and European demersal fishing industry on a range of sediment types. In particular, it will: • Quantify the amount of sediment mobilised by towed fishing gears, • Measure the depth to which the components of a given gear penetrate the seabed, • Develop predictive models of the physical impact of trawl gears, • Identify which elements or components of fishing gears cause the most impact, • Produce guidelines for the fishing industry on how to modify their gears to reduce impact, • Evaluate indicators of good environmental status of descriptor 6 on seabed integrity.
DFPO	Marine litter and ghost gear	The project aims to strengthen the fisheries' reputation nationally and internationally by ensuring good waste management and minimizing losses of gear and net cuttings – and aim to highlight the issue and the fishermen's effort in bringing waste to land. The project will distribute big bags to DFPO members. These big bags will be used to collect and hand in marine litter at the ports. The ports will through three months register landings in five major ports in Denmark (Hirtshals, Hanstholm, Skagen, Thyborøn and Hvide Sande). Further to this the project include cooperation with various partners to highlight best practices and guides. These are targeted as below and can be found attached just FYI. These will be distributed to all DFPO members within a month. • Good advice for waste management onboard. This is based on the Ministry of the Environment and Food's previous campaign "Together for a sea without waste", where DFPO was also involved. • Best practice for handling net cuttings onboard and at port. This has been prepared in collaboration with KIMO (fishing for litter), which last year published a report on the issue together with best practice for handling net cuttings. • Guide to setting passive gear to minimize losses. This has been prepared in collaboration with two recreative fishery organisations.
SFPO	Project Low impact trawling	https://gearingup.uk/news/article/flying-trawl-doors-a-better-way-to-fish/ and https://www.slu.se/institutioner/akvatiska-resurser/forskning1/hallbart-fiske/selektivt-och-skonsamt-fiske/genomforda-projekt/ The project is a collaboration between SFPO and SLU, with support from the Swedish Agency for Marine and Waters Management. It aims to test several different types of 'flying' door, that are designed to 'fly' 2-4 m above the seabed and avoid bottom contact and minimize the creation of sediment plumes. The doors drive a cushion of air or water beneath the 'wing', creating lift from below, while the configuration and weighting can be adjusted so that the doors are suspended at the optimal depth for the fishery in question. The SFPO has several sets of flying trawl doors, and these are being tested in a number of different fisheries. The results to date have been encouraging, with reduced bottom contact, fuel consumption reduced by 10-25%, catches maintained at levels equivalent to conventional gears.

Client	Project title	Summary
CVO	Dollyropefree	http://www.dollyropefree.com/ The project is a partnership between the Dutch fishermen's organization VISNED, the North Sea Foundation, the Dutch government, material specialists and scientists, and is coordinated by Wageningen Economic Research. The aim is to develop solutions to reduce the amount of dolly rope (the sacrificial rope sections that prevent trawl cod ends from chafing on the seabed) that is lost or discarded into the sea. The project has three objectives: • To develop alternative dolly rope materials and net protection, • To develop alternative net designs to lift the net clear of the seabed, • To improve litter management on board fishing vessels.
CVO	Fishing for litter	Similar to DFPO, CVO, with other Producer Organisations working together under VisNed, has been actively involved in several projects aimed at reducing fisheries related marine litter for nearly 20 years. The most well-known project is Fishing for Litter, an international project aimed at facilitating the landing and processing of passively caught marine litter. The debris contain various types of litter, such as plastics, household appliances, oil cans and old fishing gear. In 2020 the participating 140 cutters landed 644 t of marine litter at the 12 participating ports. Many of the participating vessels are a member of one of the VisNed Producer Organisations. The average collected waste annually has varied between 300 t and 650 t.
EZG	Fishing for litter	Similar to the CVO approach, the German Fishing for Litter initiative was launched in 2011. Since then, the number of fishermen involved has been growing steadily, and as of April 2020 there were up to 170 fishermen in 18 ports on the German North Sea and Baltic Sea coasts involved.
EZG	Disposal and recycling of old fishing nets	In cooperation with the companies Cux-Trawl Fischereiausrüstung GmbH and PLASTIX AS from Denmark, a disposal and recycling system would be developed to ensure the proper disposal of old nets. The cooperation has existed since the beginning of 2017.

2.5 Ecosystem

2.5.1 DFPO projects

Marine litter and ghost gear

The project aims to strengthen the fisheries' reputation nationally and internationally by ensuring good waste management and minimizing losses of gear and net cuttings – and aim to highlight the issue and the fishermen's effort in bringing waste to land. The project will distribute big bags to DFPO members. These big bags will be used to collect and hand in marine litter at the ports. The ports will, for three months, register landings in five major ports in Denmark (Hirtshals, Hanstholm, Skagen, Thyborøn and Hvide Sande). Further to this the project include cooperation with various partners to highlight best practices and guides. These are targeted as below and will be distributed to all DFPO members within a month.

- Good advice for waste management onboard. This is based on the Ministry of the Environment and Food's previous campaign "*Together for a sea without waste*", where DFPO was also involved;
- Best practice for handling net cuttings onboard and at port. This has been prepared in collaboration with KIMO (fishing for litter), which last year published a report on the issue together with best practice for handling net cuttings;
- Guide to setting passive gear to minimize losses. This has been prepared in collaboration with two recreative fishery organisations.

DTU Aqua project and the Ministry

The projects aim to map encounters of ghost gears to understand the issue of lost or abandoned gears in Danish waters. This was commissioned by the Ministry of Food and Environment, which also is expected to do a campaign on this in 2021. DFPO are involved in the project with DTU Aqua and are part of the discussions with the Ministry. DFPO also expect the reporting of lost gear will also become obligatory for recreational fishermen.

Further work on regulations

The SUP Directive

Primarily focused on disposable plastic products, but also introduces extended producer responsibility for fishing gear. Here, there will be registration requirements for manufacturers that they must register marketed/sold quantities and withdrawn quantities of gear, as well as be responsible for disposal. Work on implementation takes place under the Ministry of the Environment, where DFPO is involved in the discussions.

PRF Directive

Requirements for registration of passively fished waste in the ports for some vessels. Work on implementation takes place under the Ministry of the Environment and Food.

Circular design

To ensure higher recycling of fishing gear that speaks into general EU discussions on the circular economy. Input to this work is provided through North Sea Advisory Council (NSAC).

3 Results

3.1 Summary of scores

The final principal scores and Performance Indicator scores for each Client Group and UoA – Gear category are provided in the tables below.

Table 40. DFPO Principle 2 Performance Indicator scores

Component	Wt	Performance Indicator (PI)		Wt	4-TR1	4-TR2	4-TR PRAWN	4-BT1	4-SDN	4-SN	4-LL	3aN-TR	3aN-TR PRAWN	3aN-BT1	3aN-SDN	3aN-SN	3aN-LL	3aS-TR	3aS-TR PRAWN	3aS-SDN	3aS-SN
Primary species	0.2	2.1.1	Outcome	0.33	75	80	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
		2.1.2	Management strategy	0.33	75	85	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
		2.1.3	Information/Monitoring	0.33	80	80	85	80	80	80	80	80	85	80	80	80	80	80	80	80	80
Secondary species	0.2	2.2.1	Outcome	0.33	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
		2.2.2	Management strategy	0.33	80	80	80	80	75	80	80	80	80	80	80	75	80	80	80	75	75
		2.2.3	Information/Monitoring	0.33	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75
ETP species	0.2	2.3.1	Outcome	0.33	75	75	75	80	70	75	70	75	75	75	75	75	80	75	75	75	75
		2.3.2	Management strategy	0.33	75	75	75	80	75	75	75	75	75	75	75	75	80	75	75	75	75
		2.3.3	Information strategy	0.33	75	75	75	80	75	75	70	75	75	70	75	75	70	75	75	70	75
Habitats	0.2	2.4.1	Outcome	0.33	75	75	75	75	75	85	85	75	75	75	75	85	85	75	75	75	85
		2.4.2	Management strategy	0.33	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
		2.4.3	Information	0.33	80	80	80	80	80	75	75	80	80	80	80	75	75	80	80	80	75
Ecosystem	0.2	2.5.1	Outcome	0.33	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
		2.5.2	Management	0.33	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
		2.5.3	Information	0.33	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Principle 2 Aggregate score				N/a	80.0	81.0	80.3	81.0	79.3	80.3	79.7	80.0	80.3	79.7	80.0	80.0	80.7	80.0	80.0	79.3	79.7

Table 41. SFPO Principle 2 Performance Indicator scores

Component	Wt	Performance Indicator (PI)		Wt	4-TR1	4-TR2	4-SDN	3aN-TR	3aN-TR PRAWN	3aN-SDN	3aN-SN	3aS-TR	3aS-TR PRAWN	3aS-SN	3a-POT
Primary species	0.2	2.1.1	Outcome	0.33	75	80	75	75	75	75	75	75	75	75	75
		2.1.2	Management strategy	0.33	75	80	75	75	75	75	75	75	75	75	75
		2.1.3	Information/Monitoring	0.33	80	80	80	80	85	80	85	80	85	85	85
Secondary species	0.2	2.2.1	Outcome	0.33	80	80	80	80	80	80	80	80	80	80	80
		2.2.2	Management strategy	0.33	80	80	75	75	80	80	75	75	80	75	80
		2.2.3	Information/Monitoring	0.33	80	80	80	80	80	80	75	80	80	75	80
ETP species	0.2	2.3.1	Outcome	0.33	75	70	70	75	75	75	75	75	75	75	80
		2.3.2	Management strategy	0.33	75	75	75	75	75	75	75	75	75	75	80
		2.3.3	Information strategy	0.33	75	70	70	80	80	70	70	80	80	70	80
Habitats	0.2	2.4.1	Outcome	0.33	75	75	75	75	75	75	85	75	75	85	85
		2.4.2	Management strategy	0.33	75	75	75	75	75	75	75	75	75	75	75
		2.4.3	Information	0.33	80	80	80	80	80	80	75	80	80	75	75
Ecosystem	0.2	2.5.1	Outcome	0.33	90	90	90	90	90	90	90	90	90	90	90
		2.5.2	Management	0.33	85	85	85	85	85	85	85	85	85	85	85
		2.5.3	Information	0.33	100	100	100	100	100	100	100	100	100	100	100
Principle 2 Aggregate score				N/a	80.0	80.0	79.0	80.0	80.7	79.7	79.7	80.0	80.7	79.7	81.7

Table 42. CVO Principle 2 Performance Indicator scores

Component	Wt	Performance Indicator (PI)		Wt	4-BT1	4-BT2	4-SN	4-TR1	4-TR2	3aN-BT1	3aN-TR
Primary species	0.2	2.1.1	Outcome	0.33	85	85	75	85	75	85	75
		2.1.2	Management strategy	0.33	85	80	75	85	75	85	75
		2.1.3	Information/Monitoring	0.33	80	80	75	80	85	80	85
Secondary species	0.2	2.2.1	Outcome	0.33	80	80	80	80	80	80	80
		2.2.2	Management strategy	0.33	80	70	80	75	75	80	80
		2.2.3	Information/Monitoring	0.33	80	80	80	80	80	80	80
ETP species	0.2	2.3.1	Outcome	0.33	75	75	80	70	70	75	80
		2.3.2	Management strategy	0.33	75	75	80	75	75	75	90
		2.3.3	Information strategy	0.33	75	75	70	70	70	70	70
Habitats	0.2	2.4.1	Outcome	0.33	75	75	85	75	75	75	75
		2.4.2	Management strategy	0.33	75	75	75	75	75	75	75
		2.4.3	Information	0.33	80	80	75	80	80	80	80
Ecosystem	0.2	2.5.1	Outcome	0.33	90	90	90	90	90	90	90
		2.5.2	Management	0.33	85	85	85	85	85	85	85
		2.5.3	Information	0.33	100	100	100	100	100	100	100
Principle 2 Aggregate score				N/a	81.0	80.3	80.3	80.3	79.3	81.0	81.0

Table 43. EZG Principle 2 Performance Indicator scores

Component	Wt	Performance Indicator (PI)		Wt	4-TR1	4-SN	3aN-TR	3aN-SN
Primary species	0.2	2.1.1	Outcome	0.33	70	75	75	75
		2.1.2	Management strategy	0.33	75	75	75	75
		2.1.3	Information/Monitoring	0.33	80	80	80	80
Secondary species	0.2	2.2.1	Outcome	0.33	80	80	80	80
		2.2.2	Management strategy	0.33	80	80	80	75
		2.2.3	Information/Monitoring	0.33	80	80	80	80
ETP species	0.2	2.3.1	Outcome	0.33	80	75	80	75
		2.3.2	Management strategy	0.33	75	75	75	75
		2.3.3	Information strategy	0.33	80	70	80	70
Habitats	0.2	2.4.1	Outcome	0.33	75	85	75	85
		2.4.2	Management strategy	0.33	75	75	75	75
		2.4.3	Information	0.33	80	75	80	75
Ecosystem	0.2	2.5.1	Outcome	0.33	90	90	90	90
		2.5.2	Management	0.33	85	85	85	85
		2.5.3	Information	0.33	100	100	100	100
Principle 2 Aggregate score				N/a	80.3	80.0	80.7	79.7

3.2 Summary of conditions for Principle 2

The assessment team raised a total of 198 conditions across all P2 performance indicators at the PCR (Sieben, Gascoigne, et al. 2019). Due to the duplicative nature of many conditions between UoAs, these have been grouped as summarised in the below table (Table 44). Further detail on the progress on individual Principle 2 condition's is provided in Section 3.4.

Table 44. summary of existing Principle 2 conditions.

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
WBSS herring: (SFPO- 1); (SFPO- 2)	WBSS herring	It should be demonstrated that WBSS herring is highly likely above the PRI or that there is evidence that the stock is recovering to a level above the PRI. Where this cannot be demonstrated, there should be a demonstrably effective strategy in place between all MSC UoAs that categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding.	2.1.1	Open	75	75
bass: CVO-1	Bass	Provide quantitative estimates of discards of bass from the CVO fleet in a form that is comparable with other data (e.g. can be used to estimate % discards in the catch).	2.1.3	Open	75	75
horse mackerel: (CVO- 2), (CVO- 3), (CVO- 4)	Horse mackerel	Provide quantitative estimates of discards of horse mackerel from the CVO fleet in a form that is comparable with other data (e.g. can be used to estimate % discards in the catch), sufficient to support a partial strategy.	2.1.3	Closed	75	Scoring element now scores 100
Striped red mullet CVO – 7d – TR1 CVO – 7d – TR2 (non-binding)	Striped red mullet	Demonstrate either that the stock of striped red mullet is highly likely to be above biologically-based limits, or that there is a partial strategy in place, either at UoA level or at stock level, such that the UoA does not hinder recovery and rebuilding.	2.2.1	(non-binding)	75	(non-binding)
pollock 3a: (DFPO-1), (SFPO- 4), (EZG-1)	Pollack	Evaluate the need for a partial strategy for pollack, such that the UoAs can maintain stock status or not hinder rebuilding, with an objective basis for confidence that the partial strategy will work.	2.2.2	Open	75	75

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
whiting 3a: (DFPO- 2), (SFPO- 5)	Whiting 3a	Provide an objective basis for confidence that the partial strategy, including the LO, will work to restrain UoA impacts to an acceptable level.	2.2.2	Closed	75	80
lumpfish 3a: (DFPO- 3), (SFPO- 6)	Lumpfish 3a	Put in place a partial strategy for lumpfish, such that the UoAs do not hinder recovery and rebuilding, with an objective basis for confidence that the partial strategy will work	2.2.2	Open	75	75
American plaice 3a (SFPO - 3), (SFPO- 5)	American plaice 3a	Put in place a partial strategy for American plaice, such that the UoAs do not hinder recovery and rebuilding, with an objective basis for confidence that the partial strategy will work.	2.2.2	Closed	75	80
tub gurnard 4: (CVO- 7), (CVO- 8)	Tub gurnard	Put in place a partial strategy for tub gurnard, if necessary, such that the UoAs do not hinder recovery and rebuilding, with an objective basis for confidence that the partial strategy will work.	2.2.2	Open	75	75
lumpfish 3aS: (DFPO - 4), (SFPO - 7)	Lumpfish	Ensure information is sufficient to estimate the UoA impact on lumpfish and support a partial strategy.	2.2.3	Open	75	75
Starry ray: (DFPO- 5) to (DFPO- 19), (SFPO- 8) to (SFPO- 17), (CVO- 9) to (CVO- 15), (EZG- 2); (EZG- 3)	Starry ray	Direct effects of the UoA should be highly likely to not hinder recovery of starry ray.	2.3.1	Open all UoAs except Closed for CVO – 4 – TR1 CVO – 4 – TR2	70	70 CVO – 4 – TR1 CVO – 4 – TR2 = 80
common skate: (DFPO- 5) to (DFPO- 9); (DFPO- 11) to (DFPO- 13); (DFPO- 15) to (DFPO- 17); (DFPO- 19); (SFPO- 8); (SFPO- 9); (SFPO-	Common skate	Direct effects of the UoA should be highly likely to not hinder recovery of common skate.	2.3.1	Open	70	70

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
10); (SFPO- 14); (SFPO- 17); (CVO- 9) to (CVO- 15); (EZG- 2); (EZG- 3).						
Porbeagle: (DFPO- 5) to (DFPO- 10); (DFPO- 18); (SFPO- 10); (CVO- 11); (CVO- 12); (EZG- 2).	Porbeagle	Direct effects of the UoA should be highly likely to not hinder recovery of porbeagle.	2.3.1	Open	70	70
Seabirds: (DFPO- 9), (DFPO- 15), (DFPO- 19); (SFPO- 14); (DFPO- 17); (EZG- 2); (EZG- 3).	Seabirds	Direct effects of the UoA should be highly likely not to be hindering the recovery of seabirds.	2.3.1	Open	70	70
Seabirds: (DFPO- 24); (DFPO- 30); (DFPO- 34); (SFPO- 24); (SFPO- 27); (EZG- 5); (EZG- 7)	Seabirds	Provide an objective basis for confidence that the UoAs are not impacting or not hindering the recovery of seabird populations.	2.3.2	Open	75	75
Starry ray: (DFPO- 20) to (DFPO- 34); (SFPO- 18) to (SFPO- 27); (CVO- 16) to (CVO- 22); (EZG- 4) to (EZG- 7).	Starry ray	Provide an objective basis for confidence that the UoAs are not impacting or not hindering the recovery of starry ray populations.	2.3.2	Open	75	75
Common skate: (DFPO- 20) to (DFPO- 34); (SFPO- 18) to (SFPO- 20); (SFPO- 23); (SFPO- 24); (CVO- 16) to (CVO-	Common skate	Provide an objective basis for confidence that the UoAs are not impacting or not hindering the recovery of common skate populations.	2.3.2	Open	75	75

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
22); (EZG- 5) to (EZG- 7).						
Porbeagle: (DFPO- 20) to (DFPO- 25); (DFPO- 30); (SFPO- 20); (CVO- 18); (CVO- 19); (EZG- 5).	Porbeagle	Provide an objective basis for confidence that the UoAs are not impacting or not hindering the recovery of porbeagle populations.	2.3.2	Open	75	75
Porbeagle: (DFPO- 20) to (DFPO- 25); (DFPO- 30); (SFPO- 20); (CVO- 18); (CVO- 19); (EZG- 5).	All	Provide quantitative estimates of ETP interactions from the CVO fleet in the eastern Channel, demonstrating that the strategy is being implemented successfully.	2.3.2	Open	75	75
all elements: (DFPO- 40), (DFPO- 43), (DFPO- 46), (DFPO- 49); (SFPO- 28) to (SFPO- 33); (CVO- 25), (CVO- 28) to (CVO- 31); (EZG- 8), (EZG- 9)	All	Demonstrate that there is sufficient quantitative information available to assess the impact of the UoA on ETP species, and to evaluate whether the UoA is likely to be a threat to the protection and recovery of ETP species.	2.3.3	Open	70-75 UoA dependent	70-75 UoA dependent
Common skate: (DFPO- 35) to (DFPO- 39); (DFPO- 41) to (DFPO- 45); (DFPO- 47) to (DFPO- 50); (SFPO- 28) to (SFPO- 33); (CVO- 23), (CVO- 24), (CVO- 26) to (CVO- 28), (CVO- 30), (CVO- 31); (EZG- 8), (EZG- 9)	Common skate	There needs to be sufficient information available such that the impact of the UoAs on common skate can be quantitatively estimated, and hence it can be determined whether the fishery may be a threat to the recovery of the common skate complex. This requires, as a minimum, a fleet-wide estimate of bycatch of 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	Open	70	70

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
Starry ray: (CVO-23), (CVO- 24); (CVO-26), (CVO- 27); (CVO-30), (CVO- 31).	Starry ray	There needs to be sufficient information available such that the impact of the UoAs on 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. This requires, as a minimum, a fleet-wide estimate of bycatch of starry ray.	2.3.3	Open all UoAs except Closed for CVO – 4 – TR1 CVO – 4 – TR2	70	70 CVO – 4 – TR1 and CVO – 4 – TR2 = 80
Porbeagle: (DFPO-35) to (DFPO- 40); (DFPO- 49); (SFPO-30); (CVO- 26); (CVO-27); (EZG- 8)	Porbeagle	There needs to be sufficient information available such that the impact of the UoAs on porbeagle can be quantitatively estimated, and hence it can be determined whether the fishery may be a threat to the recovery of porbeagle. This requires, as a minimum, a fleet-wide estimate of bycatch of porbeagle, as well as some basis by which population-level trends can be evaluated for porbeagle.	2.3.3	Open	70	70
VMEs: (DFPO- 51) to (DFPO- 62); (SFPO-34) to (SFPO- 41); (CVO- 32) to (CVO-39); (EZG- 10); (EZG-11)	Maërl beds *Modiolus modiolus* beds *Ostrea edulis* beds *Sabellaria spinulosa* reefs Seapen and burrowing megafauna communities *Haploops* communities	Demonstrate that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm. This may be achieved by providing evidence of implementation of management measures that can ensure this, or through some other means as appropriate.	2.4.1	Open	75	75
VMEs: (DFPO- 63) to (DFPO- 67) ; (DFPO-70) to (DFPO- 73) ; (DFPO- 76) to (DFPO-78); (SFPO- 42) to	Maërl beds *Modiolus modiolus* beds *Ostrea edulis* beds	Provide an objective basis for confidence that the partial strategy will work for the VME scoring elements identified.	2.4.2	Open	75	75

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
(SFPO- 47); (SFPO- 49); (SFPO- 50); (CVO- 40), (CVO- 41) ; (CVO- 43) to (CVO- 48); (EZG- 12); (EZG- 14).	*Sabellaria spinulosa* reefs Seapen and burrowing megafauna communities *Haploops* communities					
VMEs: (DFPO- 63) to (DFPO- 67) ; (DFPO- 70) to (DFPO- 73) ; (DFPO- 76) to (DFPO- 78); (SFPO- 42) to (SFPO- 47); (SFPO- 49); (SFPO- 50); (CVO- 40), (CVO- 41) ; (CVO- 43) to (CVO- 48); (EZG- 12); (EZG- 14).	Seapen and burrowing megafauna communities *Haploops* communities	Provide quantitative evidence that the measures/partial strategy to identify and protect seapen and burrowing megafauna VME and *Haploops* community VME is being implemented successfully.	2.4.2	Open	75	75
VMEs: (DFPO- 63) to (DFPO- 67) ; (DFPO- 70) to (DFPO- 73) ; (DFPO- 76) to (DFPO- 78); (SFPO- 42) to (SFPO- 47); (SFPO- 49); (SFPO- 50); (CVO- 40), (CVO- 41) ; (CVO- 43) to (CVO- 48); (EZG- 12); (EZG- 14).	All UoA-VME combinations	Provide some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	2.4.2	Open	75	75
VMEs: (DFPO- 63)(DFPO- 79);	All static gears	Provide reliable information on the spatial extent of interaction and on the timing and location of use of all static	2.4.3	Open	75	75

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
(SFPO- 42)(SFPO-52); (CVO- 40) to (CVO- 48); (EZG-12)(EZG- 15).		fishing under assessment. This includes set nets (SN), creels (POT) and longline including handline (LL)				

Table 45. summary of new Principle 2 conditions.

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
NS Cod DFPO 81-92, SFPO 54-60, CVO – 50-52, EZG 18-21.	NS Cod	By the 1st reassessment surveillance audit it should be demonstrated that NS cod is highly likely above the PRI or that there is evidence that the stock is recovering to a level above the PRI. Where this cannot be demonstrated, there should be a demonstrably effective strategy in place between all MSC UoAs that categorize this species as main, to ensure that they collectively do not hinder recovery and rebuilding.	2.1.1	Open	N/a	60
NS Cod DFPO 97-108, SFPO 64-69, CVO – 53-55, EZG 22-25.	NS Cod	By the 1st reassessment surveillance audit the client should provide objective evidence from the UoAs in the fishery that the partial strategy for NS cod will work and is being implemented successfully.	2.1.2	Open	N/a	70
Cod 3aS DFPO 93-96, SFPO 61-63.	Cod 3aS	It should be demonstrated that 3aS cod is highly likely above the PRI or that there is evidence that the stock is recovering to a level above the PRI. Where this cannot be demonstrated, there should be a demonstrably effective strategy in place between all MSC UoAs that categorize this species as main, to ensure that they collectively do not hinder recovery and rebuilding.	2.1.1	Open	80	60
Cod 3aS DFPO 109-112, SFPO 71-73.	Cod 3aS	By the 4th Surveillance audit the client should provide objective evidence from the UoAs in the fishery that the	2.1.2	Open	80	75

UoA/condition number	Scoring element	Condition	Performance Indicator	Status	PI original score	PI revised score
		partial strategy for NS cod will work and is being implemented successfully.				

3.3 Recommendations

1. **DFPO -** In light of potential changing bait use in the DFPO longline fishery the assessment team recommend the DFPO undertake a one year audit of the fishery with respect to bait use. This audit should consider the types, quantities and source stocks of the bait used and should be presented to the assessment team at the year 2 surveillance.

2. **DFPO** – unspecified C*aridea* species were identified in the observer data of the 3aN-TR PRAWN UoA, which the team currently assumes is *Pandalus* species. However, the assessment team recommend the DFPO undertake consultation with DTU aqua on this and seek identification to species level for assurance. DFPO should present the result to the assessment team at the year 2 surveillance .

3.4 Conditions

3.4.1 Closed Conditions

PI2.1.3 Horse mackerel

Table 46. Condition PI2.1.3 horse mackerel: (CVO- 2), (CVO- 3), (CVO- 4). Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	CVO – 4 – TR1
Performance Indicator	2.1.3
Score	75
Justification	Scoring issue a (SG80): Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status. The stock status is depleted but uncertain, and ICES note that discards from demersal fisheries remain uncertain and may be significant. On this basis, although some quantitative information is available, sufficient to estimate the impact of the UoA on the stock, it is not clear that it can be quantified with any confidence. SG60 is met, but SG80 is not met. Scoring issue c (SG80): Information is adequate to support a partial strategy to manage main Primary species. Horse mackerel was considered to have a partial strategy in place (2.1.2a), and stock status can be estimated via survey trends and a length-based analysis (see 2.1.3a), but uncertainty around the stock assessment and discards in demersal fisheries mean that the impact of the UoA is difficult to quantify with certainty. WGWIDE have not attempted any projections or evaluated any different management scenarios. On this basis, SG60 is met, but SG80 is not met.
Condition	Provide quantitative estimates of discards of horse mackerel from the CVO fleet in a form that is comparable with other data (e.g. can be used to estimate % discards in the catch), sufficient to support a partial strategy.
Condition Start	PCR
Condition Deadline	Year 4 audit
Milestones	Year 2: Develop a plan for statistically valid sampling of discards. Score: 70 – 75 (see Table 41 of PCR) Year 3: Scientists validate the plan. Score: 70 – 75 (see Table 41 of PCR) Year 4: Implement discard sampling. Score: 80

Progress on Condition (Year 1)	In area 4, horse mackerel catches are quantified annually under the DCF discards self-sampling programme (area 7: condition is non-binding). The % coverage in terms of kW-days for the TR fleet for 2017, 2018, and 2019, was: OTB DEF 70-99: 9.29%, 10.05%, 9.2%; OTB MCD 70-99: 8.03%, 6.07%, 7.7%; OTB CRU 70-99: 1.6% (only 2019); OTB DEF 100-119: 0.71%, 0.72%, 1.7%. OTB >= 120 was not sampled in the years 2017 - 2019, but sampling coverage during the years 2014 - 2016 was 13.3%, 3.5%, and 11.8% with not a single instance of horse mackerel observed, and furthermore bycatch of horse mackerel with this mesh size is unlikely given the size and shape of the fish. The coverage of OTB DEF 100-119 can be considered to be low during the years 2017 - 2019, but sampling coverage during the years 2014 - 2016 was 7.7%, 6.8%, and 5.7%, and during all the years 2014 - 2019 in a total of 44 sampling trips, not a single instance of horse mackerel was ever observed, so that bycatches of horse mackerel by this gear x mesh size can also be considered unlikely to take place. The DCF programme continues and appears to be sufficient to provide quantitative estimates for the relevant fisheries in area 4. Partial (prior to 2014) and full (since 2014) discard volumes are included in the assessment. Overall discarding is considered negligible (ICES_HOR 2020). According to the working group on widely distributed stocks (WGWIDE), the Netherlands have provided data on discards over an extended period with occasional estimates from Germany and Spain. Since 2017 additional countries have provided estimates of discards with 6 countries reporting in 2019. Following the introduction of the EU landing obligation for the pelagic fisheries targeting horse mackerel in large areas of the overall fishing area and for Norwegian waters, discards in recent years have decreased. The discard rate is estimated to be less than 2.5 % in weight for the combined Horse mackerel stocks. The discard rate for the North Sea stock is estimated to be 1.6% (ICES_WGWIDE 2020). During the initial assessment, it had been determined that the available UoA data may not be sufficient to estimate the UoA impact on the stock because at the time ICES noted that discards from demersal fisheries remain uncertain and may be significant. A condition was raised accordingly. However, based on the latest working group report (ICES_WGWIDE 2020), it is clear that ICES considers the effect of discarding on the stock to be negligible. For the CVO 4-TR1 UoA, sampling coverage (see Section 2.1.3on sampling programme) during the years 2014 - 2016 was 7.7%, 6.8%, and 5.7%, and during all the years 2014 - 2019 in a total of 44 sampling trips not a single instance of horse mackerel was ever observed. This performance indicator was therefore rescored (see 2.1.3a) as SG100 being met. This condition has been closed.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
Progress Status	Condition closed. Rescored in Year 1	
Remedial Action	N/A	
Additional information	N/A	

Table 47. Condition PI2.2.2 – whiting 3a: (DFPO- 2), (SFPO- 5). MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO 3aS TR SFPO 3aS TR
Performance Indicator	2.2.2
Score	75
Justification	Scoring issue b (SG80): There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved. Whiting <MCRS has a de minimis exemption from the LO which is supported by evidence and has been approved by STECF, but this only demonstrates that further improvements in selectivity are difficult, not that the partial strategy to avoid impacts on the stock is working overall. The status of the stock is unknown. The stakeholder analysis in the PSA (Appendix 5) provides a plausible argument, as per pollack. SG60 is met but SG80 is not met. Scoring issue c (SG80): There is some evidence that the measures/partial strategy is being implemented successfully. Whiting comes under the LO, so is considered here separately. Regarding the general range of measures in 3a, as described above, there is some evidence of successful implementation as argued for grey gurnard and the other species above. There is not, however, clear evidence that the LO is being successfully implemented for 3a whiting – the LO has applied since 2016, but ICES estimate similar rates of discarding in 2016 to previous years. On this basis, evidence of implementation is lacking for some of the measures, and SG80 is not met.
Condition	Provide an objective basis for confidence that the partial strategy, including the LO, will work to restrain UoA impacts to an acceptable level.
Condition Start	PCR
Condition Deadline	Year 1 of reassessment
Milestones	Year 2: Work with scientists to develop some data-deficient evaluation method for whiting in 3a; e.g. using catch trends and/or size data and/or some other suitable method. Score: 75 Year 3: Implement research and data gathering. Score: 75 Year 4: Review initial data, evaluate with scientists whether they can provide an objective basis for confidence that the partial strategy currently in place is likely to work. Score: 75 Year 1 of reassessment. If required, develop and implement additional management measures to restrain impacts on whiting, to ensure that the partial strategy is effective. Score: 80

Progress on Condition (Year 1)	Following a benchmarking in 2020, ICES now designates whiting 3a as a category 3 stock with an index of stock size derived from the combination of four surveys: the North Sea International Bottom Trawl Survey (NS-IBTS, Q1 and Q3), the Baltic International Trawl Survey (BITS, Q1 and Q4), and two Danish national surveys targeting cod and sole (Q4) (ICES_WHI 2020). According to the latest assessment, the stock-size indicator has been fluctuating and is now close to the long-term mean and catches have decreased substantially since the mid-1990s and are now at an all-time low (Figure 23). On that basis, there is some objective basis for confidence that the partial strategy is working (SG60 and SG80 are met). In the absence of testing, SG100 is not met. This condition can therefore be closed and the PI has been rescored (see PI 2.2.2b).	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
	Insert Additional Years if relevant	N/A
Progress Status	Condition is closed. Rescored At Year 1 surveillance	
Remedial Action	N/A	

PI2.2.2 – American plaice 3a

Table 48. Condition PI2.2.2 – American plaice 3a: (SFPO - 3), (SFPO- 5). MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	SFPO 3aN TR SFPO 3aS TR
Performance Indicator	2.2.2
Score	75
Justification	Scoring issue a (SG80): There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery. There is no management for American plaice itself. The species has similar life history characteristics to other flatfish species (size at maturity and maximum size similar to brill and plaice). Despite Helcom's view that it may be declining in 3a, stakeholders report that it is very abundant (see Appendix 5), and it seems likely that similar logic may apply as for other species of flatfish taken together as target species and bycatch; i.e. that as long as the main target species (plaice and sole) are managed appropriately, the other species also benefit. Technical measures are also likely to benefit this stock. On this basis, the team concluded that there are measures in place which are likely to provide adequate protection, but that the situation is too uncertain for this to be considered a partial strategy. SG60 is met but SG80 is not met.

	Scoring issue b (SG80): There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved. The stakeholder analysis during the RBF workshop indicated this stock was at low risk from the fishery (see PSA, Appendix 5) which can be considered a 'plausible argument' as to why the measures are likely to work, based on general experience. It does not, however, provide an objective basis for confidence. SG60 is met but SG80 is not met	
Condition	Put in place a partial strategy for American plaice, such that the UoAs do not hinder recovery and rebuilding, with an objective basis for confidence that the partial strategy will work.	
Condition Start	PCR	
Condition Deadline	Year 1 reassessment	
Milestones	Milestones: Year 2: Develop a plan to evaluate the impact of the UoA on American plaice. Score: 75 Year 3: Implement research plan. Score: 75 Year 4: Review initial research results and evaluate with scientists whether additional measures might be required from the UoAs to restrain impacts. Score: 75 Year 1 reassessment. If required, develop and implement additional management measures to restrain impacts on American plaice, such that there is an objective basis for confidence that the partial strategy is considered likely to be effective. Score: 80	
Progress on Condition (Year 1)	At this surveillance, American plaice did not appear as a 'main' species for any of the UoAs. Swedish Agency for Marine and Water Management records from 2018 show that for this gear 4 kg was caught in 2018, 114 kg in 2019 and zero kg in 2020. This is 3.06 % and 2.06 % (Table 91) for SFPO 3aN TR and SFPO 3aS TR respectfully on average between 2017 and 2019. This is likely be the result of a change in gear selectivity following increased use of the SELTRA 270 and then SELTRA 300 gear. Scientific studies by SLU-aqua showed that SELTRA 300 gear catches 6.32 times less cod with size below MCRS compared to the SELTRA 270 and as a consequence, Sweden phased out the less selective SELTRA 270 gear in the Skagerrak in national regulation starting 1 November 2020. This was also introduced for Kattegat through remedial measures in EU-regulation (EU) no 2020/123. Fishing vessels with bottom trawls with mesh size 90 – 119 mm in the Skagerrak and Kattegat now need to be equipped with a SELTRA 300 panel. Sweden also introduced through national regulation an alternative cod end for the *Nephrops* grid fisheries in 2020, designed to decrease catches of juvenile flat- and roundfish, with a combination of square- and diamond mesh. According to the client there is no plan for data collection or stock assessment for this species as its low volume of catches means there is minimal no commercial value in Europe. On the basis of the trend of the past three years that this species does not appear as 'main' in any of the datasets, the CAB consider that this condition should be closed. Rescore of PI2.2.2 is undertaken in Section 2.2.7.2.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A

Progress Status	Closed
Remedial Action	N/A
Additional information	N/A

PI2.3.1 and PI2.3.3 starry ray

The conditions for PI2.3.1 and PI2.3.3 starry ray for the CVO UoAs have also been closed at this surveillance audit. The rationale for closing the UoAs is shown in section 3.4.2.3 as these conditions remain open for other UoAs in the client group. The rescored PIs for the CVO UoAs is shown in section 2.3.2.

3.4.2 Progress against Conditions

Conditions related to the failed UoAs (CVO - 7d – TR1; CVO - 7d – TR2) which became non-binding conditions following the PCR publication are not included in this report.

Following the publication in March 2021 of MSC derogation 6 (here), there is no change on the timelines for conditions on outcome Performance Indicators (i.e., Principle 2 PIs ending in '1' – e.g., 2.1.1). However, conditions on all management and information Performance Indicators (i.e., Principle 2 PIs ending in '2' or '3' – e.g., PI2.1.2 or PI2.1.3) receive an automatic 12 month extension to their milestones and deadlines. In respect to this fishery all the tables for existing conditions below now show the amended timelines and deadlines based on the derogation (e.g. they have been adjusted forwards by 12 months). For a number of the existing conditions derogation 6 extends deadlines beyond the current certificate period and, as per the MSC interpretation on the derogation, they have therefore been extended to Year 1 of the reassessment. These changes are reflected in the tables, below, showing progress against conditions.

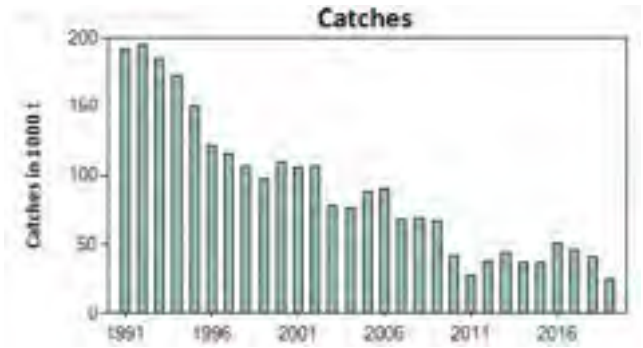
3.4.2.1 Primary species conditions

PI2.1.1 WBSS herring

Table 49. Condition PI2.1.1 WBSS herring: (SFPO- 1); (SFPO- 2). Note: MSC derogation 6 (here) does not apply.

UoA	SFPO – 3aN – SN SFPO – 3aS – SN
Performance Indicator	2.1.1
Score	75
Justification	Scoring issue a (SG80): Main primary species are highly likely to be above the PRI OR If the species is below the PRI, there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding. For herring in 3a, there is a complex system in place to set TACs consistent with the stock status and agreed management strategies for the two stocks that mix in this area; i.e. WBSS and NSAS herring, as well as consistent with the requirements of different fisheries that take herring as target catch or bycatch (details are given in Section 3.4.6). This system has managed to reduce F on WBSS from ~Flim to ~FMSY, although ICES estimate that it increased to between FMSY and Fpa in 2016, and as a consequence have asked for a review of the system for TAC setting in 3a. (The 2018 benchmark re-estimated FMSY as well as Fpa, but the estimate of FMSY only changed slightly, from 0.32 to 0.31.) ICES recommend zero catch for 2019, but managers did not follow this advice (which would have been difficult, given the mixing between WBSS and NSAS herring in 3a and 4; see Section 3.4.6). The team has

	concluded that there is a strategy (see definitions in 2.1.2a below) in place to promote recovery and rebuilding. The strategy overall cannot be considered to be 'demonstrably effective' as regards WBSS at the moment, but the D-Fleet (of which this fishery is a part) takes only 5% of the catch of WBSS in 3a, according to ICES, so these UoAs are highly unlikely to hinder recover and rebuilding of the stock. There are three fisheries in the MSC programme for this stock: the DFPO, DPPO and SPFPO Skagerrak, Kattegat and Western Baltic Herring Fishery (certified); the Germany Mecklenburg-Vorpommern Western Baltic spring spawning herring fishery (in assessment), and Western Baltic spring spawning herring (certified). The certified fisheries have recently been suspended based on the new ICES advice (post-benchmarking) and the (lack of) management response. The team concluded on this basis, that although this fishery is not hindering recovering and rebuilding of the stock, the cumulative impact of all MSC fisheries may be. Overall, therefore, SG60 is met but SG80 is not met.
Condition	It should be demonstrated that WBSS herring is highly likely above the PRI or that there is evidence that the stock is recovering to a level above the PRI. Where this cannot be demonstrated, there should be a demonstrably effective strategy in place between all MSC UoAs that categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding.
Condition Start	PCR
Condition Deadline	Year 4 audit
Milestones	Milestones: Year 1: Demonstrate that work has begun to ensure that the WBSS herring can recover to a level above the PRI and/or demonstrated that work has begun to develop an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60 Year 2-3: Demonstrate that the work continues to ensure that the WBSS herring can recover to a level above the PRI and/or demonstrate that the work continues to develop and implement an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60 Year 4: Demonstrate that the WBSS herring is either highly likely above the PRI or is recovering to a level above the PRI, or demonstrate that there is an effective strategy in place between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 80
Progress on Condition (Year 1)	As explained under PI 2.1.1, SSB remains below B_{lim} and F is declining but not yet at a level below F_{MSY}. This condition affects the SFPO 3aN-SN and 3aS-SN UoAs only. SFPO is actively participating in the work of the Baltic Sea Advisory Council (BSAC) and within that cooperation SFPO is advocating TAC-setting for the Western Baltic Herring to levels that allow the stock to recover. Documentation on this can be found in minutes etc. from the BSAC. In addition, SFPO works for the same in discussions/consultations with other relevant actors, e.g. The Swedish Agency for Maine and Water Management. SFPO strives for herring in the area 22 - 24 to be fished locally and with gears with as low an impact as possible. As shown in Figure 34, overall catches of this stock are declining. The ICES estimated catch for 2019 was 25,420 tonnes whereas the average Swedish 2017-19 total catch (based on STECF data) was 23.93 and 2.59 tonnes for 3aN-SN and 3aS-SN, respectively.

	 **Figure 34. Commercial catches of herring in subdivisions 20–24, spring spawners. From** ICES_HER (2020c)**.**	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
Progress Status	On target	
Remedial Action	N/A	
Additional information	N/A	

PI2.1.3 Bass

Table 50. Condition PI2.1.3 bass: CVO-1. Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	CVO – 4 – SN
Performance Indicator	2.1.3
Score	75

Justification	Scoring issue a (SG80): Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status. The stock status is estimated in relation to reference points, and data are sufficient to estimate the impact of the UoA on the stock, as is done in 2.1.1a and 2.1.2b. SG60 is met. However, discard rates are likely to change annually as regulation responds to stock status, and it is not clear that the data available from the fishery are sufficient to assess the impact of the UoA with much confidence. ICES note that commercial discard estimates are unsatisfactory and a significant source of uncertainty for the assessment. SG80 is not met.	
Condition	Provide quantitative estimates of discards of bass from the CVO fleet in a form that is comparable with other data (e.g. can be used to estimate % discards in the catch).	
Condition Start	PCR	
Condition Deadline	Year 4 audit	
Milestones	Year 2: Develop a plan for statistically-valid sampling of discards. Score: 75 Year 3: Scientists validate the plan. Score: 75 Year 4: Implement discard sampling. Score: 80	
Progress on Condition (Year 1)	As per the MSC derogation 6 (here) there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. Discarding of seabass below the MCRS occurs in most commercial fisheries to a variable extent. WGCSE and WKBASS (ICES, 2017 in ICES_WGCSE (2020)) showed that discard rates have typically been the highest in bottom otter trawls (OTB) and have increased following the introduction of additional management measures in 2015. Discards are now included in the assessment of this stock and in the absence of any data on discard survival, this has been assumed to be zero for all commercial fisheries. This has the potential to overestimate commercial fishing mortality, but the effect was initially expected to be small due to the low discard rates prior to 2015. This has changed in recent years, since the management measures have been implemented and discard rates are expected to increase in the short term as fishers adjust to take account of the changes, such as the increase in minimum conservation reference size from 36 cm to 42 cm (ICES_WGCSE 2020). A condition was raised at the initial assessment in relation to the lack of UoA-specific discard data for bass. The relevant UoA at the time was the CVO 4-SN fleet. This remains the case (Table 5). Although an observer programme is in place for the SN UoA, these data were not accessible to the team due to confidentiality restrictions (the data would be too easy to trace back to individual vessels according to WMR) and could therefore not be considered in this surveillance. The client made the following progress statement in relation to this condition: *Approximately five observer trips are carried out by WMR annually in the set net fleet under the DCF programme. In addition, market sampling is carried out by WMR periodically to determine lengths and (less frequently) ages. Statistically valid sampling would probably require additional sampling effort. The ETP app would be a suitable platform to register discards of bass, using a reference fleet. Number of vessels and frequency of sampling to be determined*. This PI therefore remains unscored and the condition stays open. The condition is assessed as being on target.	
	Year 2	N/A
	Year 3	N/A

	Year 4	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target	
Remedial Action	N/A	
Additional information	N/A	

3.4.2.2 Secondary species conditions

PI2.2.2 – pollock 3a

Table 51. Condition PI2.2.2 – pollock 3a: (DFPO- 1), (SFPO- 4), (EZG- 1). MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO 3aN SN SFPO 3aN SN EZG 3aN SN
Performance Indicator	2.2.2
Score	75
Justification	There are no catch limits for pollack. The species is taken mainly in trawls (~65%) and gillnets, according to ICES. However, it tends to prefer rocky areas or wrecks, which is one reason why trawl survey trends cannot provide a population index. There have been concerns about population declines in 3a, but technical measures in trawls in this area (see Section 3.4.5) are likely to have reduced pollack bycatch in the demersal fish and Nephrops fisheries. Stakeholders report also that only large pollack are taken in gillnets, because of their elongated shape (see Appendix 5). ~70% of the catch of North Sea pollack is taken by the UK and Norway. On this basis, the team considered that there are some measures in place to maintain the impact of the fishery in general and the UoA in particular at an acceptable level, but they are not sufficiently cohesive to be considered a partial strategy. SG60 is met but SG80 is not met.
Condition	Evaluate the need for a partial strategy for pollack, such that the UoAs can maintain stock status or not hinder rebuilding, with an objective basis for confidence that the partial strategy will work.
Condition Start	PCR

Condition Deadline	Year 1 of Reassessment	
Milestones	Year 2: Develop data collection method to measure UoA impacts on pollack in 3a; e.g. using catch trends and/or size data and/or some other suitable method. Score: 75 Year 3: Implement research and data gathering. Score: 75 Year 4: Review initial data, evaluate with scientists whether additional measures might be required from the UoAs to restrain impacts. Score: 75 Year 1 of reassessment. If required, develop and implement additional management measures to restrain impacts on pollack. Score: 80	
Progress on Condition (Year 1)	This species was determined as a main species for the SFPO and EZG 3aN-SN UoAs. Site visit discussions indicate progress in relation to this condition has been limited. Because of the MSC derogation issues in March 2021 extending all existing management-related conditions by one year, progress for the Year 1 milestone will be reviewed at the next surveillance audit.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target. Although the assessment team are concerns over the lack of progress.	
Remedial Action	N/A	
Additional information	N/A	

PI2.2.2 – lumpfish 3a

Table 52. Condition PI2.2.2 – lumpfish 3a: (DFPO- 3), (SFPO- 6). MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO 3aS SN SFPO 3aS SN
Performance Indicator	2.2.2
Score	75

Justification	Scoring issue a (SG80): There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery. There is no management for lumpfish itself, although the stock is likely to benefit from technical measures. SLU consider that the stock in the Kattegat is depleted and Helcom list lumpfish as 'near threatened'. On this basis, it does not seem that the measures are sufficient to maintain the stock above biologically-based limits. However, the high MSC PSA-derived score (see 2.2.1a) suggests that there is a low risk of the UoA hindering recovery and rebuilding. On this basis, SG60 is met. This conclusion, is, however, uncertain, and the measures do not constitute a 'partial strategy', so SG80 is not met. Scoring issue b (SG80): There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved. The stakeholder analysis during the RBF workshop indicated this stock was at low risk from the fishery (see PSA, Appendix 5) which can be considered a 'plausible argument' as to why the measures are likely to work, based on general experience. It does not, however, provide an objective basis for confidence. SG60 is met but SG80 is not met
Condition	Put in place a partial strategy for lumpfish, if necessary, such that the UoAs do not hinder recovery and rebuilding, with an objective basis for confidence that the partial strategy will work.
Condition Start	PCR
Condition Deadline	Year 1 of reassessment
Milestones	Year 2: Work with scientists to develop a plan to evaluate the impact of the UoA on lumpfish. Score: 75 Year 3: Implement research plan. Score: 75 Year 4: Review initial research results and evaluate with scientists whether additional measures might be required from the UoAs to restrain impacts. Score: 75 Year 1 of reassessment. If required, develop and implement additional management measures to restrain impacts on lumpfish, such that there is an objective basis for confidence that the partial strategy is considered likely to be effective. Score: 80
Progress on Condition (Year 1)	A condition is in place on lumpfish (PI 2.2.2) for DFPO and SFPO 3aS-SN. At surveillance this species was also identified as main for SFPO 3aN-SN. Observer data were available for the SFPO 3aS-SN fleet for 2019 indicating that discarding of this species is likely less than 5%. However, until a more long-term dataset becomes available, this condition remains open for the SFPO fleet (and will apply to the 3aN-SN UoA as well). For DFPO, at the time of the initial assessment, a DTU Aqua lumpfish tagging project was ongoing which was expected to shed light on Danish catches of this species. Because of low tagging

	returns, this project has however not provided the necessary insight. DFPO is now working with DTU Aqua to see if a project can be set up to meet both conditions on lumpfish. This condition therefore remains open and is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target	
Remedial Action	N/A	
Additional information	N/A	

PI2.2.2 – tub gurnard 4

Table 53. Condition PI2.2.2 – tub gurnard 4: (CVO- 7, 8 and 56) (DFPO-113-114) (SFPO -74). MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below. Red gear types indicate that the existing condition has been extended to these gears following this audit.

UoA	CVO – 4 – TR1, 4 – TR2, 4-BT2 DFPO – 3aS SDN, 4-SDn SFPO – 4 SDN
Performance Indicator	2.2.2
Score	75
Justification	Scoring issue a (SG80): There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery. No evidence of any trends in stock status over the last 3 decades (French survey). Landings have been quantified since 2006 (when reporting improved). Discards cannot be estimated. There are no management measures in place which might significantly impact the status of the stock, either directly or indirectly. Given the high MSC PSA-derived score (2.2.1a) it seems unlikely that the UoA is having a significant impact on the stock, so SG60 is met. However, this conclusion is uncertain and there is no partial strategy, so SG80 is not met. Scoring issue b (SG80): There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.

	Survey data show no particular trend. This, plus the stakeholder analysis of low risk (PSA; Appendix 5) provide plausible argument as to why measures are likely to work, but there is no objective basis for confidence, so SG80 is not met.
Condition	Put in place a partial strategy for tub gurnard, if necessary, such that the UoAs do not hinder recovery and rebuilding, with an objective basis for confidence that the partial strategy will work.
Condition Start	PCR
Condition Deadline	Year 1 reassessment
Milestones	Year 2: Work with scientists to develop a plan to evaluate the impact of the UoA on tub gurnard. Score: 75 Year 3: Implement research plan. Score: 75 Year 4: Review initial research results and evaluate with scientists whether additional measures might be required from the UoAs to restrain impacts. Score: 75 Year 1 reassessment. If required, develop and implement additional management measures to restrain impacts on tub gurnard, such that there is an objective basis for confidence that the partial strategy is considered likely to be effective. Score: 80
Progress on Condition (Year 1)	A condition is in place on tub gurnard (PI2.2.2) for CVO 4-TR1 and TR2. At surveillance this species was also identified as main for: DFPO 3aS-SDN (0.08 t) DFPO 4-SDN (1.48 t) CVO 4-BT2 (227.56 t) CVO 4-TR2 (761.42 t) SFPO 4-SDN UoAs As far as the team are aware, there are no additional measures in place for tub gurnard that apply to the BT2 fishery. Therefore, the condition should apply to this UoA also. The following statement was provided by the client: *In area 4, all bycatch species including tub gurnard have been monitored under the DCF programme by WMR. During the years 2014 - 2016 (the data available at the time of assessment) the species was not mentioned in the reports meaning that it had not been observed in any metier, but possibly leading to the impression that it was not monitored. During the years 2017 - 2019, the species has been observed and reported. Monitoring under the DCF programme is ongoing and could be considered sufficient. Sufficiency of DATRAS data for determination of a minimum population estimate is currently not known, discussion with WMR is ongoing to investigate this. Proxy for tub gurnard discard survival based on a literature scan needs further effort.* This condition remains open and is on target.
	Year 2 — N/A
	Year 3 — N/A

	Year 4	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target	
Remedial Action	N/A	
Additional information	N/A	

Table 54. Condition PI2.2.3 – lumpfish 3aS/N: (DFPO - 4), (SFPO – 7, 75-76). MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO 3aS SN SFPO 3aS SN SFPO 3aN-SN [New UoA Year 1]
Performance Indicator	2.2.3
Score	75
Justification	Scoring issue c (SG80): Information is adequate to support a **partial strategy** to manage **main** secondary species. From the UoA, landings data on lumpfish are available, but discard data are limited (see PCR - 2.2.3a, Table 7 and Table 8); this is important as only egg-bearing females are of any value. Lumpfish enter shallow water to spawn at a fixed season, so general measures could be put in place based on existing information to reduce the impact of the UoA (as well as fisheries more generally) on lumpfish. However, lacking better discard information it would most likely be difficult to monitor the impact of these measures on the stock with any certainty, as would be required for a partial strategy. SG60 is met but SG80 is not met.
Condition	Ensure information is sufficient to estimate the UoA impact on lumpfish and support a partial strategy.
Condition Start	PCR
Condition Deadline	Year 1 reassessment audit
Milestones	Year 2: Develop a plan for sampling discards of lumpfish, validated by scientists (this may be as part of the research under Condition DFPO-3 / SFPO-4). Score: 75 Year 3: Initiate programme to quantify discards. Score: 75 Year 4: Review initial results and make changed as required. Score: 75 Year 1 reassessment: Continue discard sampling, as input to partial strategy, if required. Score: 80
Progress on Condition (Year 1)	A condition is in place on lumpfish (PI 2.2.3) for DFPO and SFPO 3aS-SN. At surveillance this species was also identified as main for SFPO 3aN-SN. Observer data were available for the SFPO 3aS-SN fleet for 2019 indicating that discarding of this species is likely less than 5%. However, until a more long-term dataset becomes available, this condition remains open for the SFPO fleet (and will apply to the 3aN-SN UoA as well). For DFPO, at the time of the initial assessment, a DTU Aqua lumpfish tagging project was ongoing which was expected to shed light on Danish catches of this species.

	Because of low tagging returns, this project has however not provided the necessary insight. DFPO is now working with DTU Aqua to see if a project can be set up to meet both conditions on lumpfish. This condition therefore remains open and is 'on target'.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, as such this condition is on target	
Remedial Action	N/A	
Additional information	N/A	

3.4.2.3 ETP species conditions

PI2.3.1 – Starry ray

Table 55. Condition PI2.3.1 – Starry ray: (DFPO- 5) to (DFPO- 19), (SFPO- 8) to (SFPO- 17), (CVO- 9) to (CVO- 15), (EZG- 2); (EZG- 3). Note: Outcome PI - MSC derogation 6 (here) does not apply.

UoA	DFPO / SFPO – 4 – TR1 DFPO / SFPO – 4 – TR2 DFPO – 4 – TR PRAWN DFPO / SFPO – 4 – SDN DFPO / EZG – 4 – SN DFPO / SFPO – 3aN – TR DFPO / SFPO – 3aN – TR PRAWN DFPO – 3aN – BT1 DFPO / SFPO – 3aN – SDN DFPO / SFPO / EZG – 3aN – SN DFPO / SFPO – 3aS – TR DFPO / SFPO – 3aS – TR PRAWN DFPO – 3aS – SDN DFPO / SFPO – 3aS – SN CVO – 4 – BT1 CVO – 4 – BT2 CVO – 4 – TR1 CVO – 4 – TR2 CVO – 3aN – BT
Performance Indicator	2.3.1
Score	75
Justification	Scoring issue a (SG80): Known direct effects of the UoA are highly likely to not hinder recovery of ETP species. Note: the rationales are too complex to be presented here. Readers should consult Appendix 1.3.1 of the PCR in conjunction with the conditions. The main point of the scoring has been summarised here. Survival of starry rays specifically has not been not estimated and the population has been in decline since the 1990s. The team concluded that since regulatory requirements are being met following ICES advice (0-TAC set as a conservation measure to aid stock re-building), direct impacts

	could be evaluated 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 could be possible to do more to avoid fishing these individuals. On this basis, the team considered that SG80 was not met.
Condition	Direct effects of the UoA should be highly likely to not hinder recovery of starry ray
Condition Start	PCR
Condition Deadline	Year 1 audit – **CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4** Year 4 audit - **DFPO, SFPO, EZG and remaining CVO UoA**
Milestones	**Milestones CVO** (note this condition was also raised at Year 3 of the CVO sole and plaice fishery, more specifically for FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4): milestones are therefore aligned, with the existing year 3 milestone becoming the year 1 milestone in this assessment for those UoAs) Year 1: present the CAB with a report evaluating the direct effect of the fishery on starry rays. Score: 80 **Milestones DFPO, SFPO, EZG and remaining CVO UoA** Year 1: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on the starry ray population. Score: 75 Year 2: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on the starry ray population has commenced. Score: 75 Year 3: Review of management options to reduce fishery impact on starry ray. If required, determine which management options can provide objective basis for confidence that the strategy will work. Score: 75 Year 4: Continued implementation of plan. Data collection and final review of impacts and effectiveness of management strategy. Score: 80
Progress on Condition (Year 1)	A survivability exemption on skates and rays is in place for all North Sea fisheries under the North Sea discard plan (EU 2019). With a few exceptions (e.g. cuckoo ray), the STECF considers the survival rates to be generally robust, although it highlighted the risks in extrapolating survival evidence between species, fisheries and seasons. STECF notes that the latest evidence suggest that skate and ray survival rates can be highly variable between species and fisheries. Studies indicate that smaller individuals and smaller species have lower survival, inshore static nets are associated with higher survival and shorter tow durations are associated with higher survival. It is indicated that for some fisheries and species combinations the survival may be close to zero (STECF 2019). Note that the Dutch VisNed 2016-18 research programme "Overleving Platvis, Noorse Kreeft en Rog"[5] carried out on behalf of the Dutch trawler sector by Wageningen Marine Research (WMR) and the Vlaamse Instituut voor

[5] https://www.visned.nl/project/overlevingsproject

	Landbouw-, Visserij- en Voedingsonderzoek (ILVO) contributed to this survivability exemption based on post-release survival estimates for thornback ray and spotted ray (for thornback ray this was 53% (95%CI 40-65%); spotted rays were only sampled on two trips, with the chances of survival on one trip being 21% and 67% on the other - Steins et al. (2018)). However, this project has limited relevance for the JDF as all estimated were based on the pulse fishery which is not part of the certified fishery. More recently, VisNed and the *Nederlandse Vissersbond* have begun participating in a new research project to gain a better understanding of post-release survival of rays and the life cycle and distribution of rays and sharks. The kick-off meeting of this project took place at the end of January 2021. This EMFF-funded project "Bridging knowledge gaps for Sharks and Rays in the North Sea" runs from 2021 until 2023. It supports the temporary exemption on rays by providing information on discarding survivability, longer-term stock development, and habitat use & migration patterns of rays in the North Sea. The project consists of two main pillars: 1) Determination of survivability of two ray species when discarded in two metiers. Exploratory research trips in Q2 of 2021 using on-board health condition assessment in twinrig, flyshoot, and quadrig will provide initial survivability estimates. A brief desk study will be carried out to collate available survivability estimates in the beam trawl fisheries, where the current expectation is that previous work already provides sufficient information for this metier. Based on the results of the exploratory work two of the metiers will be selected for a full survivability assessment study involving on-board holding facilities and shore-based follow-up monitoring in a climate-controlled facility for a period of two weeks. 2) Spatial and temporal distribution will be assessed using two methods: a) Using video catch monitoring as well as genetic techniques and b) Using satellite or recapture tags (NSAC 2021). **CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4** As already mentioned, together with other Dutch MSC certified fisheries, which also have conditions in relation to starry ray (i.e. the Dutch MSC certified twinrig, outrig and flyshoot fishery by Osprey and Ekofish), CVO commissioned WMR to develop a tool that can be used to estimate the impact of the three MSC client fisheries on the starry ray population, where the impact is defined as the % of removal from the starry ray population. In this context, H. van_Overzee et al. (2019) estimated the starry ray population size for the North Sea, based on the data collected within the International Bottom Trawl Survey (IBTS) and the Beam Trawl Survey (BTS). The estimates concern a minimum estimate of the starry population size as the model assumes a catchability of 1, i.e. assuming that all fish encountered by the gear in the surveys were caught. On that basis, the total stock weight for 2017 was estimated at 19,388 tonnes (97.5% CI: 13,029 – 39,127 t). Starry ray discard estimates by trip for the existing DCF self-sampling and observer programme (see Section 2.1) have been used to predict the starry ray discards rate (expressed in kg/day and kg/kg plaice landed) by year and metier (see H. M. J. van_Overzee et al. (2019)). As it is assumed that starry ray is exclusively discarded, the model predictions refer to a starry ray catch rate rather than a starry ray discards rate. The total starry ray catch rate of the CVO fishery was then estimated based on either 1) the relationship between the predicted catch rate (expressed in kg/kg plaice landed) and actual plaice landings of the fishery by year and metier, or 2) the relationship between the predicted catch rate (expressed in kg/days at sea) and the effort of the CVO fishery by year and metier. A proxy for starry ray mortality rate of 0.60 was then applied for the otter trawl fishery and 0.20 was applied for the flyshoot fishery (the authors note, however, that these proxies should be used with extreme caution as they concern extrapolations from survival studies of other species and fisheries). The total removal of dead starry ray could then be calculated for each fishery as a % of the estimated North Sea starry population. The H. M. J. van_Overzee et al. (2019) study does not include the final impact assessment for CVO; however these results were provided during the surveillance audit: Table 21 shows that for all fleet segments within the TR1/TR2 categories, the impact on the

starry ray population is estimated at less than 0.1%. This remains the case when all TR1 gears are combined. It can therefore be concluded that the CVO UoAs are highly likely to not hinder recovery of the North Sea starry ray population and SG60 and SG80 are met. SG100 is not met because there remain important uncertainties in the assessment (particularly the post-release survival rates) of the species and the UoA data were derived from the DCF self-sampling and observer data for which the coverage is too restricted to provide a high degree of certainty. Overall, the surveillance team determines that this condition can be closed for CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4.

Table 56. WMR calculation of the CVO TR1/TR2 fisheries 2015-17 impact on the North Sea starry ray population. The population estimate is explicitly a minimum estimate, therefore impact estimates reflect maximum estimates. From WMR.

Year	Twinrig 80-99 (TR2)			Twinrig 100-119 (TR1)			Twinrig >120 (TR1)			Flyshoot 100-119 (TR1)			Flyshoot >120 (TR1)		
Maximum impact of the fishery (% removal) calculated by plaice landings															
2015	<0.001	<0.001	0.001	0.001	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2016	0.001	<0.001	0.004	0.005	0.001	0.014	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001
2017	<0.001	<0.001	0.001	0.004	0.001	0.018	<0.001	<0.001	0.001	0.003	0.001	0.009	<0.001	<0.001	<0.001
Maximum impact of the fishery (% removal) calculated by effort															
2015	<0.001	<0.001	0.001	0.003	0.001	0.008	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
2016	0.001	0.001	0.003	0.011	0.004	0.022	0.001	<0.001	0.002	0.001	<0.001	0.002	<0.001	<0.001	0.001
2017	0.001	<0.001	0.002	0.008	0.003	0.016	0.001	<0.001	0.001	0.001	<0.001	0.002	<0.001	<0.001	0.001

DFPO, SFPO, EZG and remaining CVO UoAs

The combined client group for the JDF have set up a project with MSC Ocean Stewardship funding to develop an app for ETP registrations across the four countries (the app is now available to be downloaded – see Figure 35 for screenshots). The aim of this is to ensure data collection on ETP species encounters in the UoA fisheries. To ensure that data from the registrations is trustworthy and can be supported by scientists, the fishery clients have been in contact with DTU Aqua and the Copenhagen University on key points to consider in this approach for registration. From these discussions it has been pointed out that current regulations and species identification should be clearly addressed in the development of the app, so this is directly communicated to the fishers. This has specifically meant that for certain ETP species, like skates and rays, clear information will be given on regulation in place, and fishers will be required to take a picture. For the Danish fleet a scientist at the University of Copenhagen has offered to go through the pictures taken through the app to ensure correct species identification. For the other countries this

	option for external species identification will be explored as the app is developed and tested through 2021. To ensure representative data across all UoAs, the fishery clients have been in contact with DTU Aqua, who will help appoint a "MSC ETP registration fleet" representing the UoAs geographically. It will not be a reference fleet as such, because the "MSC ETP registration fleet" will be selected to ensure spatial distribution across the UoAs, and ensure that it is engages fishers with basic technical abilities. DTU Aqua further advised that such a fleet should go through a species identification workshop (for example as is already being hosted by DTU Aqua for the fisheries control authorities). Further to this, a communication effort to educate fishers on current rules and regulations with regards to specific ETP species will be carried out through newsletters to members of the fishing organisations. Although only a sample of the UoAs is being selected for the formal registration, the fishery clients will make the app available to all members, and highlight that this can be used by all and is specifically useful to get overview of regulations and info on species. Fishermen would further be encouraged to register any catches of ETP species that they do not normally encounter, so information on possible rare encounters of the ETP species is registered. Data gathering will be sampled throughout the remaining time of the certification period, and data will be reviewed in cooperation with research institutes to ensure any issues in registration are addressed. The intent is then to estimate UoA impacts in a follow-up project. Further details on the ETP registration project are provided in appendix 5.1. Overall, the surveillance team concludes that significant progress has been made by the client fisheries against the ETP conditions. This condition is on track.

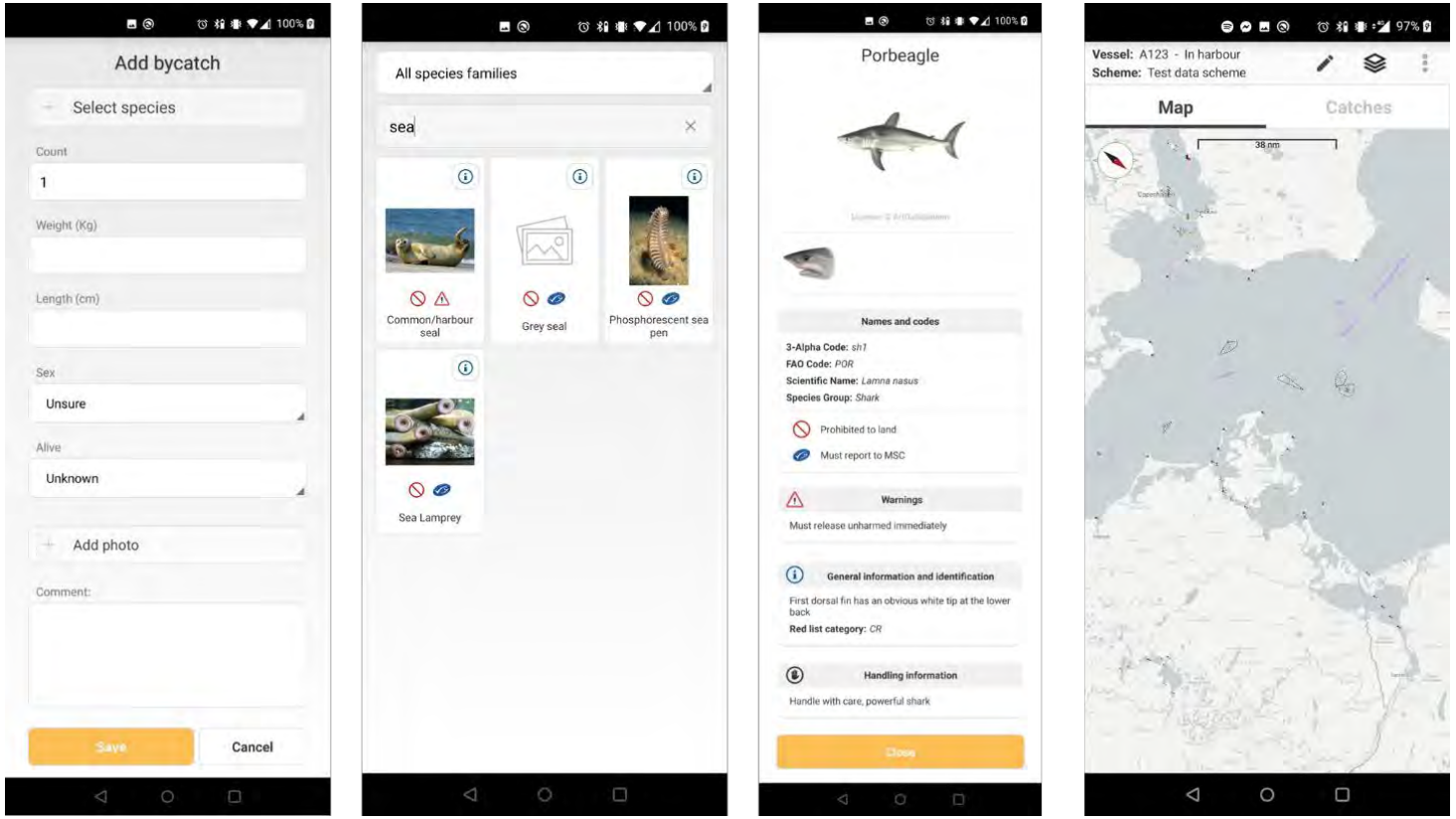


Figure 35. ETP app development screenshots. From left to right: add bycatch, species search, species details, mapping location. App developed by Anchor labs through MSC Ocean Stewardship funding. Source: CVO.

Year 2	N/A
Year 3	N/A
Year 4	N/A

Progress Status	CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4: The condition has been closed (see section 2.3.2.1 for rescoring table). DFPO, SFPO, EZG and remaining CVO UoAs: The condition is on target.
Remedial Action	N/A
Additional information	N/A

PI2.3.1 – Common skate

Table 57. Condition PI2.3.1 – common skate: (DFPO- 5) to (DFPO- 9); (DFPO- 11) to (DFPO- 13); (DFPO- 15) to (DFPO- 17); (DFPO- 19); (SFPO- 8); (SFPO- 9); (SFPO- 10); (SFPO- 14); (SFPO- 17); (CVO- 9) to (CVO- 15); (EZG- 2); (EZG- 3). Note: MSC derogation 6 (here) does not apply.

UoA	DFPO / SFPO – 4 – TR1 DFPO / SFPO – 4 – TR2 DFPO – 4 – TR PRAWN DFPO / SFPO – 4 – SDN DFPO / EZG – 4 – SN DFPO – 3aN – TR DFPO – 3aN – TR PRAWN DFPO – 3aN – BT1 DFPO / SFPO / EZG – 3aN – SN DFPO – 3aS – TR DFPO – 3aS – TR PRAWN DFPO / SFPO – 3aS – SN CVO – 4 – BT1 CVO – 4 – BT2 CVO – 4 – TR1 CVO – 4 – TR2 CVO – 3aN – BT
Performance Indicator	2.3.1
Score	75

Justification	Scoring issue a (SG80): Known direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species. Note: the rationales are too complex to be presented here. Readers should consult Appendix 1.3.1 in conjunction with the conditions. The main point of the scoring has been summarised here. 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). OSPAR (2010a) says even bycatch mortality of common skate may be detrimental to its recovery. As for starry rays, the team concluded that since regulatory requirements are being met following ICES advice to help re-build the stock, direct impacts could be evaluated as 'unlikely' to hinder recovery (SG60 met). Although interaction rates are low based on the data presented in Appendix 4.1.2, considering the poor stock status of this species in the UoA area, the team concluded that UoAs are not highly likely to not hinder recovery of ETP species. It is at least possible, that the fishery could do more, perhaps by evaluating the areas or conditions where the species are caught, evaluate the identification of the individuals caught, and/or investigate the circumstances in which the individuals are brought on board in good or bad condition – i.e. it could be possible to do more to avoid fishing these individuals and / or demonstrate good survival. On this basis, the team considered that SG80 was not fully met.	
Condition	Direct effects of the UoA should be highly likely to not hinder recovery of common skate	
Condition Start	PCR	
Condition Deadline	Year 4	
Milestones	**Milestones** Year 1: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on the common skate population. Score: 75 Year 2: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on the common skate population has commenced. Year 3: Continued implementation of plan. Review of management options to reduce fishery impact on common skate as required. Determine which management options can provide objective basis for confidence that the strategy – if required - will work. Score: 75 Year 4: Data collection and final review of impacts and effectiveness management strategy. Score: 80	
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to common skate as well. The condition is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A

Progress Status	The condition is on target.
Remedial Action	N/A
Additional information	N/A

PI2.3.1 – Porbeagle

Table 58. Condition PI2.3.1 –Porbeagle: (DFPO- 5) to (DFPO- 10); (DFPO- 18); (SFPO- 10); (CVO- 11); (CVO- 12); (EZG- 2). Red gear types indicate that the existing condition has been extended to these gears following this audit. Note: MSC derogation 6 (here) does not apply.

UoA	DFPO – 4 – TR1 DFPO – 4 – TR2 DFPO – 4 – TR PRAWN DFPO / SFPO – 4 – SDN DFPO – 4 – SN DFPO – 4 – LL DFPO – 3aS – SDN CVO – 4 – TR1 CVO – 4 – TR2 EZG – 4 – SN SFPO – 4 – TR1
Performance Indicator	2.3.1
Score	75
Justification	Scoring issue a (SG80): Known direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species. Note: the rationales are too complex to be presented here. Readers should consult Appendix 1.3.1 in conjunction with the conditions. The main point of the scoring has been summarised here. Although overall, numbers of porbeagle bycatch in all UoAs are very low and even the worse-case numbers available from the ETP data suggest the UoAs are unlikely to hinder recovery (SG60 is met), the species can aggregate and there remains a possibility of larger numbers being encountered on occasion. Survival of porbeagles in fisheries is not quantified and the species is critically endangered. Unlike some of the other ETP species there is no stock assessment so population trends are unknown, SG80 is not met

Condition	Direct effects of the UoA should be highly likely to not hinder recovery of porbeagle	
Condition Start	PCR	
Condition Deadline	Year 4 audit	
Milestones	**Milestones** Year 1: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on the porbeagle population. Score: 75 Year 2: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on the porbeagle population has commenced. Year 3: Continued implementation of plan. Review of management options to reduce fishery impact on porbeagle as required. Determine which management options can provide objective basis for confidence that the strategy – if required - will work. Score: 75 Year 4: Data collection and final review of impacts and effectiveness management strategy. Score: 80	
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to porbeagle as well. The condition is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
	Insert Additional Years if relevant	N/A
Progress Status	The condition is on target.	
Remedial Action	N/A	
Additional information	N/A	

PI2.3.1 – Seabirds

Table 59. Condition PI2.3.1 – Seabirds: (DFPO- 9), (DFPO- 15), (DFPO- 19); (SFPO- 14); (DFPO- 17); (EZG- 2); (EZG- 3). Note: MSC derogation 6 (here) does not apply.

UoA	DFPO / EZG – 4 – SN DFPO / SFPO / EZG – 3aN – SN DFPO / SFPO – 3aS – SN	
Performance Indicator	2.3.1	
Score	75	
Justification	Scoring issue a (SG80): Known direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species. Note: the rationales are too complex to be presented here. Readers should consult Appendix 1.3.1 of the PCR in conjunction with the conditions. The main point of the scoring has been summarised here. The low numbers of birds reported suggest that the fisheries under assessment are not likely to have a large impact on seabird populations. Assessments by ICES suggest it is unlikely that the set net fisheries in the North Sea are a significant threat to seabird populations. Some uncertainty exists about numbers caught in the Frisian Front SPA and the FIMPAS project noted more data were required. On the basis of the statement from ICES and the known effects of the North Sea/Skagerral/Kattegat set net fisheries the assessment team consider it is likely that the direct effects of the UoA will not hinder recovery of seabird species in the North Sea and SG60 is met. However, considering the overall lack of independently verified data for the fleets concerned, the impacts cannot be said to be highly likely not to hinder recovery. SG80 is not met.	
Condition	Direct effects of the UoA should be highly likely to not hinder recovery of seabirds	
Condition Start	PCR	
Condition Deadline	Year 4 audit	
Milestones	**Milestones** Year 1: Develop a plan for collection of data on accidental catch of seabirds that can be independently verified and that demonstrates the UoA impact on seabirds. Score: 75 Year 2: Implement the plan. Score: 75 Year 3: Evaluate initial data and propose strategies to minimise impact if required. Score: 75 Year 4: Continue to evaluate data and implement strategies if required, such that the UoAs are highly likely to be having minimal impact. Score: 80	
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to seabirds as well. The condition is on target.	
	Year 2	N/A
	Year 3	N/A

	Year 4	N/A
	Insert Additional Years if relevant	N/A
Progress Status	The condition is on target.	
Remedial Action	N/A	
Additional information	N/A	

PI2.3.2 – Seabirds

Table 60. Condition PI2.3.2 – Seabirds: (DFPO- 24); (DFPO- 30); (DFPO- 34); (SFPO- 24); (SFPO- 27); (EZG- 5); (EZG- 7). MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO / EZG – 4 – SN DFPO / SFPO / EZG – 3aN – SN DFPO / SFPO – 3aS – SN
Performance Indicator	2.3.2
Score	75
Justification	Scoring issue a (SG80): Known direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species. Note: the rationales are too complex to be presented here. Readers should consult Appendix 1.3.1 of the PCR in conjunction with the conditions. The main point of the scoring has been summarised here. The low numbers of birds reported suggest that the fisheries under assessment are not likely to have a large impact on seabird populations. Assessments by ICES suggest it is unlikely that the set net fisheries in the North Sea are a significant threat to seabird populations. Some uncertainty exists about numbers caught in the Frisian Front SPA and the FIMPAS project noted more data were required. On the basis of the statement from ICES and the known effects of the North Sea/Skagerral/Kattegat set net fisheries the assessment team consider it is likely that the direct effects of the UoA will not hinder recovery of seabird species in the North Sea and SG60 is met. However, considering the overall lack of independently verified data for the fleets concerned, the impacts cannot be said to be highly likely not to hinder recovery. SG80 is not met.
Condition	Direct effects of the UoA should be highly likely to not hinder recovery of seabirds

Condition Start	PCR	
Condition Deadline	Year 1 Reassessment	
Milestones	**Milestones** Year 2: Develop a plan for collection of data on accidental catch of seabirds that can be independently verified and that demonstrates the UoA impact on seabirds. Score: 75 Year 3: Implement the plan. Score: 75 Year 4: Evaluate initial data and propose strategies to minimise impact if required. Score: 75 Year 1 reassessment: Continue to evaluate data and implement strategies if required, such that the UoAs are highly likely to be having minimal impact. Score: 80	
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to seabirds as well. The condition is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
	Insert Additional Years if relevant	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target	
Remedial Action	N/A	
Additional information	N/A	

PI2.3.2 – Starry ray

Table 61. Condition PI2.3.2 – Starry ray: (DFPO- 20) to (DFPO- 34); (SFPO- 18) to (SFPO- 27); (CVO- 16) to (CVO- 22); (EZG- 4) to (EZG- 7). MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO / SFPO – 4 – TR1 DFPO / SFPO – 4 – TR2 DFPO – 4 – TR PRAWN

	DFPO / SFPO – 4 – SDN DFPO / EZG – 4 – SN DFPO / SFPO – 3aN – TR DFPO / SFPO – 3aN – TR PRAWN DFPO – 3aN – BT1 DFPO / SFPO – 3aN – SDN DFPO / SFPO / EZG – 3aN – SN DFPO / SFPO – 3aS – TR DFPO / SFPO – 3aS – TR PRAWN DFPO – 3aS – SDN DFPO / SFPO – 3aS – SN CVO – 4 – BT1 CVO – 4 – BT2 CVO – 4 – TR1 CVO – 4 – TR2 CVO – 3aN – BT
Performance Indicator	2.3.2
Score	75
Justification	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 starry ray and common skate, since the measures are aligned with ICES advice, they can be considered 'likely to work' and SG60 is met. The team did not consider, however, that there is currently an objective basis for confidence that they will work due to continued populations declines (starry ray). 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	Provide an objective basis for confidence that the UoAs are not impacting or not hindering the recovery of starry ray populations.
Condition Start	PCR
Condition Deadline	Year 1 reassessment

Milestones	**Milestones** Year 2: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on the starry ray population. Score: 75 Year 3: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on the starry ray population has commenced. Score: 75 Year 4: Continued implementation of plan. Review of management options to reduce fishery impact on starry ray as required. Determine which management options can provide objective basis for confidence that the strategy – if required - will work. Score: 75 Year 1 reassessment: Continued implementation of plan. Data collection and final review of impacts and effectiveness management strategy. Score: 80	
Progress on Condition (Year 1)	See Table 55 for starry ray. The condition is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target	
Remedial Action	n/a	
Additional information	n/a	

PI2.3.2 – Common skate

Table 62. Condition PI2.3.2 – Common skate: (DFPO- 20) to (DFPO- 34); (SFPO- 18) to (SFPO- 20); (SFPO- 23); (SFPO- 24); (CVO- 16) to (CVO- 22); (EZG- 5) to (EZG- 7). Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO / SFPO – 4 – TR1 DFPO / SFPO – 4 – TR2 DFPO – 4 – TR PRAWN DFPO / SFPO – 4 – SDN DFPO / EZG – 4 – SN DFPO – 3aN – TR DFPO – 3aN – TR PRAWN

	DFPO – 3aN – BT1 DFPO / SFPO / EZG – 3aN – SN DFPO – 3aS – TR DFPO – 3aS – TR PRAWN DFPO / SFPO – 3aS – SN CVO – 4 – BT1 CVO – 4 – BT2 CVO – 4 – TR1 CVO – 4 – TR2 CVO – 3aN – BT
Performance Indicator	2.3.2
Score	75
Justification	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 starry ray and common skate, since the measures are aligned with ICES advice, they can be considered 'likely to work' and SG60 is met. The team did not consider, however, that there is currently an objective basis for confidence that they will work due to continued populations declines (starry ray) or a lack of recent stock data (common skate). 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	Provide an objective basis for confidence that the UoAs are not impacting or not hindering the recovery of common skate populations.
Condition Start	PCR
Condition Deadline	Year 1 reassessment
Milestones	**Milestones** Year 2: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on the common skate population. Score: 75 Year 3: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on the common skate population has commenced.

	Year 4: Continued implementation of plan. Review of management options to reduce fishery impact on common skate as required. Determine which management options can provide objective basis for confidence that the strategy – if required - will work. Score: 75 Year 5: Data collection and final review of impacts and effectiveness management strategy. Score: 80	
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to common skate as well. The condition is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target	
Remedial Action	n/a	
Additional information	n/a	

PI2.3.2 – Porbeagle

Table 63. Condition PI2.3.2 – Porbeagle: (DFPO- 20) to (DFPO- 25); (DFPO- 30); (SFPO- 20); (CVO- 18); (CVO- 19); (EZG- 5). Red gear types indicate that the existing condition has been extended to these gears following this audit. Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO – 4 – TR1 DFPO – 4 – TR2 DFPO – 4 – TR PRAWN DFPO / SFPO – 4 – SDN DFPO – 4 – SN DFPO – 4 – LL DFPO – 3aS – SDN CVO – 4 – TR1 CVO – 4 – TR2 EZG – 4 – SN SFPO – 4 – TR1

Performance Indicator	2.3.2
Score	75
Justification	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 porbeagle, recent stock estimates are lacking, and catch data are limited due to the prohibition on landing. The low interactions recorded permit a plausible argument to be made that the measures will work but they do not give an objective basis for confidence that the measures will work. On this basis SG60 is met but SG80 is not.
Condition	Provide an objective basis for confidence that the UoAs are not impacting or not hindering the recovery of porbeagle populations.
Condition Start	PCR
Condition Deadline	Year 1 reassessment
Milestones	**Milestones** Year 2: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on the porbeagle population. Score: 75 Year 3: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on the porbeagle population has commenced. Year 4: Continued implementation of plan. Review of management options to reduce fishery impact on porbeagle as required. Determine which management options can provide objective basis for confidence that the strategy – if required - will work. Score: 75 Year 1 reassessment: Data collection and final review of impacts and effectiveness management strategy. Score: 80
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to porbeagle as well. The condition is on target.

Year 2	N/A
Year 3	N/A
Year 4	N/A

Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target
Remedial Action	n/a
Additional information	n/a

PI2.3.3 – All elements

Table 64. Condition PI2.3.3 – all elements: (DFPO- 40), (DFPO- 43), (DFPO- 46), (DFPO- 49); (SFPO- 28) to (SFPO- 33); (CVO- 25), (CVO- 28) to (CVO- 31); (EZG- 8), (EZG- 9). Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO – 4 – LL DFPO – 3aN – BT1 DFPO – 3aN – LL DFPO – 3aS – SDN SFPO – 4 – TR1 SFPO – 4 – TR2 SFPO – 4 – SDN SFPO – 3aN – SDN SFPO – 3aN – SN SFPO – 3aS – SN CVO – 4 – SN CVO – 3aN – BT CVO – 3aN – TR EZG – 4 – SN EZG – 3aN – SN
Performance Indicator	2.3.3
Score	70
Justification	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.

	Note: the rationales are too complex to be presented here. Readers should consult Appendix 1.3.5 in conjunction with the conditions. The main point of the scoring has been summarised here. **First part of SG60 and 80** To evaluate whether 'some quantitative information is adequate to assess the UoA related mortality and impact' each UoA is scored on the adequacy of the information available for each scoring element. In assigning scores of SG60 or SG80 below the following criteria were applied: SG60: Available data include non-audited self-sampling data or STECF landings / discard data (which often include non-UoA data). Any observer data available are minimal (i.e. only a small number of trips sampled) and are not part of a statistically sound sampling programme (see PCR), thereby reducing confidence in assessment of UoA impacts on ETP species. Where no data are available, other fleets operating similar gears in similar areas have been used as a proxy, providing qualitative information to estimate UoA related mortality on ETP species. SG80: Available data include self-sampling data audited by an independent third party, or independent, quantitative and statistically sound observer data to provide confidence in the assessment of UoA impacts on ETP species. **Second part of SG80** To evaluate whether 'some quantitative information is adequate to determine whether the UoA may be a threat to protection and recovery of the ETP species', the assessment team considered the known population data available for each scoring element, combined with the fishery data. Note this part was only scored when the 1st part of SG80 was considered to be met.	
Condition	Demonstrate that there is sufficient quantitative information available to assess the impact of the UoA on ETP species, and to evaluate whether the UoA is likely to be a threat to the protection and recovery of ETP species.	
Condition Start	PCR	
Condition Deadline	Year 1 reassessment	
Milestones	**Milestones**: Year 2: Develop a plan to ensure good data collection on interactions with ETP species for the relevant UoAs. Score: 70 Year 3: Implement plan in the relevant UoAs. Score: 70 Year 4: Evaluate initial data; continue data collection and increase if required. Score: 70 Year 1 reassessment: Continue to refine data collection strategy and evaluate data to support management strategy. Score: 80	
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to all ETP species and UoAs. The condition is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A

Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target
Remedial Action	N/A
Additional information	N/A

PI2.3.3 – Common skate

Table 65. Condition PI2.3.3 – Common skate: (DFPO- 35) to (DFPO- 39); (DFPO- 41) to (DFPO- 45); (DFPO- 47) to (DFPO- 50); (SFPO- 28) to (SFPO- 33); (CVO- 23), (CVO- 24), (CVO- 26) to (CVO- 28), (CVO- 30), (CVO- 31); (EZG- 8), (EZG- 9). Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO / SFPO – 4 – TR1 DFPO / SFPO – 4 – TR2 DFPO – 4 – TR PRAWN DFPO / SFPO – 4 – SDN DFPO / EZG – 4 – SN DFPO – 3aN – TR DFPO – 3aN – TR PRAWN DFPO – 3aN – BT1 DFPO / SFPO – 3N – SDN DFPO / SFPO / EZG – 3aN – SN DFPO – 3aS – TR DFPO – 3aS – TR PRAWN DFPO – 3aS – SDN DFPO / SFPO – 3aS – SN CVO – 4 – BT1 CVO – 4 – BT2 CVO – 4 – TR1 CVO – 4 – TR2 CVO – 3aN – BT
Performance Indicator	2.3.3

Score	70	
Justification	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. The lack of population level data on this species precludes SG80 from being met in full for all UoAs concerned	
Condition	There needs to be sufficient information available such that the impact of the UoAs on common skate can be quantitatively estimated, and hence it can be determined whether the fishery may be a threat to the recovery of the common skate complex. This requires, as a minimum, a fleet-wide estimate of bycatch of 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).	
Condition Start	PCR	
Condition Deadline	Year 1 reassessment	
Milestones	**Milestones**: Year 2: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on the common skate population. Score: 75 Year 3: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on the common skate population has commenced. Year 4: Continued implementation of plan. Score: 75 Year 1 reassesment: Data collection and final review of impacts. Score: 80	
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to common skate as well. The condition is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target	
Remedial Action	n/a	

Additional information	n/a

PI2.3.3 – Starry ray

Table 66. Condition PI2.3.3 – Starry ray: (CVO- 23), (CVO- 24); (CVO- 26), (CVO- 27); (CVO- 30), (CVO- 31). Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	CVO – 4 – BT1 CVO – 4 – BT2 CVO – 4 – TR1 CVO – 4 – TR2
Performance Indicator	2.3.3
Score	70
Justification	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. For CVO otter trawls and beam trawls, an audited self-sampling programme is in place. The main issue with this dataset however, is that impacts at fishery level cannot be estimated (the data are provided in numbers captured per hour which means they cannot be scaled up to fleet level). Given the fact that the UoAs' impacts on this species may be non-negligeable, the team considered that the information available does not enable determining whether the fishery may be a threat to the recovery of this species. SG80 is not met in full
Condition	There needs to be sufficient information available such that the impact of the UoAs on 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. This requires, as a minimum, a fleet-wide estimate of bycatch of starry ray.
Condition Start	PCR
Condition Deadline	Year 1 reassessment
Milestones	**Milestones** (note this condition was also raised at Year 3 of the CVO sole and plaice fishery; milestones are therefore aligned, with the existing year 3 milestone becoming the year 1 milestone in this assessment)

	Year 2: Present the CAB with a report evaluating the effect of the fishery on starry rays and including a quantified estimate of mortality and an indication of trends. Score: 80 **Remaining UoA Milestones:** Year 2: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on the starry ray population. Score: 75 Year 3: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on the starry ray population has commenced. Score: 75 Year 4: Continued implementation of plan. Score: 75 Year 1 reassessment: Continued implementation of plan. Data collection and final review of impacts. Score: 80	
Progress on Condition (Year 1)	**CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4:** Based on H. M. J. van_Overzee et al. (2019), Table 21 shows that for all fleet segments within the TR1/TR2 categories and over the 2015-17 period, the impact on the starry ray population is estimated at less than 0.1%. This remains the case when all TR1 gears are combined. A report evaluating the effect of the fishery on starry rays and including a quantified estimate of mortality and an indication of trends has thus been provided (i.e. the condition milestone is met), and 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 North Sea starry ray population. SG60 and SG80 are met. SG100 is not met because there remain important uncertainties in the assessment (particularly the post-release survival rates) and the UoA data were derived from the DCF self-sampling and observer data for which the coverage is too restricted to provide a high degree of certainty. Overall, the surveillance team determines that this condition can be closed for CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4. **Remaining UoAs:** See Table 55; the ETP registration app applies to starry ray as well. The condition is on target.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
	Insert Additional Years if relevant	N/A
Progress Status	The condition is closed for **CVO FL100, FL120, TW80, TW100, and TW120 within TR1 and TR2 in Subarea 4. SVO conditions 26 and 27, see section 2.3.2.2.** For all other UoAs as per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target	
Remedial Action	N/A	
Additional information	N/A	

Table 67. Condition PI2.3.3 – Porbeagle: (DFPO- 35) to (DFPO- 40); (DFPO- 49); (SFPO- 30); (CVO- 26); (CVO- 27); (EZG- 8). Red gear types indicate that the existing condition has been extended to these gears following this audit. Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	DFPO – 4 – TR1 DFPO – 4 – TR2 DFPO – 4 – TR PRAWN DFPO / SFPO – 4 – SDN DFPO – 4 – SN DFPO – 4 – LL DFPO – 3aS – SDN CVO – 4 – TR1 CVO – 4 – TR2 EZG – 4 – SN SFPO – 4 – TR1
Performance Indicator	2.3.3
Score	70
Justification	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. North Sea (4): For DFPO (All gears), a statistically sound observer programme is in place. For CVO, an audited self-reporting programme is in place. For all UoAs, encounters are very low and infrequent (see Appendix 1.3.1.1). The data illustrate a low level of interaction of the UoAs with porbeagle sharks. However, the lack of population level data on this species precludes SG80 from being met in full for all UoAs concerned. For the Kattegat (3aS): There are no observer, self-sampling or recent STECF data for DFPO vessels operating with Danish seine nets in the Kattegat (3aS). The observer data for the Skagerrak were therefore used as a proxy. Only SG60 is met.
Condition	There needs to be sufficient information available such that the impact of the UoAs on porbeagle can be quantitatively estimated, and hence it can be determined whether the fishery may be a threat to the recovery of porbeagle. This requires, as a minimum, a fleet-wide estimate of bycatch of porbeagle, as well as some basis by which population-level trends can be evaluated for porbeagle.
Condition Start	PCR

Condition Deadline	Year 1 reassessment audit
Milestones	**Milestones**: Year 2: provide evidence that there is a plan in place to gather information about the impact that the UoAs may have on porbeagle. Score: 75 Year 3: provide evidence to show that progress has been made against the plan, including evidence that research into an evaluation of the direct impact of the UoAs on porbeagle has commenced. Year 4: Continued implementation of plan. Score: 75 Year 1 reassessment: Data collection and final review of impacts. Score: 80
Progress on Condition (Year 1)	See Table 55; the ETP registration app applies to porbeagle as well. The condition is on target.
	Year 2 — N/A
	Year 3 — N/A
	Year 4 — N/A
Progress Status	as per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2, ss such this condition is on target
Remedial Action	n/a
Additional information	n/a

3.4.2.4 Habitat conditions

PI2.4.1b - VMEs

Table 68. Condition PI2.4.1b - VMEs: (DFPO- 51) to (DFPO- 62); (SFPO- 34) to (SFPO- 41); (CVO- 32) to (CVO- 39); (EZG- 10); (EZG- 11). Note: MSC derogation 6 (here) does not apply.

UoA	**Scoring element – UoA combinations for condition on 2.4.1b (Habitats Outcome)**

Scoring element – UoA combinations	DFPO	SFPO	CVO	EZG
Maërl beds	4-TR1	4-TR1	4-TR1	4-TR1

	4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR2 3aN-TR	3aN-TR
Modiolus modiolus beds	4-TR1 4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	-	-
Ostrea edulis beds *Sabellaria spinulosa* reefs	4-BT1 4-SDN 3aN-BT1 3aN-SDN 3aS-SDN	4-SDN 3aN-SDN	4-BT1 4-BT2 4-TR1 4-TR2 3aN-TR 3aN-BT1	4-TR1 3aN-TR
Seapen and burrowing megafauna communities	4-TR1 4-TR2 4-TR PRAWN 4-BT1 4-SDN 3aN-TR 3aN-TR PRAWN 3aN-BT1 3aN-SDN 3aS-TR 3aS-TR PRAWN	4-SDN 3aN-SDN	4-BT1 4-BT2 4-TR1 4-TR2 3aN-TR 3aN-BT1	4-TR1 3aN-TR

		3aS-SDN			
	Haploops communities	4-TR1 4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	-	-
Performance Indicator	2.4.1				
Score	75				
Justification	Scoring issue a (SG80): The UoA is **highly unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm. The majority of any damage to VME sites within the Greater North Sea is very likely to have occurred in previous decades. Importantly, this means that the 'unimpacted level' for these VME habitats is their status at the point of designation (PCR Section 5.4.4). Because fishing effort overall in the Greater North Sea and Celtic Sea ecoregions has reduced in recent years and fishing is not distributed randomly, it is unlikely that structure and function of these habitats has been reduced greatly since the management authorities began to treat them as possible VMEs (noting that the OSPAR List of Threatened and/or Declining Species and Habitats (OSPAR Agreement 2008-6) was developed to assess which species and habitats need to be protected. Thus, SG60 is considered to be met for all fleet and VME combinations where scoring is undertaken. (…) Due to the scale of this assessment, and within the constraints of the MSC Requirements, a precautionary view was taken by the team that although SG60 is met overall for all VME-fleet combinations where there is potential overlap (see above), evidence of implementation of management measures that ensure that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm is needed in order to meet SG80.				
Condition	Demonstrate that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm. This may be achieved by providing evidence of implementation of management measures that can ensure this, or through some other means as appropriate.				
Condition Start	PCR				

Condition Deadline	Year 4 audit
Milestones	**Milestones** Year 1: Develop a plan to meet the SG80 requirement with respect to VME habitats. Present the plan to the audit team. Score: 75 Year 2: Implement the plan for the UoA fleet to meet the SG80 requirement. Present an implementation update to the audit team. Score: 75 Year 3: Present information on fishing activity and VME habitats (e.g. from VMS plots against habitat maps). Score: 75 Year 4: Demonstrate that the UoA is **highly unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm. Score: 80
Progress on Condition (Year 1)	This condition was focused specifically on maërl, *Modiolus modiolus*, *Ostrea edulis*, *Sabellaria spinulosa*, sea-pen and burrowing megafauna communities or *Haploops* communities where they occur as VMEs within the areas fished by the certified fleets. In Year 1 of the client action plan, the clients had committed to develop a plan to meet the SG80 requirement with respect to VME habitats and present the plan to the audit team, to include generating VMS-based fishing activity maps per UoA overlaid with relevant information such as habitat distribution. In this regard, new, detailed maps of activity were provided for most of the different fleets (Figure 29 - Figure 33), which updates and/or improves upon the data presented for the initial assessment of the JDF. Each JDF client (i.e., DFPO, SFPO, CVO and EZG) provided updates to the audit team of the situation regarding existing MPAs and marine planning in the respective country waters. The client group has also been active in developing a catch application ('Mofi', i.e., 'Mobile fisheries', by Anchor Labs and available on Android only, currently, but also planned for the Apple app stores) that will provide spatial data on fishing activity and includes the facility to record catches of VME indicator species. Whilst it is understood that the app is focused mainly on collecting data on bycatch and ETP species, fisher-collected data has the potential to be useful in supporting other scientific and research processes related to the identification of VME habitats. Finally, the client group maintains or monitors up to date lists on the location of closed areas or areas with particular management requirements (e.g., https://fiskeriforening.dk/msc-side/for-fiskere/vaer-opmaerksom-paa-beskyttede-omraader/, and https://www.havochvatten.se/en/policy-and-regulation/commercial-fishing/fishing-regulations-in-marine-protected-areas.html), and is active within industry groups in sharing information on management requirements. Overall, Covid has presented challenges for collaborative working in the last 18 months, but there is evidence that the client group is working effectively towards meeting this condition.

Year 2	N/A
Year 3	N/A
Year 4	N/A

	Insert Additional Years if relevant	N/A
Progress Status	It is considered that the Year 1 milestone is met and the condition is therefore on target.	
Remedial Action	N/A	
Additional information	N/A	

PI2.4.2b - VMEs

Table 69. Condition PI2.4.2b - VMEs: (DFPO- 63) to (DFPO- 67) ; (DFPO- 70) to (DFPO- 73) ; (DFPO- 76) to (DFPO- 78); (SFPO- 42) to (SFPO- 47); (SFPO- 49); (SFPO- 50); (CVO- 40), (CVO- 41) ; (CVO- 43) to (CVO- 48); (EZG- 12); (EZG- 14). Note: MSC derogation 6 (here) has been applied to this condition's milestones and deadline in the table below.

UoA

Scoring element – UoA combinations for condition on 2.4.1 (Habitats Outcome).

Scoring element – UoA combinations	DFPO	SFPO	CVO	EZG
Maërl beds	4-TR1 4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR	4-TR1 3aN-TR
Modiolus modiolus beds	4-TR1 4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	-	-

	Ostrea edulis beds *Sabellaria spinulosa* reefs	4-BT1 4-SDN 3aN-BT1 3aN-SDN 3aS-SDN	4-SDN 3aN-SDN	4-BT1 4-BT2 4-TR1 4-TR2 3aN-TR 3aN-BT1	4-TR1 3aN-TR
	Seapen and burrowing megafauna communities	4-TR1 4-TR2 4-TR PRAWN 4-BT1 4-SDN 3aN-TR 3aN-TR PRAWN 3aN-BT1 3aN-SDN 3aS-TR 3aS-TR PRAWN 3aS-SDN	4-SDN 3aN-SDN	4-BT1 4-BT2 4-TR1 4-TR2 3aN-TR 3aN-BT1	4-TR1 3aN-TR
	Haploops communities	4-TR1 4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	-	-
Performance Indicator	2.4.2				
Score	75				

Justification	Scoring issue b (SG80): There is some **objective basis for confidence** that the measures/partial strategy will work, based on **information directly about the UoA and/or habitats** involved Note: the rationale is too large to be replicated here. An extract is therefore given. A key issue in assessing North Sea fisheries against the MSC Standard is determining what comprises a VME, when there is no agreed VME list for relatively shallow water sites. The team considers that the OSPAR List of Threatened and/or Declining Habitats, together with relevant habitats from the HELCOM Red List, does provide an appropriate basis for assessment, although this may be confounded where a VME indicator species may be widely distributed and its presence does not necessarily indicate the presence of a VME (e.g. individual seapens, non-reef *Sabellaria spinulosa*, widely distributed *Ostrea edulis*, relict maërl or very small populations of *Haploops*). Given this uncertainty, and the apparent presence of indicator species within fished areas, it is not possible to say that there is an objective basis for confidence that the partial strategy will work for VME species identified in PI 2.4.1 as meeting only SG60. Therefore, unless there is information or management in place that means a score of SG80 is appropriate, a score of SG60 is awarded.
Condition	Provide an objective basis for confidence that the partial strategy will work for the VME scoring elements identified.
Condition Start	PCR
Condition Deadline	Year 1 of reassessment
Milestones	**Milestones** Year 2: Develop a plan to meet the SG80 requirement with respect to VME habitats. Present the plan to the audit team. Score: 75 Year 3: Implement the plan for the UoA fleet to meet the SG80 requirement. Present an implementation update to the audit team. Score: 75 Year 4: Present information on fishing activity and VME habitats (e.g. from VMS plots against habitat maps). Score: 75 Year 1 of reassessment: Demonstrate that the UoA is **highly unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm. Score: 80
Progress on Condition (Year 1)	As per the MSC derogation 6 (here) there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. Progress has been made in the period since certification, with improved and / or updated information presented to the team on the location of fishing for most fleets (Figure 29 – Figure 33) and on the situation regarding management of existing MPAs and marine planning in the respective country waters. The client group has also been active in developing a catch application ('Mofi') that will provide spatial data on fishing activity and includes the

	facility to record catches of VME indicator species. Whilst it is understood that the app is focused mainly on collecting data on bycatch and ETP species, fisher-collected data has the potential to be useful in supporting other scientific and research processes related to the identification of VME habitats.	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
	Insert Additional Years if relevant	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. This condition is currently on target.	
Remedial Action	N/A	
Additional information	N/A	

PI2.4.2c - VMEs

Table 70. Condition PI2.4.2c - VMEs: (DFPO- 63) to (DFPO- 67) ; (DFPO- 70) to (DFPO- 73) ; (DFPO- 76) to (DFPO- 78); (SFPO- 42) to (SFPO- 47); (SFPO- 49); (SFPO- 50); (CVO- 40), (CVO- 41) ; (CVO- 43) to (CVO- 48); (EZG- 12); (EZG- 14). Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA

Scoring element – UoA combinations for condition on 2.4.1 (Habitats Outcome)

Scoring element – UoA combinations	DFPO	SFPO	CVO	EZG
Maërl beds	4-TR1 4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR	4-TR1 3aN-TR
Modiolus modiolus beds	4-TR1	4-TR1	-	-

		4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN		
	Ostrea edulis beds *Sabellaria spinulosa* reefs	4-BT1 4-SDN 3aN-BT1 3aN-SDN 3aS-SDN	4-SDN 3aN-SDN	4-BT1 4-BT2 4-TR1 4-TR2 3aN-TR 3aN-BT1	4-TR1 3aN-TR
	Seapen and burrowing megafauna communities	4-TR1 4-TR2 4-TR PRAWN 4-BT1 4-SDN 3aN-TR 3aN-TR PRAWN 3aN-BT1 3aN-SDN 3aS-TR 3aS-TR PRAWN 3aS-SDN	4-SDN 3aN-SDN	4-BT1 4-BT2 4-TR1 4-TR2 3aN-TR 3aN-BT1	4-TR1 3aN-TR
	Haploops communities	4-TR1 4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	-	-

Performance Indicator	2.4.2c
Score	75
Justification	Scoring issue c (SG80): There is **some quantitative evidence** that the measures/partial strategy is being implemented successfully. For VME habitats, the partial strategy (identifying habitats, designating MPAs, and establishing management plans and monitoring activity to protect and, when practicable, restore habitats) is being implemented in many cases through requirements to comply with Article 6.1 of the Habitats Directive. Even if management of some Natura 2000 sites is still in development, most VMEs therefore meet SG80. It is too early and/or information on VME status is too limited to determine that SG100 is met with respect to the management partial strategy achieving its objective for VME habitats, so SG100 is not met for any fleet – VME habitat combination. However, where VME habitats are not included as Habitats Directive Annex 1 habitats, it is not clear that SG80 is met with respect to implementation of the partial strategy. Towed gear fleets that overlap with potential seapen and burrowing megafauna VME and potential *Haploops* community VME therefore do not meet SG80.
Condition	Provide quantitative evidence that the measures/partial strategy to identify and protect seapen and burrowing megafauna VME and Haploops community VME is being implemented successfully.
Condition Start	PCR
Condition Deadline	Year 1 of reassessment
Milestones	**Milestones** Year 2: Develop a plan to meet the SG80 requirement with respect to VME habitats, specifically seapen and burrowed mud and Haploops communities. Present the plan to the audit team. Score: 75 Year 3: Implement the plan for the UoA fleet to meet the SG80 requirement. Present an implementation update to the audit team. Score: 75 Year 4: Present information on the management approach (e.g., that VME sites have been designated as appropriate, and management implemented). Score: 75 Year 1 of reassessment: Provide quantitative evidence that the measures/partial strategy is being implemented successfully. Score: 80

Progress on Condition (Year 1)	As per the MSC derogation 6 (here) there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. This condition was set for towed gear fleets that overlap with potential seapen and burrowing megafauna VME and potential *Haploops* community VME, specifically. These are not included as Habitats Directive Annex 1 habitats, and therefore do not benefit from the established approach for protection that is derived from Article 6.1 of the Directive. The identification and protection of these VME habitats is therefore more dependent on local approaches, and in this regard the client group has been active in developing a catch application 'Mofi', i.e., 'Mobile fisheries', by Anchor Labs and available on Android only, currently, but also planned for the Apple app stores) that includes the facility to record catches of VME indicator species. Whilst it is understood that the app is focused mainly on collecting data on bycatch and ETP species, fisher-collected data has the potential to be useful in supporting other scientific and research processes. It is noted that the app is in the relatively early stages of development, and the team was not able to get the app to work when tested in July 2021. If potential VME or confirmed VME habitats are identified, though, then compliance with management measures to protect VME habitats is addressed under PI 2.4.2 SId (see Table 71).	
	Year 2	N/A
	Year 3	N/A
	Year 4	N/A
	Insert Additional Years if relevant	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. This condition is currently on target.	
Remedial Action	N/A	
Additional information	N/A	

PI2.4.2d - VMEs

Table 71. Condition PI2.4.2d - VMEs: (DFPO- 63)(DFPO- 79); (SFPO- 42)(SFPO- 52); (CVO- 40) to (CVO- 48); (EZG- 12)(EZG- 15).

UoA

Scoring element – UoA combinations for condition on 2.4.1 (Habitats Outcome)

Scoring element – UoA combinations	DFPO	SFPO	CVO	EZG
Maërl beds	4-TR1 4-TR2 4-TR PRAWN	4-TR1 4-TR2 3aN-TR	4-TR1 4-TR2 3aN-TR	4-TR1 3aN-TR

	3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN		
Modiolus modiolus beds	4-TR1 4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR1 4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	-	-
Ostrea edulis beds *Sabellaria spinulosa* reefs	4-BT1 4-SDN 3aN-BT1 3aN-SDN 3aS-SDN	4-SDN 3aN-SDN	4-BT1 4-BT2 4-TR1 4-TR2 3aN-TR 3aN-BT1	4-TR1 3aN-TR
Seapen and burrowing megafauna communities	4-TR1 4-TR2 4-TR PRAWN 4-BT1 4-SDN 3aN-TR 3aN-TR PRAWN 3aN-BT1 3aN-SDN 3aS-TR 3aS-TR PRAWN 3aS-SDN	4-SDN 3aN-SDN	4-BT1 4-BT2 4-TR1 4-TR2 3aN-TR 3aN-BT1	4-TR1 3aN-TR
Haploops communities	4-TR1	4-TR1	-	-

		4-TR2 4-TR PRAWN 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN	4-TR2 3aN-TR 3aN-TR PRAWN 3aS-TR 3aS-TR PRAWN		

Performance Indicator	2.4.2d
Score	75
Justification	Scoring issue d (SG80): There is **some quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant. Note: the rationale is too large to be replicated here. An extract is therefore given. The intent of the MSC SG80 requirement here with respect to '*protection measures afforded to VMEs by other MSC UoAs /non-MSC fisheries, where relevant*' is to ensure that where a VME or potential (p) VME is identified by any fishery / fishery management authority within an area fished by an MSC UoA, the VME / pVME is not impacted by that MSC UoA before permanent measures were introduced. In essence, if a VME/pVME was identified by one fishery / management authority, such that an interim management measure (e.g., a voluntary closed area) was introduced to protect the site temporarily, relevant MSC UoAs should adopt the interim measure and then be able to provide some quantitative evidence that they comply with it. (…)a key issue for North Sea fisheries operating in EU Community waters is that when VME sites are identified in one nation's EEZ, national managers must go through an EU Commission Joint Recommendation process under Article 11 and Article 18 of Regulation (EU) No 1380/2013 (the CFP) to introduce conservation measures that apply to the fleets of all Member States. This Commission process has not always been swift, and formal management at the international level has been slow to be introduced in some cases (e.g., https://www.gov.scot/Topics/marine/marine-environment/mpanetwork/SACmanagement, In summary, it is not possible on the basis of the information available to the team to confirm that each UoA is complying with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant. As such, no UoA meets SG80
Condition	Provide some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
Condition Start	PCR
Condition Deadline	Year 1 of reassessment
Milestones	**Milestones**

	Year 2: Develop a plan to meet the SG80 requirement with respect to VME habitats for the UoA fleet. Present the plan to the audit team. Score: 75 Year 3: Implement the plan for the UoA fleet to meet the SG80 requirement. Present an implementation update to the audit team. Score: 75 Year 4: Present preliminary information on the management compliance (e.g. VMS and or other spatial plots). Score: 75 Year 1 of reassessment: Provide some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant. Score: 80
Progress on Condition (Year 1)	As per the MSC derogation 6 (here) there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. The client group maintains or monitors up to date lists on the location of closed areas or areas with particular management requirements (e.g., https://fiskeriforening.dk/msc-side/for-fiskere/vaer-opmaerksom-paa-beskyttede-omraader/, and https://www.havochvatten.se/en/policy-and-regulation/commercial-fishing/fishing-regulations-in-marine-protected-areas.html), and are active within industry groups in sharing information on management requirements. This latter forum appears likely to be important in ensuring that clients are aware of and are positioned to respond to voluntary measures introduced by other MSC UoAs/non-MSC fisheries. It was noted to the audit team during the site visit that it may be difficult for the clients to respond quickly to new, voluntary closures implemented by other fisheries, where no notice is given of the implementation of a new measure, or even where no announcement is made, and it is necessary to confirm the rationale for protection and to determine which fisheries may be affected (i.e., to meet the SG80 requirement that the 'UoA complies with both its management requirements … where relevant'). The audit team accepts that these are valid concerns, and therefore we note that consideration may need to be given to addressing these issues in meeting this condition.
	Year 2: N/A Year 3: N/A Year 4: N/A Insert Additional Years if relevant: N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. This condition is currently on target.
Remedial Action	N/A
Additional information	N/A

PI2.4.3b – Main habitats

Table 72. Condition PI2.4.3b – main habitats: (DFPO- 80); (SFPO- 53); (CVO- 49); (EZG- 16). Note: MSC derogation 6 (here) has been applied to this conditions milestones and deadline in the table below.

UoA	All static gears (Fleet groups 8, 9)
Performance Indicator	2.4.3
Score	75
Justification	Scoring issue b (SG80): Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. The extensive body of EU and nationally-funded research on fishing activity mapping and on the effects of fishing that is referenced in the introduction (Sections 5.2 – 5.4) and highlighted above in scoring PI 2.4.1 SIa also addresses community recovery and is certainly adequate to allow for identification of the main impacts of the UoAs on the main habitats. All UoAs meet SG60 and the first part of the SG80 requirement (i.e. '*Information is adequate to allow for identification of the main impacts of the UoA on the main habitats*'). Regarding the second part of the SG80 requirement (i.e., '*There is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear*'), all fishing vessels operating in the fisheries under assessment are subject to the EU fishery control and monitoring requirements as specified in Council Regulation (EC) No. 1224/2009. These include that vessels >10 m length overall are required to submit logbooks which indicate catch and area fished, vessels >12 m length overall are required to carry an operational satellite tracking device as part of the Vessel Monitoring System (VMS), and since the 31st May 2014 all vessels >15 m length overall have been required to carry an operational Automatic Identification System (AIS) transmitter. The VMS system provides data to the national fishery authorities at regular intervals (at a minimum every two hours) on the location, course and speed of vessels, while the AIS system is an autonomous and continuous vessel identification and monitoring system that is used primarily for maritime safety and security, but may be used by Member States for monitoring and control purposes. Regarding the static gear fleets (Fleet groups 8,9), spatial data are less comprehensive, in part because many of the vessels in the static gear fleets are <12 m and are therefore not subject to EU VMS requirements. Essentially, while there are VMS data for some of the DFPO gillnet fleet, there are a significant number of smaller vessels across the different fleets that are not represented by the data, including in the SFPO set net, DFPO longline and EZG gillnet, fleets. The Assessment Team was provided with some qualitative information on the spatial extent of fishing operations for the SFPO pot and CVO gillnet fleets, but this is relatively coarse. Essentially, this qualitative information supports meeting the SG60 requirement, but is insufficient to

	meet the SG80 requirement that "*there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear*". SG80 is not met in full for each of the static gear fleets, and a Condition is set.
Condition	Provide reliable information on the spatial extent of interaction and on the timing and location of use of all static fishing under assessment. This includes set nets (SN), creels (POT) and longline including handline (LL) .
Condition Start	PCR
Condition Deadline	Year 1 of reassessment
Milestones	**Milestones**: Year 2: Develop a plan to gather reliable information on the spatial extent of interaction and on the timing and location of use of all static fishing under assessment. Present the plan to the audit team. Score: 75 Year 3: Implement the plan for the UoA fleet to meet the SG80 requirement. Present an implementation update to the audit team. Score: 75 Year 4: Present preliminary information on the spatial extent of interaction and on the timing and location of use of all static fishing under assessment. Score: 75 Year 1 of reassessment: Demonstrate that reliable information on the spatial extent of interaction and on the timing and location of use of all static fishing under assessment is available. Score: 80
Progress on Condition (Year 1)	As per the MSC derogation 6 (here) there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. For the Year 1 audit, updated maps of activity were provided for most fisheries within the client group (Figure 29 - Figure 33), including for the static gears. The exception was for the SFPO pot and set net fisheries, for which no new data were presented. Those fleets for which new data were provided showed spatial distribution of activity that was generally consistent with that as presented for the assessment of the JDF. The exception was the CVO otter trawl fleet (bottom two rows, Figure 29), where activity appears to be distributed slightly further to the north in the recent period in comparison to previous years (Figure 34 in Sieben, Gascoigne et al. 2019), but is nevertheless within the area that is fished extensively by otter trawlers operating in the JDF (e.g., Figure 31 in Sieben, Gascoigne et al. 2019). It is noted that the activity maps provided to the team were for 2017-2019, and it was noted during the site visit that it is possible that some changes in the spatial distribution of activity may have occurred in 2020 due to the Covid pandemic – as well as obtaining better data for the SFPO static gear fisheries, this will be of interest in the upcoming period.
	Year 2 | N/A

	Year 3	N/A
	Year 4	N/A
	Insert Additional Years if relevant	N/A
Progress Status	As per the MSC derogation 6 there is no milestone for this Year 1 audit and therefore the first milestone is in Year 2. This condition is currently on target.	
Remedial Action	N/A	
Additional information	N/A	

3.4.3 New Conditions

3.4.3.1 NS cod

Table 73. Condition NS cod – 1 Condition numbers DFPO 81-92, SFPO 54-60, CVO – 50-52, EZG 18-21.

UoAs	DFPO - 4-TR1, 4-TR PRAWN, 4-BT1, 4-SDN, 4-SN, 4-LL 3aN-TR, 3aN-TR PRAWN, 3aN-BT1, 3aN-SDN, 3aN-SN, 3aN-LL SFPO - 4-TR1, 4-SDN, 3aN-T, 3aN-TR PRAWN, 3aN-SDN, 3aN-SN, 3aS-TR CVO – 4-SN, 4-TR2, 3aN-TR EZG 4-TR1, 4-SN, 3aN-TR, 3aN-SN
Performance Indicator	2.1.1
Score	60
Justification	In recent years (since 2017), assessments of this stock have resulted in a downscaling of SSB and an upward revision of F. This is caused by lower catch rates of older fish in the IBTS surveys compared to the commercial catches. The reason for this discrepancy is not fully understood and might include a number of possible ecological and anthropogenic drivers (ICES_COD 2020a). The stock was previously thought to have been on a recovery trajectory (which indeed it was, from ~2006-2015) and biomass increased briefly above Blim. Previous ICES assessments gave a more optimistic picture of the stock, with biomass estimated to have been close to Btrigger. For this reason, the Cod Recovery Plan was replaced by a long-term management plan, and some of the main elements (notably restrictions on days at sea) were scrapped in 2017. ICES notes that it is unclear whether this has had any impact on the stock, and if so what (ICES_COD 2019). Figure 4 in ICES_COD (2019) also provides an evaluation of biomass by area within the North Sea, showing that in the southern North Sea, there was never any recovery trend at all, while in the other areas, the trend was strong, but reversed abruptly after 2017. ICES suggest that this pattern may be driven by climate change, biological or fisheries effects, or a mixture, with further work needed to establish the main drivers of these trends. The latest ICES assessment for North Sea cod (ICES_COD 2020a) estimates that the upper bound of the 95% CI for SSB (79,522 t) is now well below Blim (107,000 t). There is therefore a high degree of certainty that this stock is below the point of recruitment impairment. The first part of SG60 and S80 is not met. Figure 14. Cod in Subarea 4, Division 7.d, and Subdivision 20. Top: State of the stock and the fishery relative to reference points. Bottom: Summary of the stock assessment. Catches are assessment estimates. Only positive unaccounted removals are plotted. Shaded areas (F, SSB) and error bars (R) indicate 95% confidence intervals. Landings below minimum conservation reference size as officially reported. From ICES (2020). For the second statement of SG60 to be met, the UoA must have measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding. Although this stock is included in the EU multiannual plan (MAP) for demersal stocks in the North Sea EU (2018), this plan has not been adopted by Norway and ICES advice continues to be based on the MSY approach, with the MAP FMSY lower and upper ranges included as a catch option (ICES_COD 2020b). This stock is therefore managed through a combination of monitoring and reference points-based stock assessment which forms the

	basis for the ICES advice based on the MSY approach. The latter is then used as a basis for TAC setting through previously bilateral (EU-Norway) and now trilateral (EU-Norway-UK) negotiations. At the UoA level, it can be argued that even if the total catch of a species is clearly hindering recovery, UoA catches of less than 30% of the total catch of a species may not normally be influential in hindering a recovery in a marginal sense, i.e., nothing the UoA does would be likely to change the situation (GSA3.4.6). In this sense, the team considered the average 2017-19 UoA landings below, as extracted from the UoA data tables in Appendix 5.3.3.1, none of which made up more than 30% of the 2019 landings estimated by ICES (28,558t - ICES_COD (2020a)) – the highest landings correspond to the DFPO 4-TR1 fleet which made up ca. 17% of total cod landings (with a 3.5% discard rate based on observer data). It can therefore be concluded that each UoA has measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding (i.e. the measure in place is the UoA's low contribution to overall catch). Therefore SG60 is met. Average 2017-19 cod 3aN,4,7d landings (in tonnes) per UoA (where the stock is main): • DFPO 3aN-SN: 759.56 • DFPO 4-SN: 890.67 • DFPO 3aN-BT: 1.77 • DFPO 4-BT1: 10.28 • DFPO 3aN-LL: 14.65 • DFPO 3aN-SDN: 421.79 • DFPO 4-SDN: 187.47 • DFPO 3aN-TR: 2,726.33 • DFPO 4-TR1: 4,626.69 • DFPO 3aN-TR PRAWN: 186.26 • DFPO 4-TR PRAWN: 7.94 • EZG 3aN-SN: 12.86 • EZG 3aN-TR: 35.23 • EZG 4-SN: 52.44 • EZG 4-TR1: 872.97 • CVO 3aN-TR: 23.48 • CVO 4-TR2: 341.37 • CVO 4-SN: 0.38 • SFPO 3aN-SN: 65.46 • SFPO 3aN-TR PRAWN: 212.78 • SFPO 3aN-TR: 397.29 • SFPO 4-TR1: 292.97 • SFPO 3aN-SDN: 19.11

	• SFPO 4-SDN: 33.63 With respect to SG80, there should be either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs, which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding. Based on the 2017-19 average landings data, the UoAs included in the JDF alone collectively account for more than 40% of the total catch. Without taking into account any other fisheries in the MSC programme that have this species as main, it is clear that GSA3.4.6 does not apply. The TACs for the last two years (2019, 2020) have been set in excess of the ICES advised catch (see Table 4a, b and c in ICES (2020)). Furthermore, for 2019, the ICES estimated catch (landing + discards) was 35,685 t, well above the recommended catch of less than 28,204 t. ICES further reports that the below minimum size (BMS) landings of cod reported to ICES are currently negligible, and are much lower than the estimates of catches below the minimum conservation reference size (MCRS) estimated by observer programmes. This suggests that there may still be a degree of unreported discarding of this species, despite the fact that all cod must be landed as per the EU Landing Obligation. In the absence of clear evidence of recovery of this stock, or a demonstrably effective strategy between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding, it cannot be concluded that SG80 is met.
Condition	By Year 1 of reassessment it should be demonstrated that NS cod is highly likely above the PRI or that there is evidence that the stock is recovering to a level above the PRI. Where this cannot be demonstrated, there should be a demonstrably effective strategy in place between all MSC UoAs that categorize this species as main, to ensure that they collectively do not hinder recovery and rebuilding.
Condition Start	Year 1 Surveillance
Condition Deadline	Year 1 reassessment. FCP2.2 - 7.18.1.6 exceptional circumstances applies and 5 years from this Year 1 audit takes the condition into the next certificate period. The current certificate ends 30-04-2025 but the last audit of the fishery in the current certification will be ~ 30-04-2024 (Year 4 surveillance) <4 years from this report. Stock rebuilding for spawning stock (a measure of SG80) is unlikely to take place within the current certification period (year 4 surveillance) and be evident in ICES stock advice based on the biology of the species even with perfect implementation. Further, the final TACs each year (the effective strategy) will likely be agreed within annual meetings between EU-NOR-UK but the development of well-defined HCR agreements required for the Harvest Strategy objectives are likely to occur after the end of the current certificate cycle and at the end of the UK transition period (2025). For these reasons there is justification on the condition deadline in the next certification period.
Milestones	Milestones: Year 2: Demonstrate that work has begun to ensure that the NS cod can recover to a level above the PRI and/or demonstrated that work has begun to develop an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60 Year 3 and 4: Demonstrate that the work continues to ensure that the NS cod can recover to a level above the PRI and/or demonstrate that the work continues to develop and implement an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60

	Year 1 reassessment: Demonstrate that the NS cod is either highly likely above the PRI or is recovering to a level above the PRI, or demonstrate that there is an effective strategy in place between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 80
Verification with other entities	See section 0
Carry over condition	No
Remedial Action	N/A

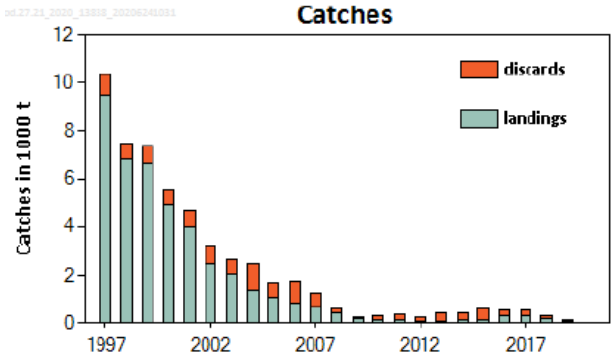
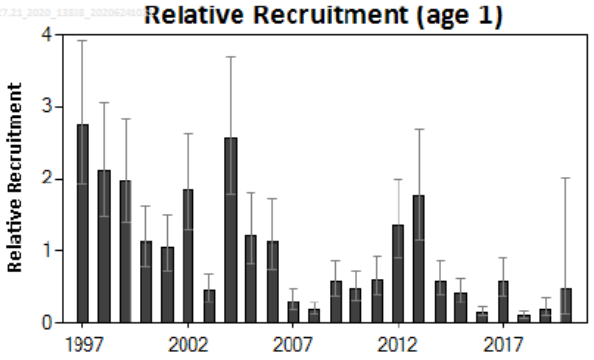
Table 74. Condition NS cod – 2, Condition numbers DFPO 97-108, SFPO 64-69, CVO – 53-55, EZG 22-25.

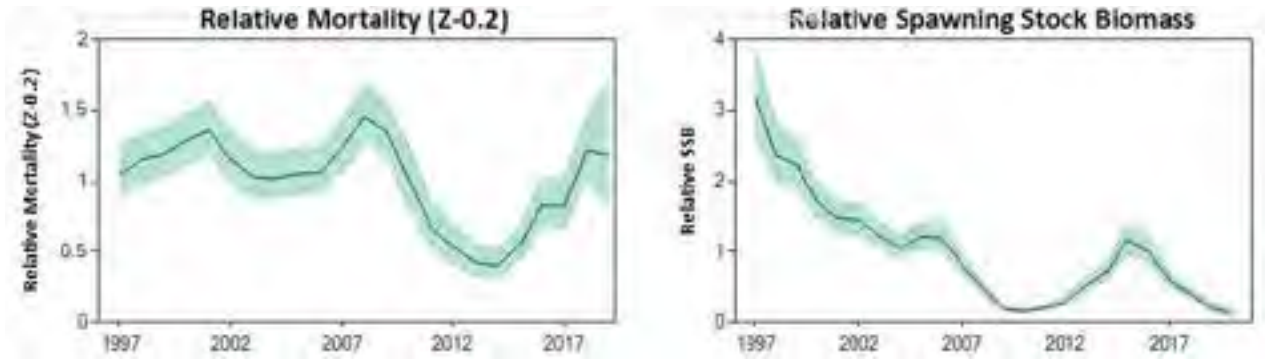
UoAs	DFPO - 4-TR1, 4-TR PRAWN, 4-BT1, 4-SDN, 4-SN, 4-LL 3aN-TR, 3aN-TR PRAWN, 3aN-BT1, 3aN-SDN, 3aN-SN, 3aN-LL SFPO - 4-TR1, 4-SDN, 3aN-T, 3aN-TR PRAWN, 3aN-SDN, 3aN-SN, 3aS-TR CVO – 4-SN, 4-TR2, 3aN-TR EZG 4-TR1, 4-SN, 3aN-TR, 3aN-SN
Performance Indicator	2.1.2
Score	70
Justification	SIb - Cod 3aN,4,7d: This stock is managed as per the ICES MSY approach (see scoring issue a). The analysis by ICES of different options for a long-term management strategy for North Sea cod, in response to a request by the EU and Norway, provides a basis for thinking that the strategy will work; i.e. it is precautionary in the long term with P(SSB< Blim) = 0.011 over the final 10 years of the projection: "All requested management scenarios are considered precautionary in the long term, but none of them in the short term. ICES advises, however, the use of the existing ICES MSY advice rule with an FMSY of 0.31 and an MSY Btrigger of 150 000 t, with added stability elements if desired. This is because the ICES MSY advice rule was the only management strategy that was precautionary across all robustness tests, with a minimal loss of yield and reduced interannual variation of the catch" (ICES 2019a). SG60 is met. With respect to SG80, the TACs for the last two years (2019, 2020) have been set in excess of the ICES advised catch (see Table 4a, b and c in ICES (2020)). Furthermore, for 2021, ICES advised that total catch and projected landings in 2021 should not be more than 14,755 and 12,632 tonnes, respectively. However, under the 2021 EU-UK-Norway agreement, a 15,911 t TAC was agreed on (EU 2021). ICES further reports that the below minimum size (BMS) landings of cod reported to ICES are currently negligible and are much lower than the estimates of catches below the minimum conservation reference size (MCRS) estimated by observer programmes (ICES_WGNSSK 2020). This suggests that there may still be a degree of unreported discarding of this species, despite the fact that all cod must be landed as per the EU Landing Obligation. Overall, this suggests that the TAC (already above ICES advice) will not account for the additional fishing mortality caused by discarding. SG80 not met.

	SIc - Cod 3aN,4,7d: The TACs for the last two years (2019, 2020) have been set in excess of the ICES advised catch (see Table 4a, b and c in ICES (2020)). Furthermore, for 2021, ICES advised that total catch and projected landings in 2021 should not be more than 14,755 and 12,632 tonnes, respectively. However, under the 2021 EU-UK-Norway agreement, a 15,911 t TAC was agreed on (EU 2021). ICES further reports that the below minimum size (BMS) landings of cod reported to ICES are currently negligible and are much lower than the estimates of catches below the minimum conservation reference size (MCRS) estimated by observer programmes. This suggests that there may still be a degree of unreported discarding of this species, despite the fact that all cod must be landed as per the EU Landing Obligation. Overall, this suggests that evidence that the strategy is being implemented successfully is lacking. SG80 is not met.
Condition	By the 1st reassessment surveillance audit the client should provide objective evidence from the UoAs in the fishery that the partial strategy for NS cod will work and is being implemented successfully.
Condition Start	Year 1 Surveillance
Condition Deadline	Year 1 reassessment. FCP2.2 - 7.18.1.6 exceptional circumstances applies and 5 years from this Year 1 audit takes the condition into the next certificate period. The current certificate ends 30-04-2025 but the last audit of the fishery in the current certification will be ~ 30-04-2024 (Year 4 surveillance) <4 years from this report. Stock rebuilding for spawning stock (a measure of SG80) is unlikely to take place within the current certification period (year 4 surveillance) and be evident in ICES stock advice based on the biology of the species even with perfect implementation. Further, the final TACs each year (the effective strategy) will likely be agreed within annual meetings between EU-NOR-UK but the development of well-defined HCR agreements required for the Harvest Strategy objectives are likely to occur after the end of the current certificate cycle and at the end of the UK transition period (2025). For these reasons there is justification on the condition deadline in the next certification period.
Milestones	Milestones: Year 2: Demonstrate that work has begun to develop an effective partial strategy for NS cod which will allow recovery of the stock and that a plan includes a method for implementation. Score: 60 Year 3 and 4: Demonstrate that the work from Year 2 has begun to be implemented and the partial strategy is beginning to yield information from the fisheries and or the stock. Score: 60 Year 1 reassessment: Demonstrate with objective evidence that the partial strategy for NS cod will work and is being implemented successfully. Score: 80
Verification with other entities	See section 0
Carry over condition	No
Remedial Action	N/A

3.4.3.2 Cod 3aS

Table 75. Condition cod 3aS – 1. Condition numbers DFPO 93-96, SFPO 61-63.

UoAs	DFPO - 3aS-TR, 3aS-TR PRAWN, 3aS-SDN, 3aS-SN SFPO - 3aS-TR PRAWN, 3aS-SN, 3a-POT
Performance Indicator	2.1.1
Score	60
Justification	Spawner biomass remains low by historical standards and has continued to decline since the initial assessment, ICES estimates that 2020 is the historic low. Nevertheless, relative recruitment >1 occurred in 2012-13, when the stock size was at a similar very low relative biomass to that currently in the fishery. In addition recent recruitment is also increasing (2019-2020) from the low point in 2018 indicative that the stock continues to be at least 'likely' above the PRI; SG60 is met. However the assessment team do not consider this evidence to be sufficient to consider that the stock is highly likely above PRI and SG80 is not met.  

	 **Figure 36. Cod in Subdivision 21. Summary of the stock assessment. Catches (weights in thousand tonnes). Recruitment, mortality, and SSB are relative to the average of the time-series; 95% confidence intervals are shown in the plots.**
Condition	It should be demonstrated that NS cod is highly likely above the PRI or that there is evidence that the stock is recovering to a level above the PRI. Where this cannot be demonstrated, there should be a demonstrably effective strategy in place between all MSC UoAs that categorize this species as main, to ensure that they collectively do not hinder recovery and rebuilding.
Condition Start	Year 1 Surveillance
Condition Deadline	Year 4 Surveillance
Milestones	Milestones: Year 2: Demonstrate that work has begun to ensure that the NS cod can recover to a level above the PRI and/or demonstrated that work has begun to develop an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60. Year 3: Demonstrate that the work continues to ensure that the NS cod can recover to a level above the PRI and/or demonstrate that the work continues to develop and implement an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60. Year 4: Demonstrate that the NS cod is either highly likely above the PRI or is recovering to a level above the PRI, or demonstrate that there is an effective strategy in place between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 80
Verification with other entities	See section 0

Carry over condition	No
Remedial Action	N/A

Table 76. Condition cod 3aS – 2. Condition numbers DFPO 109-112, SFPO 71-73.

UoAs	DFPO - 3aS-TR, 3aS-TR PRAWN, 3aS-SDN, 3aS-SN SFPO - 3aS-TR PRAWN, 3aS-SN, 3a-POT
Performance Indicator	2.1.2
Score	75
Justification	SIb - Cod is mainly taken as bycatch in the *Nephrops* fishery, with mortality of the stock strongly correlated with the uptake of the *Nephrops* quota and the effort directed to the *Nephrops* fishery, which according to ICES_WGBFAS (2020) has increased substantially in the last years. In addition, the ICES working group states that the removal of the effort system has led to a reduction in the uptake of selective gears in the *Nephrops* fishery which itself has increased the mortality of Kattegat cod. Furthermore, while overall landings + discards have decreased since 2017 (see Figure 17 under scoring issue c), the stock is at a historical low point (see 2.1.1), the TAC is set in excess of ICES advice and the practice of discarding in the Danish and Swedish fleets appears to be continuing according to the ICES working group. Although the general downward trend in catches and the considerable effort currently being undertaken on gear selectivity and CCTV via the projects discussed in SIa provides plausible argument that the partial strategy will work, the team felt that an objective basis for confidence is lacking at present. SG60 is met but not SG80.
Condition	By the 4th Surveillance audit the client should provide objective evidence from the UoAs in the fishery that the partial strategy for NS cod will work and is being implemented successfully.
Condition Start	Year 1 Surveillance
Condition Deadline	Year 4 Surveillance
Milestones	Milestones: Year 2: Demonstrate that work has begun to develop an effective partial strategy for NS cod which will allow recovery of the stock and that a plan includes a method for implementation. Score: 60

	Year 3: Demonstrate that the work from Year 2 has begun to be implemented and the partial strategy is beginning to yield information from the fisheries and or the stock. Score: 60 Year 4: Demonstrate with objective evidence that the partial strategy for NS cod will work and is being implemented successfully Score: 80
Verification with other entities	See section 0
Carry over condition	No
Remedial Action	N/A

3.5 Client action plan

Condition	Action plan	PI
NS cod 1	Year 2: The Client will work with other MSC UoAs and within relevant international fora (NSAC, EU-UK-Norway negotiations) to influence the TAC setting toward a level that allows the NS cod to recover to a level above PRI and/or begin work with other MSC UoAs to develop a communal strategy not to hinder recovery of the stock. Year 3 and 4: The Client will continue to work with other MSC UoAs and within relevant international fora (NSAC, EU-UK-Norway negotiations) to influence the TAC setting toward a level that allows the NS cod to recover to a level above PRI and/or continue the work with other MSC UoAs to develop and implement a communal strategy not to hinder recovery of the stock. Year 1 reassessment: The TAC is set at a level that is highly likely above the PRI or is recovering to a level above PRI and/or the Client and other MSC UoAs will demonstrate that they do not hinder recovery of the stock.	2.1.1
NS cod 2	After Brexit, the TAC setting for this stock is subject to tri-lateral agreement between EU, Norway and the UK. The TAC setting is, however, still advised by ICES following the MSY approach, and work is underway to agree management strategies for the shared stocks, including cod. Year 2: The clients will provide evidence of continued engagement with management and other relevant parties to promote the adoption of the CFP objectives. This should ensure appropriate TAC setting that will keep the stock fluctuating around a target level consistent with (or above) MSY. Additionally, the clients will continue to act through relevant forums such as the NSAC to ensure that management of the stock is appropriate throughout, this include developing a tri-lateral management strategy and where appropriate possible further national management measures. Year 3 and 4: The clients will provide evidence of continued engagement with management and other relevant parties to promote the adoption of the CFP objectives. This should ensure appropriate TAC setting that will keep the stock fluctuating around a target level consistent with (or above) MSY. Additionally, the clients will continue to act through relevant forums such as the NSAC to ensure that management of the stock is appropriate throughout, this includes implementation of a tri-lateral management strategy and where appropriate possible further national management measures. Year 1 reassessment: The clients will provide evidence that a tri-lateral management strategy has been implemented and that appropriate TACs have been set that will keep the stock fluctuating around a target level consistent with (or above) MSY.	2.1.2
3aS cod 1	Year 2: The Client will work with other MSC UoAs and within relevant international fora (NSAC, EU-Norway negotiations) to influence the TAC setting toward a level that allows the 3AS cod to recover to a level above PRI and/or begin work with other MSC UoAs to develop a joint strategy not to hinder recovery of the stock.	2.1.1

Condition	Action plan	PI
	Year 3: The Client will continue to work with other MSC UoAs and within relevant international fora (NSAC, EU-Norway negotiations) to influence the TAC setting toward a level that allows the 3AS cod to recover to a level above PRI and/or continue the work with other MSC UoAs to develop and implement a communal strategy not to hinder recovery of the stock. Year 4: The TAC is set at a level that is highly likely above the PRI or is recovering to a level above PRI and/or the Client and other MSC UoAs will demonstrate that they do not hinder recovery of the stock.	
3aS cod 2	Year 2: The clients will provide evidence of continued engagement with management and other relevant parties to promote the adoption of the CFP objectives. This should ensure appropriate TAC setting that will keep the stock fluctuating around a target level consistent with (or above) MSY. Additionally, the clients will continue to act through relevant forums such as the NSAC to ensure that management of the stock is appropriate throughout, this include developing a strategy and/or where appropriate possible further national management measures. Year 3: The clients will provide evidence of continued engagement with management and other relevant parties to promote the adoption of the CFP objectives. This should ensure appropriate TAC setting that will keep the stock fluctuating around a target level consistent with (or above) MSY. Additionally, the clients will continue to act through relevant forums such as the NSAC to ensure that management of the stock is appropriate throughout, this includes implementation of a management strategy and/or where appropriate possible further national management measures. Year 4: The clients will provide evidence that a management strategy has been implemented and that appropriate TACs have been set that will keep the stock fluctuating around a target level consistent with (or above) MSY.	2.1.2

3.5.1 Consultation on conditions

A number of the conditions require client consultation with management entities through existing national working groups which therefore do not require changes in management/reserach. Further there is evidence of the existence of support for this fishery from management organizations in the existing conditions which were provided in the PCR for this fishery. These include generic acknowledgments of support and willingness to assist the fishery with documentation of catches/discards and guidance / development of management measures under their roles. These consultations continue for the new conditions and the clients will consult with scientists at national research institutes and within the wider ICES community and will continue to work with the relevant national authorities to fulfill the conditions. The client action plans in some cases require lobbying and the clients note that they will continue to implement these through relevant forums such as the NSAC, where the clients are important industry representatives, as well as OIGs. Furthermore, the clients will work with the Specialised Fisheries Committee that the UK and the EU has established as part of the Trade and Cooperation Agreement, where they will contribute to continuing sustainable fisheries management in line with the EU MAPs.

Though the UK has left the EU, this does not change the approach to manage European fisheries sustainability, and the principles and objectives of management of stocks of common interest to the Union and third countries are clearly stated in the European MAPs – both for the North Sea (article 14 https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32018R0973) and Western Waters (article 15 EUR-Lex - 32019R0472 - EN - EUR-Lex (europa.eu)). Evidence that the UK has committed to this is through the ICES MoU (UK 2021), TCA and the bilateral/trilateral agreements. Further to this, the clients have supplied the ExCom report from the 27th of May 2021, where the EU Commission participated, and Brexit implications was discussed, thus showing that this management arrangement is in train. The client also supplied an agenda for a meeting with Danish national authorities on cod management and the Swedish client provided links to the SWE cod plan - https://www.havochvatten.se/fiske-och-handel/regler-och-lagar/arter-regler-for-fiske-och-rapportering/torsk---regler-for-yrkesfiskare.html . Additionally, the client made the CAB aware that meetings with both UK and Norwegian fishery organizations to specifically address cod management are planned.

The above provides evidence that supports the close cooperation between client and the managers of the fishery and confirms that no change in: i. Investment of time or money by these entities. ii. Changes to management arrangements or regulations. Or iii. Re-arrangement of research priorities by these entities is required by these entities for the conditions to be met (7.19.8).

4 References

BirdLife_International, 2021. *Species factsheet: Uria aalge. Downloaded from http://www.birdlife.org on 28/05/2021.*,

Blanchet, M.-A. et al., 2021. Harbour Seals: Population Structure, Status, and Threats in a Rapidly Changing Environment. In *Oceans*. Multidisciplinary Digital Publishing Institute, pp. 41–63.

Catchpole, T. et al., 2017. *Ray Discard Survival: Enhancing evidence of the discard survival of ray species*, Cefas.

DK_national_cod_plan, 2020. *En national torskeplan for Nordsøen og Skagerrak 2020, træder i kraft 15. august 2020.*,

EC, 2021. *Council Regulation (EU) 2021/92 fixing for 2021 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters*, European Council. Available at: https://www.europeansources.info/record/proposal-for-a-council-regulation-fixing-for-2021-the-fishing-opportunities-for-certain-fish-stocks-and-groups-of-fish-stocks-applicable-in-union-waters-and-for-union-fishing-vessels-in-certain-non/.

Enever et al., 2009. The survival of skates (Rajidae) caught by demersal trawlers fishing in UK waters. *Fisheries Research*, 97, pp.72–76.

EU, 2019. *Commission Delegated Regulation (EU) 2019/2238 of 1 October 2019 specifying details of implementation of the landing obligation for certain demersal fisheries in the North Sea for the period 2020-2021.*,

EU, 2021. *COUNCIL REGULATION (EU) 2021/92 of 28 January 2021 fixing for 2021 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters*,

EU, 2018. Regulation (EU) 2018/973 of the European Parliament and of the Council of 4 July 2018 establishing a multiannual plan for demersal stocks in the North Sea and the fisheries exploiting those stocks, specifying details of the implementation of the landing obligation in the North Sea and repealing Council Regulations (EC) No 676/2007 and (EC) No 1342/2008. *EU*.

Feekings, J., Malta, T., et al., 2020. *Testing a large opening as an alternative to the SELTRA 300 panel and the addition of a flip flap net grid to reduce bycatch in the Danish Norway lobster fisher. Cruise report from Havfisken, September 2020. DTU Aqua Report no. 380-2020. National Institute of Aquatic Resources. Technical University of Denmark. 19 pp.*,

Feekings, J., Melli, V., et al., 2020. *Testing the placement of a SELTRA 300 panel and scaring floats to reduce bycatch in the Danish Norway lobster fishery. Cruise report from Havfisken, June 2020. DTU Aqua Report no. 379-2020. National Institute of Aquatic Resources. Technical University of Den-mark. 13 pp.*,

Feekings, J.P. et al., 2019. *FAST TRACK—Sustainable, cost effective and responsive gearsolutions under the landing obligation. DTU Aqua Report no. 342-2019. NationalInstitute of Aquatic Resources, Technical University of Denmark. 18 pp. + annexes.*,

Hansen et al., 2016. Population ecology of the sea lamprey (Petromyzon marinus) as an invasive species in the Laurentian Great Lakes and an imperiled species in Europe. *Reviews in Fish Biology and Fisheries*, 26, pp.509–535.

HELCOM, 2013. Red List of Baltic Sea underwater biotopes, habitats and biotope complexes. *Baltic Sea Environment Proceedings No. 138. Helsinki Commission, Finland. 69 pp. Available online: http://www.helcom.fi/Lists/Publications/BSEP138.pdf*.

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

ICES, 2020. *Cod (Gadus morhua) in Subarea 4, Division 7.d, and Subdivision 20 (North Sea, eastern English Channel, Skagerrak). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, cod.27.47d20. https://doi.org/10.17895/ices.advice.5891.*,

ICES, 2015. *Common skate (Dipturus batis-complex) in Subarea IV and Division IIIa (North Sea, Skagerrak, and Kattegat)*, ICES Advice on fishing opportunities, catch, and effort Greater North Sea and Celtic Seas ecoregions. 9 October 2015. Available at: http://ices.dk/sites/pub/Publication%20Reports/Advice/2015/2015/rjb-34.pdf.

ICES, 2019a. *EU and Norway request concerning the long-term management strategy of cod,saithe, and whiting, and of North Sea autumn-spawning herring. In Report of the ICES Advisory Committee, 2019. ICESAdvice 2019, sr.2019.06, https://doi.org/10.17895/ices.advice.4895*,

ICES, 2016b. *Greater North Sea Ecoregion – Ecosystem overview. ICES Ecosystem Overviews Greater North Sea Ecoregion*, , ICES Advice 2016, Book 6.

ICES, 2019b. *Guidelines for the VMSdatacall_proposedWorkflow.r*, ICES - February 2019. 24 pp. Available at: https://doi.org/10.17895/ices.pub.4705.

ICES, 2019c. *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_ANG, 2020. *Anglerfish (Lophius budegassa, Lophius piscatorius) in subareas 4 and 6, and in Division 3.a (North Sea, Rockall and West of Scotland, Skagerrak and Kattegat). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, anf.27.3a46. https://doi.org/10.17895/ices.advice.5926.*,

ICES_BAS, 2020. *Sea bass (Dicentrarchus labrax) in divisions 4.b–c, 7.a, and 7.d–h (central and southern North Sea, Irish Sea, English Channel, Bristol Channel, and Celtic Sea. In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, bss.27.4bc7ad-h. https://doi.org/10.17895/ices.advice.5916.*,

ICES_BRI, 2020. *Brill (Scophthalmus rhombus) in Subarea 4 and divisions 3.a and 7.d–e (North Sea,Skagerrak and Kattegat, English Channel). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020,bll.27.3a47de. https://doi.org/10.17895/ices.advice.5832.*,

ICES_COD, 2019. *Cod (Gadus morhua) in Subarea 4, Division 7.d, and Subdivision 20 (North Sea, eastern English Channel, Skagerrak). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, cod.27.47d20, https://doi.org/10.17895/ices.advice.5640*,

ICES_COD, 2020a. *Cod (Gadus morhua) in Subarea 4, Division 7.d, and Subdivision 20 (North Sea, eastern English Channel, Skagerrak). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, cod.27.47d20. https://doi.org/10.17895/ices.advice.5891.*,

ICES_COD, 2020b. *Cod (Gadus morhua) in Subdivision 21 (Kattegat). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, cod.27.21. https://doi.org/10.17895/ices.advice.5903.*,

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

ICES_COM, 2020. *Common skate complex (blue skate [Dipturus batis] and flapper skate [Dipturusintermedius]) in Subarea 6 and divisions 7.a–c and 7.e–k (Celtic Seas and western English Channel). In Report of theICES Advisory Committee, 2020. ICES Advice 2020, rjb.27.67a-ce-k. https://doi.org/10.17895/ices.advice.5784.*,

ICES_DAB, 2019. *Dab (Limanda limanda) in Subarea 4 and Division 3.a (North Sea, Skagerrak andKattegat). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, dab.27.3a4, https://doi.org/10.17895/ices.advice.5641.*,

ICES_FLO, 2019. *Flounder (Platichthys flesus) in Subarea 4 and Division 3.a (North Sea, Skagerrak and Kattegat). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, fle.27.3a4, 10 pp. https://doi.org/10.17895/ices.advice.4860*,

ICES_GRE, 2020. *Grey gurnard (Eutrigla gurnardus) in Subarea 4 and divisions 7.d and 3.a (NorthSea, eastern English Channel, Skagerrak and Kattegat). In Report of the ICES Advisory Committee, 2020. ICES Advice2020, gug.27.3a47d. https://doi.org/10.17895/ices.advice.5822.*,

ICES_HER, 2020a. *Herring (Clupea harengus) in Subarea 4 and divisions 3.a and 7.d, autumn spawners (North Sea, Skagerrak and Kattegat, eastern English Channel). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, her.27.3a47d, https://doi.org/10.17895/ices.advice.6026.*,

ICES_HER, 2020b. *Herring (Clupea harengus) in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian spring-spawning herring (the Northeast Atlantic and the Arctic Ocean). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, her.27.1-24a514a. https://doi.org/10.17895/ices.advice.5876.*,

ICES_HER, 2020c. *Herring (Clupea harengus) in subdivisions 20–24, spring spawners (Skagerrak, Kattegat, and western Baltic). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, her.27.20-24, https://doi.org/10.17895/ices.advice.5928.*,

ICES_HOR, 2020. *Horse mackerel (Trachurus trachurus) in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k (the Northeast Atlantic). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020,hom.27.2a4a5b6a7a-ce-k8. https://doi.org/10.17895/ices.advice.5908.*,

ICES_NEP, 2020a. *Norway lobster (Nephrops norvegicus) in Division 4.b, Functional Unit 33 (central North Sea, Horn's Reef. In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, nep.fu.33. https://doi.org/10.17895/ices.advice.5803.*,

ICES_NEP, 2020b. *Norway lobster (Nephrops norvegicus) in divisions 4.b and 4.c, Functional Unit 5 (central and southern North Sea, Botney Cut-Silver Pit). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, nep.fu.5. https://doi.org/10.17895/ices.advice.5804.*,

ICES_NOP, 2020. *Norway pout (Trisopterus esmarkii) in Subarea 4 and Division 3.a (North Sea, Skagerrak, and Kattegat). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, nop.27.3a4. https://doi.org/10.17895/ices.advice.5885.*,

ICES_POR, 2019. *Porbeagle (Lamna nasus) in subareas 1–10, 12, and 14 (the Northeast Atlantic and adjacent waters). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, por.27.nea,https://doi.org/10.17895/ices.advice.4831.*,

ICES_SPU, 2020. *Spurdog (Squalus acanthias) in subareas 1–10, 12, and 14 (the Northeast Atlanticand adjacent waters). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, dgs.27.nea.https://doi.org/10.17895/ices.advice.5820.*,

ICES_STA, 2019. *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_TUR, 2020a. *ICES. 2020. Turbot (Scophthalmus maximus) in Subarea 4 (North Sea). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, tur.27.4. https://doi.org/10.17895/ices.advice.5914.*,

ICES_TUR, 2020b. *Whiting (Merlangius merlangus) in Division 3.a (Skagerrak and Kattegat). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, whg.27.3a. https://doi.org/10.17895/ices.advice.6103.*,

ICES_WGBFAS, 2020. *Baltic Fisheries Assessment Working Group (WGBFAS).ICES Scientific Reports. 2:45. 643 pp. http://doi.org/10.17895/ices.pub.6024.*,

ICES_WGBYC, 2020. *Working Group on Bycatch of Protected Species (WGBYC).ICES Scientific Reports. 2:81. 209 pp. http://doi.org/10.17895/ices.pub.7471*,

ICES_WGCSE, 2020. *Working Group for the Celtic Seas Ecoregion (WGCSE).ICES Scientific Reports. 2:40. 1461 pp. http://doi.org/10.17895/ices.pub.5978.*,

ICES_WGEF, 2020. *Working Group on Elasmobranch Fishes (WGEF).ICES Scientific Reports. 2:77. 789 pp. http://doi.org/10.17895/ices.pub.7470*,

ICES_WGNSSK, 2020. *ICES Working Group on the Assessments of Demersal Stocks in the North Sea and Skagerrak(WGNSSK).ICES Scientific Reports. 2:61. 1353 pp. http://doi.org/10.17895/ices.pub.6092*,

ICES_WGWIDE, 2020. *Working Group on Widely Distributed Stocks (WGWIDE). ICES Scientific Reports. 2:82. 1019 pp. http://doi.org/10.17895/ices.pub.7475*,

ICES_WHI, 2020. *Whiting (Merlangius merlangus) in Division 3.a (Skagerrak and Kattegat). In Reportof the ICES Advisory Committee, 2020. ICES Advice 2020, whg.27.3a. https://doi.org/10.17895/ices.advice.6103.*,

ICES_WIT, 2020. *Witch (Glyptocephalus cynoglossus) in Subarea 4 and divisions 3.a and 7.d (North Sea, Skagerrak and Kattegat, eastern English Channel). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, wit.27.3a47d. https://doi.org/10.17895/ices.advice.5936.*,

Kennelly, S.J. et al., 2019. A third assessment of global marine fisheries discards. In M. A. Pérez Roda, ed. *FAO Fisheries and Aquaculture Technical Paper No. 633*.

Macfadyen, G., Huntington, T. & Cappel, R., 2009. *Abandoned, lost or otherwise discarded fishing gear. UNEP Regional Seas Reports and Studies No. 185. FAO Fisheries and Aquaculture Technical Paper No. 523.*, UNEP/FAO. Available at: www.fao.org/docrep/011/i0620e/i0620e00.htm.

Maitland, P.S., 2003. *Ecology of the River, Brook and Sea Lamprey. Conserving Natura 2000 Rivers Ecology Series No. 5.*, English Nature, Peterborough.

MMO, 2020. *UK National North Sea Cod Avoidance Plan*, Marine Management Organisation.

Morgan, L., 2021. *Ecological risk assessment and evaluation of discards for the effects of Swedish fisheries on local marine invertebrates*. Department of Marine Sciences, University of Gothenburg.

NL, 2019. *The Netherlands - Work Plan for data collection in the fisheries and aquaculture sectors 2020-2021. Version 1*, Ministry of Agriculture, Nature and Food Quality of The Netherlands - Wageningen Marine Research - Wageningen Economic Research.

NSAC, 2021. *NSAC/NWWAC Response to Scheveningen Group on best practice measures for the management of skates and rays in the North Western Waters and the North Sea. NSAC Advice Ref. 12-2021. https://www.nsrac.org/wp-content/uploads/2021/04/12-2021-NSAC_NWWAC-Advice-to-Scheveningen-Group-on-Skates-and-Rays_2021-1.pdf*,

OSPAR, 2010a. *Background Document for Common skate, Dipturus batis*, OSPAR Biodiversity Series, 19pp. Available at: www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats.

OSPAR, 2010b. *Background Document for Spurdog or Spiny dogfish, Squalus acanthias*, OSPAR Commission, Biodiversity Series.

Quirijns, E. F. Couperus B. van Helmond, 2011. *Discards monitoring in the Gillnet Sole Fishery, 12pp.*, IMARES.

Quirijns, F., 2012. *Discards monitoring in the Gillnet Sole Fishery, 6pp.*, IMARES.

Rulifson, R.A., 2007. Spiny Dogfish Mortality Induced by Gill-Net and Trawl Capture and Tag and Release. *North American Journal of Fisheries Management*, 27(1), pp.279–285.

Sieben, C., Gascoigne, J., et al., 2019. *Joint demersal fisheries in the North Sea and adjacent waters MSC Final Report - Principle 2*, Control Union Pesca. Available at: https://fisheries.msc.org/en/fisheries/joint-demersal-fisheries-in-the-north-sea-and-adjacent-waters/@@view.

Sieben, C., Seip, C., et al., 2019. *Marine Stewardship Council (MSC) Public Certification Report Joint demersal fisheries in the North Sea and adjacent waters*, ,Control Union Pesca UK.

SLU, 2020. *Fisk- och skaldjursbeståndi hav och sötvatten 2020*, Swedish University of Agricultural Sciences. Available at: https://www.slu.se/globalassets/ew/org/inst/aqua/externwebb/sidan-publikationer/resursoversikten/resursoversikt-2020-2021-02-15.pdf.

STECF, 2020. *65thPlenary Report (PLEN-20-03), Ulrich, C. and Doerner, H. editor(s), EUR 28359 EN, Publications Officeof the European Union, Luxembourg, 2020, ISBN 978-92-76-27162-8 (online), doi:10.2760/148684(online), JRC122989.*,

STECF, 2017. *Expert Working Group on long-term management of skates and rays (EWG-17-10) (In review)*, Scientific, Technical and Economic Committee for Fisheries, Brussels, Belgium, 16-20 October 2017.

STECF, 2019. *Scientific, Technical and Economic Committee for Fisheries (STECF) – 61st PlenaryMeeting Report (PLEN-19-02). Publications Office of the European Union, Luxembourg, 2019, ISBN978-92-76-09515-6, doi:10.2760/31279, JRC117461*,

Steins, N. et al., 2018. *Research into chances of survival offlatfish and rays: what are the chancesof survival in pulse fishing?*, Wageningen Marine Research.

TCA, 2021. *Trade and Cooperation Agreement between the European Union and the European Atomic Energy Community, of the one part, and the United Kingdom of Great Britain and Northern Ireland, of the other part.*,

TI, 2019. *German Work Plan for data collection in the fisheries and aquaculture sectors 2020-2021. Version 1.1 – 06 Nov 2019*, Johann Heinrich von Thünen Institute (TI).

van_Overzee, H., Bleeker, K. & Dammers, M., 2021. *Discard self-sampling of the Dutch bottom-trawlfisheries in 2019*, Stichting Wageningen Research Centre for Fisheries Research (CVO).

van_Overzee, H., Dammers, M. & Bleeker, K., 2019. *Discard self-sampling of Dutch bottom-trawl fisheries in 2017-2018*, Stichting Wageningen Research, Centre for Fisheries Research (CVO).

van_Overzee, H.M.J. et al., 2019. *Starry ray in the ottertrawl andflyshoot fishery. Wageningen, Wageningen Marine Research (University & Research centre),Wageningen Marine Research report. 38 pp*,

WDC, 2017. Species guide: Harbour Porpoise. Available at: http://uk.whales.org/species-guide/harbour-porpoise.

5 Appendix

5.1 Development of ETP registration app

Development of ETP registration app

This project summary was drafted in March 2021 for the information of the audit team at the first annual surveillance audit for the MSC certificate "Joint Demersal Fisheries in the North Sea and Adjacent Waters".

Outline

The four fishery organisations that together undertook the MSC assessment for the "Joint Demersal Fisheries in the North Sea and Adjacent Waters" are jointly developing a smartphone application (app) for the registration of ETP species. A project proposal was submitted to the MSC Ocean Stewardship Fund and subsequently granted. Development of the app has started in 2020.

In our experience, reliable and sustained registration of ETP species is challenging and requires constant attention. Issues threatening to detract from a comprehensive registration of ETP encounters include the workload imposed on crews, the potential for misidentification of species, lists getting lost on board or being rendered illegible due to sea state during data entry or due to water damage, and the general lack of a user-friendly system facilitating effective registration at sea. The project aims to overcome these obstacles by developing a user-friendly smartphone app.

The development of an app focused on ETP species registration has not been realised under previous MSC certificates due to the prohibitive development costs. Costs associated with MSC certification are already perceived as high by the participating vessel owners, with the result that the cheapest solutions have previously had to be implemented (i.e. paper or spreadsheet data entry with manual transmission and collation).

The app would be directly useful to other MSC-certified fisheries in the area, and could be adapted relatively easily to other areas by updating the species list and the language, if necessary.

The app will also provide location tracking, allowing vessels that do not have VMS equipment to provide evidence of where fishing activity takes place. This information is useful to show avoidance of closed areas, or to determine impacts – or absence thereof – on VMEs.

The implementation of an app for ETP species registration will represent a step change in the quality and quantity of data on ETP species encounters collected by MSC certified fisheries. The JDF partner organisations aim to compile annual joint reports on ETP species encounters based on the data collected, which is likely to provide unprecendented insight into where, when, and under what circumstances encounters occur.

Main features

The original list of main specifications included:

1) An App running on Android and iOS.
2) Location tracking/logging at configurable intervals.
3) User-friendly registration of ETP-species encounters. The metadata entered includes species, date/time (auto filled), GPS position and speed (auto filled), weight, number, length, sex, is alive, comments.
4) Option to display information on all species from the list, including figures/images.
5) Optional upload of photos during a trip.
6) Automatic transfer of data to land-based server.
7) Data privacy is of high priority. App requires mandatory privacy policy to be read and accepted by Fisher, before any data is logged.
8) The App must be multilingual - Fishers from different countries should be able to use the App in their native language.

9) A new App user must be approved by the PO, before they can start a trip for a particular vessel.

Over time, additional features have been included in the design. This process will continue during testing and modification of the app until the final version which should be able to perform registration of ETP species interactions in a user-friendly way and provide the resulting data effectively to the scheme managers.

App development

The development work is based on extending a previously existing app by adding functionalities, so that the development costs are significantly reduced compared to a fully original app with the listed features.

Anchor Lab has created an app, Mofi[1], for Android and iOS that includes the features described in point 1), 2), 50% of 5), 6), 7), and 8) of the features list. The app has been created in a versatile manner, allowing different schemes to be configured for different countries. The schemes define what functionality should be present in the user interface (UI) during a fishing trip and where trip-data should be sent to. Each scheme has their own privacy policy, which must be accepted by the Fisher (once), before a fishing trip can be started. A scheme is defined and modified on land by Anchor Lab, and therefore does not require any app releases, when changes are needed or wanted (in the case of this project when for example a new species is added or if the logging interval needs changed, etc).

Mofi is fully integrated with Anchor Labs server software and Black Box Analyzer client, which means very little development work is needed on the land side for this project. The data is ultimately placed in a database, which can be located anywhere wanted as long as Anchor Labs server software can be installed there as well. The database can be queried by any person who has sufficient rights to do so. In addition, when a license for the Black Box Analyzer software is purchased (or already available in the given country), the data can be accessed and displayed in a user-friendly way.

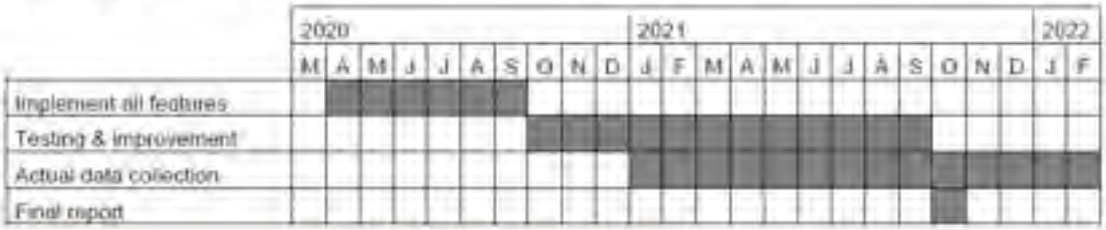
The different schemes are very flexible and can be configured to for example allow Danish Fishers to send their data to a Danish and German server, where for example Dutch vessels only send to a Dutch server. This flexibility will ensure that a country's privacy policy can be respected and that data from a vessel can be shared between one or more countries, if desired.

Work plan

Development work was expected to take 1.5 years (see Gantt chart). Development work is undertaken in an Agile manner, allowing for the integration of user feedback into the app.

Registration of actual data on ETP species encounters by fishing vessels taking part in the MSC JDF certificate would already start during the testing & improvement period, continuing after the project finishes.

The Gantt chart included here gives an overview of the project as a whole as originally planned. Covid-19 has resulted in a delay of approximately 6 months, with the release of the first testing version (for Android) expected in April 2021.



[1] https://play.google.com/store/apps/details?id=anchorlab.mofi

5.2 Data tables

5.2.1 DFPO

Table 77. Summary of raised observer data for DFPO set net UoAs 3aN-SN and 4-SN, and landings data for 3aS-SN with average 2017-19 weight caught (tonnes) and species composition (%). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: DTU Aqua. *Stock added as 'main' to 3aS-SN due to extrapolation from 3aN-SN and 4-SN (see Table 3).

Species	Average 2017-19 (tonnes)			Average 2017-19 (%)			Less resilient?	Main stocks				
								Main at initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-SN	3aS-SN	4-SN	3aN-SN	3aS-SN	4-SN		3aN-SN	3aS-SN	4-SN		
Pleuronectes platessa	780.42	59.54	2,769.88	37.37	32.51	55.43	-	P1	P1	P1		
Gadus morhua	**759.56**	**11.43**	**890.67**	**36.37**	**6.24**	**17.83**	Yes	Yes	Yes	Yes	3aS-SN: cod Kattegat 3aN-SN, 4-SN: cod 3aN,4,7d	
Solea solea	59.33	39.81	269.98	2.84	21.74	5.40	-	-	P1	P1		
Merluccius merluccius	86.76	0.01	176.06	4.15	<0.01	3.52	No	-	-	-		
Limanda limanda	39.10	**19.78**	180.49	1.87	**10.80**	3.61	No	-	No	-		3aS-SN: dab 3a, 4
Lophius piscatorius	**51.26**	0.01	**181.16**	**2.45**	0.01	**3.63**	Yes	Yes	-	Yes	3aN-SN, 4-SN: anglerfish 3a, 4, 6	3aS-SN*: anglerfish 3a, 4, 6
Scophthalmus maximus	11.82	5.72	165.59	0.57	3.12	3.31	No	-	-	-		
Pollachius pollachius	101.49	1.82	34.34	4.86	0.99	0.69	No	-	-	-		
Cancer pagurus	41.47	3.59	66.31	1.99	1.96	1.33	-	-	-	-		
Microstomus kitt	13.49	0.58	58.22	0.65	0.31	1.17	-	-	-	-		
Pollachius virens	33.73	1.06	35.04	1.62	0.58	0.70	-	-	-	-		
Cyclopterus lumpus	42.28	**12.30**	14.91	2.02	**6.72**	0.30	No	-	Yes	-	3aS-SN: lumpfish	
Scophthalmus rhombus	4.51	5.10	41.97	0.22	2.79	0.84	No	-	-	-		
Melanogrammus aeglefinus	5.77	0.08	25.12	0.28	0.05	0.50	-	-	-	-		
Platichthys flesus	7.03	**16.39**	4.10	0.34	**8.95**	0.08	N/a	-	No	-		3aS-SN: flounder
Molva molva	4.87	0.21	22.23	0.23	0.12	0.44	-	-	-	-		
Phoca vitulina	23.51	0.00	0.00	1.13	0.00	0.00	ETP	-	-	-		
Anarhichas	6.06	0.19	14.96	0.29	0.11	0.30	-	-	-	-		
Eutrigla gurnardus	0.92	0.03	9.49	0.04	0.02	0.19	-	-	-	-		
Merlangius merlangus	0.24	<0.01	9.51	0.01	<0.01	0.19	-	-	-	-		
Glyptocephalus cynoglossus	0.26	0.92	4.88	0.01	0.50	0.10	-	-	-	-		
Hippoglossus hippoglossus	0.14	0.01	5.63	0.01	0.01	0.11	-	-	-	-		
Brachyura	4.23	1.23	0.09	0.20	0.67	<0.01	-	-	-	-		

Species	Average 2017-19 (tonnes)			Average 2017-19 (%)			Less resilient?	Main stocks				
								Main at initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-SN	3aS-SN	4-SN	3aN-SN	3aS-SN	4-SN		3aN-SN	3aS-SN	4-SN		
Scomber scombrus	2.00	0.24	2.66	0.10	0.13	0.05	-	-	-	-		
Homarus gammarus	1.01	0.13	3.38	0.05	0.07	0.07	-	-	-	-		
Actinopterygii	1.62	0.03	1.21	0.08	0.02	0.02	-	-	-	-		
Nephrops norvegicus	<0.01	2.07	0.02	<0.01	1.13	<0.01	-	-	-	-		
Squalus acanthias	0.01	0.00	2.07	<0.01	0.00	0.04	ETP	-	-	-		
Phocoena phocoena	2.05	0.00	0.00	0.10	0.00	0.00	ETP	-	-	-		
Chelidonichthys lucerna	0.30	0.01	1.36	0.01	0.01	0.03	-	-	-	-		
Galeorhinus galeus	0.52	0.00	0.64	0.03	0.00	0.01	-	-	-	-		
Brosme brosme	<0.01	0.00	1.12	<0.01	0.00	0.02	-	-	-	-		
Raja	0.07	0.12	0.85	<0.01	0.07	0.02	-	-	-	-		
Trachinus draco	0.50	0.30	0.09	0.02	0.16	<0.01	-	-	-	-		
Amblyraja radiata	0.00	0.00	0.86	0.00	0.00	0.02	ETP	-	-	-		
Acipenser sturio	0.78	0.00	0.00	0.04	0.00	0.00	ETP	-	-	-		
Myoxocephalus scorpius	0.08	0.00	0.49	<0.01	0.00	0.01	-	-	-	-		
Belone belone	<0.01	0.34	0.19	<0.01	0.19	<0.01	-	-	-	-		
Dipturus batis	0.02	0.01	0.46	<0.01	<0.01	0.01	ETP	-	-	-		
Clupea harengus	0.26	<0.01	0.13	0.01	<0.01	<0.01	-	-	-	-		
Dicentrarchus labrax	0.16	<0.01	0.02	0.01	<0.01	<0.01	-	-	-	-		
Mugilidae	0.17	0.01	<0.01	0.01	<0.01	<0.01	-	-	-	-		
Labrus bergylta	0.07	<0.01	0.09	<0.01	<0.01	<0.01	-	-	-	-		
Lithodes maja	0.13	<0.01	0.00	0.01	<0.01	0.00	-	-	-	-		
Raja clavata	0.00	<0.01	0.12	0.00	<0.01	<0.01	-	-	-	-		
Alosa fallax	0.07	<0.01	0.03	<0.01	<0.01	<0.01	-	-	-	-		
Leucoraja naevus	0.01	0.06	0.02	<0.01	0.03	<0.01	-	-	-	-		
Cephalopoda	0.04	<0.01	0.04	<0.01	<0.01	<0.01	-	-	-	-		
Raja montagui	0.00	0.00	0.04	0.00	0.00	<0.01	-	-	-	-		
Salmo trutta	0.01	0.02	0.01	<0.01	0.01	<0.01	-	-	-	-		
Mustelus	0.00	0.00	0.03	0.00	0.00	<0.01	-	-	-	-		
Salmo salar	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-		

Species	Average 2017-19 (tonnes)			Average 2017-19 (%)			Less resilient?	Main stocks				
								Main at initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-SN	3aS-SN	4-SN	3aN-SN	3aS-SN	4-SN		3aN-SN	3aS-SN	4-SN		
Alosa alosa	0.00	0.00	0.02	0.00	0.00	<0.01	ETP	-	-	-		
Zeugopterus punctatus	0.02	0.00	0.00	<0.01	0.00	0.00	-	-	-	-		
Conger conger	0.00	0.00	0.02	0.00	0.00	<0.01	-	-	-	-		
Ciliata mustela	0.00	0.00	0.02	0.00	0.00	<0.01	-	-	-	-		
Anguilla anguilla	0.00	0.00	0.02	0.00	0.00	<0.01	-	-	-	-		
Sebastes mentella	<0.01	0.00	0.01	<0.01	0.00	<0.01	-	-	-	-		
Mullus surmuletus	0.00	0.00	0.01	0.00	0.00	<0.01	-	-	-	-		
Hippoglossoides platessoides	0.01	<0.01	0.00	<0.01	<0.01	0.00	-	-	-	-		
Abramis brama	0.00	0.00	0.01	0.00	0.00	<0.01	-	-	-	-		
Lepidorhombus whiffiagonis	<0.01	0.00	0.01	<0.01	0.00	<0.01	-	-	-	-		
Melanitta nigra	0.01	0.00	0.00	<0.01	0.00	0.00	ETP	-	-	-		
Trachurus trachurus	0.01	0.00	<0.01	<0.01	0.00	<0.01	-	-	-	-		
Pholis gunnellus	0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-		
Brama brama	0.01	<0.01	0.00	<0.01	<0.01	0.00	-	-	-	-		
Zeus faber	<0.01	0.00	<0.01	<0.01	0.00	<0.01	-	-	-	-		
Alopias vulpinus	<0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-		
Phycis blennoides	<0.01	0.00	<0.01	<0.01	0.00	<0.01	-	-	-	-		
Callionymus lyra	0.00	0.00	<0.01	0.00	0.00	<0.01	-	-	-	-		
Entelurus aequoreus	<0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-		
Spinachia spinachia	<0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-		
Echinus esculentus	<0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-		
Mustelus mustelus	0.00	0.00	<0.01	0.00	0.00	<0.01	-	-	-	-		
Scyliorhinus canicula	0.00	<0.01	0.00	0.00	<0.01	0.00	-	-	-	-		
Palaemon serratus	0.00	<0.01	0.00	0.00	<0.01	0.00	-	-	-	-		
Chimaera monstrosa	<0.01	0.00	<0.01	<0.01	0.00	<0.01	-	-	-	-		
Trisopterus luscus	0.00	0.00	<0.01	0.00	0.00	<0.01	-	-	-	-		
Gastropoda	0.00	<0.01	0.00	0.00	<0.01	0.00	-	-	-	-		
Osmerus eperlanus	0.00	0.00	<0.01	0.00	0.00	<0.01	-	-	-	-		
Oncorhynchus mykiss	0.00	<0.01	0.00	0.00	<0.01	0.00	-	-	-	-		

Species	Average 2017-19 (tonnes)			Average 2017-19 (%)			Less resilient?	Main stocks				
								Main at initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-SN	3aS-SN	4-SN	3aN-SN	3aS-SN	4-SN		3aN-SN	3aS-SN	4-SN		
Molva dypterygia	<0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-		
Reinhardtius hippoglossoides	0.00	0.00	<0.01	0.00	0.00	<0.01	-	-	-	-		
Sebastes norvegicus	<0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-		
Grand Total	2,088.22	183.15	4,996.65	100.00	100.00	100.00	-	-	-	-		

Table 78. Summary of landings data for DFPO beam trawl UoAs with average 2017-19 weight caught (tonnes) and species composition (%). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: DTU Aqua.

*Stock added as 'main' to 4-BT1 / 3aN-BT1 due to extrapolation from 3aN-BT1 /4-BT1 (see Table 3)

Sum of Total catch (kg)	2017-19 Average (tonnes)		2017-19 Average (% total)		Less resilient?	Main stocks		
	3aN-BT1	4-BT1	3aN-BT1	4-BT1		Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Pleuronectes platessa	65.12	793.44	84.68	85.63	N/a – P1	P1		
Solea solea	2.84	5.78	3.69	0.62	-	-		
Limanda limanda	2.42	28.49	3.15	3.07	No	-		
Gadus morhua	**1.77**	10.28	**2.30**	1.11	Yes	No		4*, 3aN-BT1: cod 3aN,4,7d
Lophius piscatorius	1.39	**47.34**	1.81	**5.11**	N/a	No		4, 3aN-BT1*: anglerfish 3a,4,6
Scophthalmus maximus	1.32	10.61	1.72	1.14	-	-		
Microstomus kitt	0.77	13.07	1.00	1.41	-	-		
Scophthalmus rhombus	0.54	6.19	0.70	0.67	-	-		
Actinopterygii	0.21	3.63	0.28	0.39	-	-		
Cancer pagurus	0.20	0.82	0.26	0.09	-	-		
Cephalopoda	0.13	0.36	0.16	0.04	-	-		
Chelidonichthys lucerna	0.10	0.13	0.13	0.01	-	-		
Merluccius merluccius	0.04	1.03	0.05	0.11	-	-		
Pollachius pollachius	0.02	0.05	0.03	0.01	-	-		

Sum of Total catch (kg)	2017-19 Average (tonnes)		2017-19 Average (% total)		Less resilient?	Main stocks		
	3aN-BT1	4-BT1	3aN-BT1	4-BT1		Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Glyptocephalus cynoglossus	0.02	1.59	0.03	0.17	-	-		
Trachinus draco	0.03	0.16	0.04	0.02	-	-		
Molva molva	0.01	0.13	0.02	0.01	-	-		
Hippoglossus hippoglossus	0.01	0.26	0.01	0.03	-	-		
Melanogrammus aeglefinus	0.01	0.60	0.01	0.07	-	-		
Anarhichas	0.00	1.57	0.01	0.17	-	-		
Cyclopterus lumpus	0.00	0.01	0.00	0.00	-	-		
Pollachius virens	0.01	0.91	0.01	0.10	-	-		
Amblyraja radiata	0.00	0.27	0.00	0.03	ETP	-		
Platichthys flesus		0.22		0.02	-	-		
Merlangius merlangus		0.01		0.00	-	-		
Scomber scombrus		0.01		0.00	-	-		
Grand Total	76.90	926.61	100.00	100.00				

Table 79. Summary of landings data for DFPO longline UoAs (3aN-LL, 4-LL) with average 2017-19 weight caught (tonnes) and species composition (%). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: DTU Aqua.

Species	2017-19 Average (tonnes)		2017-19 Average (% total)		Less resilient?	Main stocks		
	3aN-LL	4-LL	3aN-LL	4-LL		Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Gadus morhua	**14.65**	**71.63**	**50.58**	**86.84**	-	Yes	Both UoAs: cod 3aN,4,7d	-
Pleuronectes platessa	8.80	0.02	30.37	0.03	-	P1	-	-
Melanogrammus aeglefinus	0.04	4.97	0.13	6.02	-	P1	-	-
Pollachius pollachius	0.13	2.78	0.46	3.37	No	-	-	-
Molva molva	0.11	2.55	0.38	3.10	No	-	-	-
Limanda limanda	**1.70**	<0.01	**5.87**	<0.01	-	No	-	3aN-LL: dab 3a, 4
Pollachius virens	0.33	0.25	1.15	0.30	-	-	-	-
Merluccius merluccius	0.52	<0.01	1.78	<0.01	-	-	-	-
Microstomus kitt	0.43	0.00	1.50	0.00	-	-	-	-
Cancer pagurus	0.35	0.07	1.21	0.08	-	-	-	-
Scophthalmus rhombus	0.42	0.00	1.44	0.00	-	-	-	-
Scophthalmus maximus	0.31	<0.01	1.07	<0.01	-	-	-	-
Platichthys flesus	0.23	0.00	0.78	0.00	-	-	-	-
Lophius piscatorius	0.13	0.10	0.44	0.12	-	-	-	-

Species	2017-19 Average (tonnes)		2017-19 Average (% total)		Less resilient?	Main stocks		
	3aN-LL	4-LL	3aN-LL	4-LL		Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Glyptocephalus cynoglossus	0.20	0.00	0.68	0.00	-	-	-	-
Solea solea	0.15	0.00	0.50	0.00	-	-	-	-
Eutrigla gurnardus	0.11	<0.01	0.37	<0.01	-	-	-	-
Cephalopoda	0.09	0.00	0.31	0.00	-	-	-	-
Nephrops norvegicus	0.09	0.00	0.29	0.00	-	-	-	-
Actinopterygii	0.01	0.04	0.05	0.05	-	-	-	-
Merlangius merlangus	0.04	<0.01	0.14	<0.01	-	-	-	-
Anarhichas	0.02	0.02	0.08	0.02	-	-	-	-
Hippoglossus hippoglossus	0.01	0.03	0.02	0.03	-	-	-	-
Cyclopterus lumpus	0.03	0.00	0.10	0.00	-	-	-	-
Lithodes maja	0.02	0.00	0.08	0.00	-	-	-	-
Chelidonichthys lucerna	0.02	0.00	0.06	0.00	-	-	-	-
Trachinus draco	0.02	0.00	0.06	0.00	-	-	-	-
Hippoglossoides platessoides	0.02	0.00	0.05	0.00	-	-	-	-
Homarus gammarus	<0.01	0.01	0.01	0.01	-	-	-	-
Conger conger	0.00	0.01	0.00	0.01	-	-	-	-
Scomber scombrus	0.01	<0.01	0.03	<0.01	-	-	-	-

Species	2017-19 Average (tonnes)		2017-19 Average (% total)		Less resilient?	Main stocks		
	3aN-LL	4-LL	3aN-LL	4-LL		Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Raja	0.00	0.01	0.00	0.01	-	-	-	-
Leucoraja naevus	0.00	<0.01	0.00	0.01	-	-	-	-
Trachurus trachurus	<0.01	0.00	0.01	0.00	-	-	-	-
Clupea harengus	<0.01	0.00	0.01	0.00	-	-	-	-
Alosa fallax	<0.01	0.00	<0.01	0.00	ETP	-	-	-
Dicentrarchus labrax	<0.01	0.00	<0.01	0.00	-	-	-	-
Brosme brosme	<0.01	0.00	<0.01	0.00	-	-	-	-
Zeus faber	<0.01	0.00	<0.01	0.00	-	-	-	-
Sebastes mentella	<0.01	0.00	<0.01	0.00	-	-	-	-
Grand Total	28.97	82.49	100.00	100.00				

Table 80. Summary of raised observer data for DFPO 3aN-SDN and landings data for 3aS and 4-SDN with average 2017-19 weight caught (tonnes) and species composition (%). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: DTU Aqua.

*Stock added as 'main' to 4-SDN / 3aS-SDN due to extrapolation from 3aN-SDN and 3aS-SDN / 4-SDN (see Table 3)

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
	3aN-SDN	3aS-SDN	4-SDN	3aN-SDN	3aS-SDN	4-SDN		Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
								3aN-SDN	3aS-SDN	4-SDN		
Pleuronectes platessa	2,576.88	1.06	251.64	63.74	60.12	32.93	-	N/a – P1	N/a – P1	N/a – P1	-	-
Gadus morhua	**421.79**	**0.20**	**187.47**	**10.43**	**11.10**	**24.53**	-	Yes	No	Yes	3aN-SDN, 4-SDN: cod 3aN,4,7d	3aS-SDN: cod Kattegat
Limanda limanda	**412.47**	**0.13**	4.65	**10.20**	**7.36**	0.61	-	Yes	No	-	3aN-SDN: dab 3a,4	4*, 3aS-SDN: dab 3a, 4
Melanogrammus aeglefinus	201.07	0.00	41.59	4.97	0.06	5.44	-	N/a – P1	-	N/a – P1		
Glyptocephalus cynoglossus	**108.51**	0.03	11.57	**2.68**	1.47	1.51	Yes	Yes	-	-	3aN-SDN: witch 3a,4,7d	4*, 3aS-SDN*: witch 3a,4,7d
Merluccius merluccius	98.85	0.00	155.79	2.45	0.00	20.39	No	-	-	N/a – P1		
Eutrigla gurnardus	33.76	0.00	0.00	0.84	0.00	0.00	-	-	-	-		
Amblyraja radiata	27.01	0.00	0.00	0.67	0.00	0.00	ETP	-	-	-		
Microstomus kitt	25.41	0.01	8.74	0.63	0.51	1.14	-	-	-	-		
Platichthys flesus	24.08	0.55	0.03	0.60	**31.40**	0.00	-	-	No	-		4*, 3aS-SDN: flounder 3a,4
Merlangius merlangus	19.24	0.00	3.67	0.48	0.00	0.48	-	-	-	-		

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
	3aN-SDN	3aS-SDN	4-SDN	3aN-SDN	3aS-SDN	4-SDN		Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
								3aN-SDN	3aS-SDN	4-SDN		
Pollachius virens	17.56	0.00	53.21	0.43	0.00	6.96	-	-	-	N/a – P1		
Pollachius pollachius	10.16	0.00	1.06	0.25	0.00	0.14	-	-	-	-		
Lophius piscatorius	8.46	0.00	14.38	0.21	0.00	1.88	-	-	-	-		
Cancer pagurus	7.68	0.00	0.00	0.19	0.11	0.00	-	-	-	-		
Chelidonichthys lucerna	7.29	**0.08**	1.46	0.18	**4.53**	0.19	Yes	-	No	-		4*, 3aS-SDN: tub gurnard
Anarhichas	6.13	0.00	12.99	0.15	0.00	1.70	-	-	-	-		
Scophthalmus maximus	6.02	0.02	0.96	0.15	1.02	0.13	-	-	-	-		
Hippoglossoides platessoides	4.77	0.00	0.00	0.12	0.00	0.00	-	-	-	-		
Solea solea	4.54	0.00	0.05	0.11	0.23	0.01	-	-	-	-		
Cephalopoda	3.52	0.00	0.56	0.09	0.00	0.07	-	-	-	-		
Scophthalmus rhombus	3.14	0.03	0.58	0.08	1.64	0.08	-	-	-	-		
Squalus acanthias	3.09	0.00	0.03	0.08	0.00	0.00	ETP	-	-	-		
Hippoglossus hippoglossus	2.15	0.00	5.95	0.05	0.00	0.78	-	-	-	-		
Molva molva	1.74	0.00	6.76	0.04	0.00	0.88	-	-	-	-		
Actinopterygii	1.72	0.00	0.07	0.04	0.00	0.01	-	-	-	-		
Myoxocephalus scorpius	1.36	0.00	0.00	0.03	0.00	0.00	-	-	-	-		
Cyclopterus lumpus	1.20	0.00	0.01	0.03	0.17	0.00	-	-	-	-		
Scomber scombrus	0.84	0.00	0.02	0.02	0.00	0.00	-	-	-	-		
Trachinus draco	0.84	0.11	0.06	0.02	6.29	0.01	-	-	-	-		

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
	3aN-SDN	3aS-SDN	4-SDN	3aN-SDN	3aS-SDN	4-SDN		Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
								3aN-SDN	3aS-SDN	4-SDN		
Liocarcinus depurator	0.40	0.00	0.00	0.01	0.00	0.00	-	-	-	-		
Asterias rubens	0.22	0.00	0.00	0.01	0.00	0.00	-	-	-	-		
Phycis blennoides	0.20	0.00	0.01	0.00	0.00	0.00	-	-	-	-		
Trachurus trachurus	0.19	0.00	0.11	0.00	0.00	0.01	-	-	-	-		
Agonus cataphractus	0.18	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Scyliorhinus canicula	0.13	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Chimaera monstrosa	0.12	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Nephrops norvegicus	0.09	0.00	0.02	0.00	0.00	0.00	-	-	-	-		
Brosme brosme	0.04	0.00	0.12	0.00	0.00	0.02	-	-	-	-		
Clupea harengus	0.03	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Dicentrarchus labrax	0.02	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Raja	0.02	0.00	0.05	0.00	0.00	0.01	-	-	-	-		
Trisopterus minutus	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Illex coindetii	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Alosa fallax	0.01	0.00	0.00	0.00	0.00	0.00	ETP	-	-	-		
Lepidorhombus whiffiagonis	0.01	0.00	0.64	0.00	0.00	0.08	-	-	-	-		
Zeus faber	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Homarus gammarus	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Brachyura	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
	3aN-SDN	3aS-SDN	4-SDN	3aN-SDN	3aS-SDN	4-SDN		Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
								3aN-SDN	3aS-SDN	4-SDN		
Galeorhinus galeus	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Mytilus edulis	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Arnoglossus laterna	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Conger conger	0.00	0.00	0.01	0.00	0.00	0.00	-	-	-	-		
Dipturus batis	0.00	0.00	0.05	0.00	0.00	0.01	ETP	-	-	-		
Leucoraja naevus	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Mugilidae	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Salmo trutta	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Sebastes norvegicus	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Brama brama	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Sebastes mentella	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Salmo salar	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Labrus bergylta	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Grand Total	4,043.03	1.77	764.18	100.00	100.00	100.00						

Table 81. Summary of raised observer data for DFPO 3aN, 3aS-TR and DFPO 4-TR1, and landings data for DFPO 4-TR2 with average 2017-19 weight caught (tonnes) and species composition (%). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: DTU Aqua.

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		3aN-TR	3aS-TR	4-TR1	4-TR2		
Pleuronectes platessa	3,078.13	1,018.40	6,021.50	307.45	19.60	15.94	22.13	45.39	N/a – P1	P1	P1	P1	P1		
Nephrops norvegicus	3,171.44	2,363.88	76.92	269.61	20.19	37.00	0.28	39.80	3aN, 3aS-TR: N/a – P1 4-TR2: -	P1	P1	-	Yes (FU 33)	4-TR2: FU 33 (see Table 8)	
Gadus morhua	**2,726.33**	**264.45**	**4,626.69**	11.97	**17.36**	**4.14**	**17.00**	1.77	Yes	Yes	Yes	Yes	-	3aN-TR, 4-TR1: cod 3aN,4,7d 3aS-TR: cod kattegat	
Pollachius virens	1,171.90	2.77	4,615.55	0.13	7.46	0.04	16.96	0.02	N/a – P1	P1	-	P1	-		
Limanda limanda	661.33	**1,204.35**	389.62	11.22	4.21	**18.85**	1.43	1.66	No	-	Yes	-	-	3aS-TR: dab 3a, 4	
Merluccius merluccius	579.72	29.43	3,207.72	10.94	3.69	0.44	11.79	1.62	N/a – P1	-	-	P1	-		
Lophius piscatorius	**525.82**	2.10	**2,146.06**	4.17	**3.35**	0.03	**7.89**	0.62	Yes	No	-	Yes	-	4-TR1: anglerfish 3a,4,6	3aN-TR: anglerfish 3a,4,6
Merlangius merlangus	744.18	**322.37**	189.17	0.33	4.74	**5.05**	0.70	0.05	No	-	Yes	-	-	3aS-TR: whiting 3a	

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		3aN-TR	3aS-TR	4-TR1	4-TR2		
Melanogrammus aeglefinus	464.15	29.04	1,087.91	1.53	2.96	0.44	4.00	0.23	No	-	-	-	-		
Glyptocephalus cynoglossus	**623.78**	38.99	522.24	5.96	**3.97**	0.59	1.92	0.88	Yes	Yes	-	-	-	3aN-TR: witch 3a,4,7d	
Microstomus kitt	258.28	47.77	766.26	14.61	1.64	0.72	2.82	2.16	No	-	-	-	-		
Platichthys flesus	27.77	305.42	26.16	0.07	0.18	4.78	0.10	0.01	No	-	-	-	-		
Molva molva	83.99	1.62	1,037.75	0.71	0.53	0.02	3.81	0.10	No	-	-	-	-		
Trachinus draco	3.04	273.43	3.39	0.16	0.02	4.13	0.01	0.02	No	-	-	-	-		
Eutrigla gurnardus	100.97	152.96	206.49	0.00	0.64	2.39	0.76	0.00	No	-	-	-	-		
Hippoglossoides platessoides	339.64	73.83	6.45	0.00	2.16	1.16	0.02	0.00	No	-	-	-	-		
Amblyraja radiata	38.18	9.98	716.19	0.00	0.24	0.15	2.63	0.00	ETP	-	-	-	-		
Solea solea	65.22	140.33	27.51	2.37	0.42	2.20	0.10	0.35	No	-	-	-	-		
Cancer pagurus	181.83	66.59	37.07	4.11	1.16	1.04	0.14	0.61	-	-	-	-	-		
Scophthalmus rhombus	22.06	122.78	57.70	3.59	0.14	1.92	0.21	0.53	-	-	-	-	-		
Scophthalmus maximus	89.90	29.09	180.77	16.15	0.57	0.44	0.66	2.38	No	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
										3aN-TR	3aS-TR	4-TR1	4-TR2		
Anarhichas	32.61	0.92	377.14	6.61	0.21	0.01	1.39	0.98	-	-	-	-	-		
Pollachius pollachius	85.30	1.43	131.67	0.10	0.54	0.02	0.48	0.02	-	-	-	-	-		
Trachurus trachurus	128.63	1.71	39.47	0.00	0.82	0.03	0.15	0.00	-	-	-	-	-		
Cephalopoda	79.62	5.20	86.34	2.16	0.51	0.08	0.32	0.32	-	-	-	-	-		
Raja	72.01	1.46	45.55	0.09	0.46	0.02	0.17	0.01	-	-	-	-	-		
Hippoglossus hippoglossus	26.24	0.25	128.49	1.29	0.17	0.00	0.47	0.19	-	-	-	-	-		
Clupea harengus	37.91	19.65	1.34	0.00	0.24	0.30	0.00	0.00	-	-	-	-	-		
Scomber scombrus	43.21	6.14	22.08	0.05	0.28	0.09	0.08	0.01	-	-	-	-	-		
Phycis blennoides	1.88	0.01	117.73	0.00	0.01	0.00	0.43	0.00	-	-	-	-	-		
Squalus acanthias	32.41	8.00	16.26	0.00	0.21	0.12	0.06	0.00	ETP	-	-	-	-		
Myoxocephalus scorpius	2.32	22.03	0.06	0.00	0.01	0.33	0.00	0.00	-	-	-	-	-		
Enchelyopus cimbrius	45.55	2.51	0.07	0.00	0.29	0.04	0.00	0.00	-	-	-	-	-		
Cyclopterus lumpus	19.58	6.28	2.13	0.05	0.12	0.09	0.01	0.01	-	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
										3aN-TR	3aS-TR	4-TR1	4-TR2		
Lepidorhombus whiffiagonis	0.04	0.03	61.58	0.01	0.00	0.00	0.23	0.00	-	-	-	-	-		
Liocarcinus depurator	0.00	13.75	0.00	0.00	0.00	0.21	0.00	0.00	-	-	-	-	-		
Lithodes maja	9.99	0.87	30.98	0.00	0.06	0.01	0.11	0.00	-	-	-	-	-		
Chelidonichthys lucerna	10.06	2.54	19.37	0.64	0.06	0.04	0.07	0.09	-	-	-	-	-		
Trisopterus esmarkii	26.66	0.11	0.54	0.00	0.17	0.00	0.00	0.00	-	-	-	-	-		
Leucoraja naevus	21.92	0.14	4.55	0.00	0.14	0.00	0.02	0.00	-	-	-	-	-		
Brosme brosme	1.15	0.00	40.76	0.00	0.01	0.00	0.15	0.00	-	-	-	-	-		
Dipturus batis	15.20	0.19	14.07	0.01	0.10	0.00	0.05	0.00	ETP	-	-	-	-		
Sprattus sprattus	0.03	9.10	0.00	0.00	0.00	0.14	0.00	0.00	-	-	-	-	-		
Micromesistius poutassou	16.52	0.00	4.31	0.00	0.11	0.00	0.02	0.00	-	-	-	-	-		
Scyliorhinus canicula	8.71	1.21	12.53	0.00	0.06	0.02	0.05	0.00	-	-	-	-	-		
Callionymus lyra	1.77	6.98	0.03	0.00	0.01	0.11	0.00	0.00	-	-	-	-	-		
Chimaera monstrosa	0.51	0.00	26.37	0.00	0.00	0.00	0.10	0.00	-	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
										3aN-TR	3aS-TR	4-TR1	4-TR2		
Raja clavata	5.47	3.03	1.97	0.48	0.03	0.05	0.01	0.07	-	-	-	-	-		
Actinopterygii	6.63	0.23	11.18	0.53	0.04	0.00	0.04	0.08	-	-	-	-	-		
Argentina sphyraena	0.09	0.00	18.29	0.00	0.00	0.00	0.07	0.00	-	-	-	-	-		
Brachyura	0.09	3.60	0.09	0.01	0.00	0.05	0.00	0.00	-	-	-	-	-		
Etmopterus spinax	0.47	0.00	12.65	0.00	0.00	0.00	0.05	0.00	-	-	-	-	-		
Galeus melastomus	0.00	0.00	12.56	0.00	0.00	0.00	0.05	0.00	-	-	-	-	-		
Callionymus maculatus	1.64	1.92	0.00	0.00	0.01	0.03	0.00	0.00	-	-	-	-	-		
Phoca vitulina	0.00	1.24	0.00	0.00	0.00	0.02	0.00	0.00	-	-	-	-	-		
Trisopterus minutus	2.30	0.13	0.06	0.00	0.01	0.00	0.00	0.00	-	-	-	-	-		
Sebastes norvegicus	0.14	0.00	3.65	0.00	0.00	0.00	0.01	0.00	-	-	-	-	-		
Arnoglossus laterna	0.61	0.63	0.08	0.00	0.00	0.01	0.00	0.00	-	-	-	-	-		
Molva dypterygia	0.40	0.00	2.70	0.00	0.00	0.00	0.01	0.00	-	-	-	-	-		
Pandalus borealis	0.51	0.61	0.01	0.00	0.00	0.01	0.00	0.00	-	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
										3aN-TR	3aS-TR	4-TR1	4-TR2		
Chelidonichthys cuculus	0.08	0.74	0.00	0.00	0.00	0.01	0.00	0.00	-	-	-	-	-		
Callionymidae	0.01	0.70	0.00	0.00	0.00	0.01	0.00	0.00	-	-	-	-	-		
Mustelus mustelus	0.10	0.00	2.51	0.00	0.00	0.00	0.01	0.00	-	-	-	-	-		
Lycodes gracilis	1.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	-	-	-	-	-		
Coryphaenoides rupestris	1.41	0.00	0.01	0.00	0.01	0.00	0.00	0.00	-	-	-	-	-		
Dipturus oxyrinchus	0.00	0.00	2.23	0.00	0.00	0.00	0.01	0.00	-	-	-	-	-		
Carcinus maenas	0.00	0.54	0.00	0.00	0.00	0.01	0.00	0.00	-	-	-	-	-		
Gaidropsarus vulgaris	1.27	0.00	0.00	0.00	0.01	0.00	0.00	0.00	-	-	-	-	-		
Scyliorhinus stellaris	0.21	0.43	0.06	0.00	0.00	0.01	0.00	0.00	-	-	-	-	-		
Argentina silus	0.01	0.00	2.12	0.00	0.00	0.00	0.01	0.00	-	-	-	-	-		
Belone belone	0.00	0.38	0.00	0.00	0.00	0.01	0.00	0.00	-	-	-	-	-		
Sebastes mentella	0.02	0.00	1.49	0.00	0.00	0.00	0.01	0.00	-	-	-	-	-		
Gadiculus argenteus	0.01	0.00	1.31	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
										3aN-TR	3aS-TR	4-TR1	4-TR2		
Mullus surmuletus	0.02	0.28	0.15	0.03	0.00	0.00	0.00	0.00	-	-	-	-	-		
Raja montagui	0.73	0.00	0.04	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Anarhichas lupus	0.41	0.00	0.58	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Homarus gammarus	0.05	0.21	0.18	0.64	0.00	0.00	0.00	0.09	-	-	-	-	-		
Zeus faber	0.58	0.00	0.07	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Dipturus linteus	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Pomatoschistus.sp	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Sebastes viviparus	0.23	0.00	0.51	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Dicentrarchus labrax	0.46	0.01	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Mustelus asterias	0.06	0.11	0.19	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Galeorhinus galeus	0.07	0.00	0.53	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Conger conger	0.08	0.00	0.50	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Helicolenus dactylopterus	0.30	0.00	0.03	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Buglossidium luteum	0.02	0.12	0.02	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		3aN-TR	3aS-TR	4-TR1	4-TR2		
Arctica islandica	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Crangon crangon	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Brama brama	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Taurulus bubalis	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Alosa fallax	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	ETP	-	-	-	-		
Zoarces viviparus	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Agonus cataphractus	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Myxine glutinosa	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Engraulis encrasicolus	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Anguilla anguilla	0.07	0.01	0.03	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Pholis gunnellus	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Raniceps raninus	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Mullus barbatus	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Mugilidae	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Lycenchelys sarsi	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		3aN-TR	3aS-TR	4-TR1	4-TR2		
Rajidae	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Raja brachyura	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Pandalus montagui	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Gobiidae	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Caridea	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Sebastes	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Leucoraja fullonica	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Lipophrys pholis	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Salmo trutta	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Lamna nasus	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Gobius niger	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Perca fluviatilis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Pegusa lascaris	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Salmo salar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Aequipecten opercularis	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
										3aN-TR	3aS-TR	4-TR1	4-TR2		
Labrus mixtus	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Capros aper	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Leptoclinus maculatus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Sander lucioperca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Abramis brama	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Leucoraja circularis	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Spondyliosoma cantharus	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Trisopterus luscus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Labrus bergylta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Rutilus rutilus	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Oncorhynchus mykiss	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Macropodia rostrata	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Nezumia aequalis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		

Species	2017-19 Average (tonnes)				2017-19 Average (%)				Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR	3aS-TR	4-TR1	4-TR2	3aN-TR	3aS-TR	4-TR1	4-TR2		3aN-TR	3aS-TR	4-TR1	4-TR2		
Lophius budegassa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Maurolicus muelleri	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Gastropoda	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Loligo vulgaris	0.13	0.00	0.32	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Mola mola	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Mustelus	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Palaemon serratus	0.00	1.70	0.00	0.00	0.00	0.03	0.00	0.00	-	-	-	-	-		
Paralithodes	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Thunnus thynnus	0.17	0.00	0.20	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-		
Grand Total	15,704.85	6,627.67	27,210.46	677.39	100.00	100.00	100.00	100.00							

Table 82. Summary of raised observer data for DFPO TR PRAWN UoAs with average 2017-19 weight caught (tonnes) and species composition (%). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Species assessed under Principle 1 are shown in blue font. Source: DTU Aqua.

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		
Pandalus borealis	**1,852.16**	0.00	**137.26**	**60.18**	0.00	**51.65**	N/a – P1	P1	-	P1		
Nephrops norvegicus	5.56	**0.31**	0.07	0.18	**63.76**	0.03	N/a – P1	-	P1	-		
Trisopterus esmarkii	**225.55**	0.00	**48.99**	**7.33**	0.00	**18.44**	-	No	-	No		3aN, 4-TR PRAWN: Norway pout 3a, 4
Pleuronectes platessa	4.27	**0.09**	0.01	0.14	**18.26**	0.00	N/a – P1	-	P1	-		
Pollachius virens	**301.71**	0.00	**16.36**	**9.80**	0.00	**6.16**	N/a – P1	P1	-	P1		
Gadus morhua	**186.26**	**0.03**	**7.94**	**6.05**	**5.61**	**2.99**	**Yes**	Yes	Yes	Yes	3aN, 4-TR PRAWN: cod 3aN,4,7d 3aS-TR PRAWN: cod kattegat	
Limanda limanda	0.04	**0.05**	0.00	0.00	**9.33**	0.00	-	-	No	-		3aS-TR PRAWN: dab 3a, 4
Caridea	**194.87**	0.00	7.02	**6.33**	0.00	2.64	No	Assumed to be *Pandalus* at this surveillance (section 0)				
Platichthys flesus	0.00	**0.03**	0.00	0.00	**6.09**	0.00	-	-	Yes	-	3aS-TR PRAWN: flounder 3a, 4	

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		
Cyclopterus lumpus	70.17	0.00	9.70	2.28	0.00	3.65	No	-	-	-		
Argentina sphyraena	23.50	0.00	8.12	0.76	0.00	3.06	No	-	-	-		
Etmopterus spinax	11.87	0.00	7.11	0.39	0.00	2.68	-	-	-	-		
Lophius piscatorius	39.43	0.00	4.50	1.28	0.00	1.69	-	-	-	-		
Glyptocephalus cynoglossus	33.81	0.01	1.71	1.10	1.12	0.64	-	-	-	-		
Solea solea	0.00	0.01	0.00	0.00	2.84	0.00	No	-	-	-		
Micromesistius poutassou	38.38	0.00	2.37	1.25	0.00	0.89	-	-	-	-		
Scophthalmus rhombus	0.00	0.01	0.00	0.00	2.13	0.00	No	-	-	-		
Amblyraja radiata	8.82	0.01	1.21	0.29	1.22	0.45	ETP	-	-	-		
Molva molva	10.04	0.00	3.20	0.33	0.00	1.20	-	-	-	-		
Hippoglossoides platessoides	11.08	0.00	2.48	0.36	0.00	0.93	-	-	-	-		
Merluccius merluccius	9.98	0.00	1.54	0.32	0.00	0.58	-	-	-	-		
Enchelyopus cimbrius	1.38	0.00	1.21	0.04	0.00	0.46	-	-	-	-		
Merlangius merlangus	1.35	0.00	0.02	0.04	0.41	0.01	-	-	-	-		
Melanogrammus aeglefinus	11.28	0.00	0.12	0.37	0.00	0.04	-	-	-	-		
Scophthalmus maximus	0.02	0.00	0.00	0.00	0.41	0.00	-	-	-	-		
Hippoglossus hippoglossus	2.22	0.00	0.76	0.07	0.00	0.29	-	-	-	-		

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		
Eutrigla gurnardus	0.00	0.00	0.00	0.00	0.30	0.00	-	-	-	-		
Chimaera monstrosa	4.70	0.00	0.39	0.15	0.00	0.15	-	-	-	-		
Gadiculus argenteus	2.23	0.00	0.48	0.07	0.00	0.18	-	-	-	-		
Notoscopelus kroyeri	0.59	0.00	0.60	0.02	0.00	0.23	-	-	-	-		
Chelidonichthys lucerna	0.01	0.00	0.00	0.00	0.20	0.00	-	-	-	-		
Leucoraja naevus	4.09	0.00	0.10	0.13	0.00	0.04	-	-	-	-		
Pollachius pollachius	2.62	0.00	0.11	0.09	0.00	0.04	-	-	-	-		
Clupea harengus	2.60	0.00	0.07	0.08	0.00	0.02	-	-	-	-		
Scomber scombrus	0.14	0.00	0.27	0.00	0.00	0.10	-	-	-	-		
Microstomus kitt	0.06	0.00	0.00	0.00	0.10	0.00	-	-	-	-		
Phycis blennoides	2.79	0.00	0.03	0.09	0.00	0.01	-	-	-	-		
Pasiphaea tarda	2.79	0.00	0.02	0.09	0.00	0.01	-	-	-	-		
Argyropelecus olfersi	1.83	0.00	0.00	0.06	0.00	0.00	-	-	-	-		
Dipturus linteus	1.72	0.00	0.00	0.06	0.00	0.00	-	-	-	-		
Cephalopoda	1.37	0.00	0.00	0.04	0.00	0.00	-	-	-	-		
Brosme brosme	0.48	0.00	0.07	0.02	0.00	0.03	-	-	-	-		
Trachurus trachurus	1.08	0.00	0.01	0.04	0.00	0.00	-	-	-	-		

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		
Coryphaenoides rupestris	0.41	0.00	0.00	0.01	0.00	0.00	-	-	-	-		
Lycodes gracilis	0.30	0.00	0.00	0.01	0.00	0.00	-	-	-	-		
Squalus acanthias	0.15	0.00	0.00	0.00	0.00	0.00	ETP	-	-	-		
Maurolicus muelleri	0.15	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Cancer pagurus	0.10	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Dipturus batis	0.10	0.00	0.00	0.00	0.00	0.00	ETP	-	-	-		
Pandalus montagui	0.08	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Trisopterus minutus	0.07	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Conger conger	0.01	0.00	0.01	0.00	0.00	0.00	-	-	-	-		
Sebastes viviparus	0.06	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Sebastes norvegicus	0.04	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Gobiidae	0.04	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Molva dypterygia	0.03	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Raja brachyura	0.04	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Sebastes mentella	0.02	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Engraulis encrasicolus	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Argentina silus	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		

Species	2017-19 Average (tonnes)			2017-19 Average (%)			Less resilient?	Main stocks				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN	3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		3aN-TR PRAWN	3aS-TR PRAWN	4-TR PRAWN		
Myxine glutinosa	0.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-		
Actinopterygii	0.33	No obs	0.12	0.01	No obs	0.04	-	-	-	-		
Anarhichas	0.05	No obs	No obs	0.00	No obs	No obs	-	-	-	-		
Loligo vulgaris	0.03	No obs	No obs	0.00	No obs	No obs	-	-	-	-		
Raja	2.16	No obs	1.71	0.07	No obs	0.64	-	-	-	-		
Rajella lintea	0.94	No obs	0.08	0.03	No obs	0.03	-	-	-	-		
Thunnus thynnus	0.22	No obs	No obs	0.01	No obs	No obs	-	-	-	-		
Grand Total	3,077.73	0.49	265.73	100.00	100.00	100.00						

5.2.2 EZG

Table 83. Summary of observer data (as total catch in tonnes and % species composition) for EZG 4-TR1, based on data compiled from individual observer reports. Data not raised. Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: Thuenen Institute

Species	2018-20 Average (tonnes)	2018-20 Average (%)	Less resilient?	Main stocks		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Pollachius virens	110.68	80.46	N/a – P1	P1		
Gadus morhua	**13.21**	**9.60**	-	Yes	cod 3aN,4,7d	
Melanogrammus aeglefinus	4.02	2.92	No	-		
Pollachius pollachius	3.27	2.38	No	-		
Merluccius merluccius	2.59	1.89	-	-		
Molva molva	1.82	1.32	-	-		
Lophius piscatorius	0.49	0.36	-	-		
Anarhichas lupus	0.44	0.32	-	-		
Merlangius merlangus	0.41	0.30	-	-		
Hippoglossus hippoglossus	0.16	0.12	-	-		
Scomber scombrus	0.12	0.09	-	-		
Microstomus kitt	0.08	0.06	-	-		
Pleuronectes platessa	0.07	0.05	-	-		
Eutrigla gurnardus	0.05	0.03	-	-		
Brosme brosme	0.03	0.02	-	-		
Micromesistius poutassou	0.03	0.02	-	-		

Species	2018-20 Average (tonnes)	2018-20 Average (%)	Less resilient?	Main stocks		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Glyptocephalus cynoglossus	0.02	0.01	-	-		
Limanda limanda	0.02	0.01	-	-		
Amblyraja radiata	0.01	0.01	ETP	-		
Trachurus trachurus	0.04	0.03	-	-		
Argentina silus	0.01	0.01	-	-		
Cyclopterus lumpus	0.01	0.01	-	-		
Scophthalmus maximus	0.01	<0.01	-	-		
Loliginidae	0.02	0.01	-	-		
Rajidae	0.02	0.01	-	-		
Clupea harengus	0.01	0.01	-	-		
Illex coindetii	0.01	0.01	-	-		
Dipturus linteus	0.01	<0.01	-	-		
Phycis blennoides	0.01	<0.01	-	-		
Hippoglossoides platessoides	<0.01	<0.01	-	-		
Squalus acanthias	<0.01	<0.01	ETP	-		
Nephrops norvegicus	<0.01	<0.01	-	-		
Sebastes norvegicus	<0.01	<0.01	-	-		
Chelidonichthys lucerna	<0.01	<0.01	-	-		
Trisopterus esmarkii	<0.01	<0.01	-	-		
Lepidorhombus whiffiagonis	<0.01	<0.01	-	-		
Leucoraja naevus	<0.01	<0.01	-	-		

Species	2018-20 Average (tonnes)	2018-20 Average (%)	Less resilient?	Main stocks		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Trisopterus minutus	<0.01	<0.01	-	-		
Grand Total	137.56	100.00				

Table 84. Summary of 2017-19 landings data of all EZG UoAs (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: EZG.

Species	3aN-SN		3aN-TR		4-SN		4-TR1		Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)		3aN-SN	3aN-TR	4-SN	4-TR1		
Pollachius virens	0.09	0.40	205.45	73.87	1.50	1.41	5994.95	74.29	-	-	P1	-	P1		
Gadus morhua	**12.86**	**59.60**	**35.23**	**12.67**	**52.44**	**49.28**	**872.97**	**10.82**	-	Yes	Yes	Yes	Yes	cod 3aN,4,7d	
Merluccius merluccius	0.02	0.10	5.88	2.11	0.06	0.05	484.94	6.01	No	-	-	-	P1		
Melanogrammus aeglefinus	0.07	0.32	20.58	7.40	1.82	1.71	314.49	3.90	No	-	P1	-	-		
Pollachius pollachius	**1.29**	**5.99**	4.14	1.49	2.27	2.13	147.94	1.83	No	Yes	-	-	-	pollack 3a	
Molva molva	0.17	0.79	0.17	0.06	1.19	1.12	105.52	1.31	-	-	-	-	-		
Solea solea	3.94	18.26	0.00	0.00	34.97	32.87	0.00	0.00	-	P1	-	P1	-		

Species	3aN-SN		3aN-TR		4-SN		4-TR1		Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)		3aN-SN	3aN-TR	4-SN	4-TR1		
Merlangius merlangus	0.00	0.00	0.19	0.07	0.00	0.00	38.30	0.47	-	-	-	-	-		
Lophiidae	0.10	0.47	0.26	0.09	1.12	1.05	35.45	0.44	-	-	-	-	-		
Pleuronectes platessa	1.26	5.84	4.63	1.67	3.78	3.55	9.85	0.12	No	P1	-	-	-		
Anarhichas spp	0.00	0.01	0.11	0.04	0.06	0.05	18.92	0.23	-	-	-	-	-		
Scomber scombrus	0.00	0.00	0.31	0.11	0.00	0.00	11.41	0.14	-	-	-	-	-		
Hippoglossus hippoglossus	0.00	0.00	0.10	0.04	0.04	0.04	9.32	0.12	-	-	-	-	-		
Loliginidae, Ommastrephidae	0.00	0.00	0.54	0.19	0.00	0.00	7.35	0.09	-	-	-	-	-		
Microstomus kitt	0.08	0.39	0.11	0.04	0.12	0.11	5.75	0.07	-	-	-	-	-		
Cancer pagurus	**1.55**	**7.17**	0.00	0.00	2.93	2.75	0.01	0.00	No	No	-	-	-		edible crab
Glyptocephalus cynoglossus	0.00	0.00	0.17	0.06	0.02	0.02	3.15	0.04	-	-	-	-	-		
Trachurus trachurus	0.00	0.00	0.00	0.00	0.00	0.00	2.29	0.03	-	-	-	-	-		
Lepidorhombus whiffiagonis	0.00	0.00	0.00	0.00	0.00	0.00	2.03	0.03	-	-	-	-	-		
Brosme brosme	0.00	0.00	0.02	0.01	0.04	0.03	1.59	0.02	-	-	-	-	-		
Prionotus spp	0.03	0.12	0.02	0.01	0.82	0.77	0.45	0.01	-	-	-	-	-		

Species	3aN-SN		3aN-TR		4-SN		4-TR1		Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)		3aN-SN	3aN-TR	4-SN	4-TR1		
Psetta maxima	0.06	0.29	0.01	0.00	0.74	0.69	0.44	0.01	-	-	-	-	-		
Limanda limanda	0.00	0.02	0.10	0.04	0.03	0.03	0.85	0.01	-	-	-	-	-		
Raja clavata	0.00	0.00	0.00	0.00	0.93	0.87	0.00	0.00	-	-	-	-	-		
Scophthalmus rhombus	0.01	0.04	0.00	0.00	0.79	0.74	0.03	0.00	-	-	-	-	-		
Lepidorhombus spp	0.00	0.00	0.01	0.00	0.00	0.00	0.65	0.01	-	-	-	-	-		
Raja brachyura	0.00	0.00	0.00	0.00	0.31	0.30	0.00	0.00	-	-	-	-	-		
Osteichthyes	0.02	0.07	0.01	0.00	0.09	0.08	0.15	0.00	-	-	-	-	-		
Trachurus spp	0.00	0.00	0.05	0.02	0.00	0.00	0.17	0.00	-	-	-	-	-		
Rajiformes	0.00	0.00	0.00	0.00	0.12	0.11	0.03	0.00	-	-	-	-	-		
Mugilidae	0.00	0.00	0.00	0.00	0.09	0.08	0.00	0.00	-	-	-	-	-		
Sebastes spp	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	-	-	-	-	-		
Loligo vulgaris	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	-	-	-	-	-		
Cyclopterus lumpus	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	-	-	-	-	-		
Homarus gammarus	0.02	0.11	<0.01	<0.01	0.03	0.03	<0.01	<0.01	-	-	-	-	-		
Squalus acanthias	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	ETP	-	-	-	-		
Dicentrarchus labrax	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	-	-	-	-	-		
Conger conger	0.00	0.00	0.00	0.00	0.00	0.00	0.04	<0.01	-	-	-	-	-		

Species	3aN-SN		3aN-TR		4-SN		4-TR1		Less resilient?	Main stocks					
										Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)	Average (tonnes)	Average (%)		3aN-SN	3aN-TR	4-SN	4-TR1		
Clupea harengus	0.00	0.00	0.00	0.00	0.00	0.00	0.03	<0.01	-	-	-	-	-		
Galeorhinus galeus	0.00	0.00	0.00	0.00	0.01	0.01	<0.01	<0.01	-	-	-	-	-		
Phycis blennoides	0.00	0.00	0.00	0.00	0.00	0.00	0.02	<0.01	-	-	-	-	-		
Anguilla anguilla	0.00	0.00	0.00	0.00	0.00	0.00	0.02	<0.01	-	-	-	-	-		
Conger oceanicus	0.00	0.00	0.00	0.00	0.00	0.00	0.01	<0.01	-	-	-	-	-		
Platichthys flesus	0.00	0.00	0.00	0.00	0.00	0.00	0.01	<0.01	-	-	-	-	-		
Squalidae	0.00	0.00	0.00	0.00	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-		
Molva dypterygia	0.00	0.00	0.00	0.00	0.00	0.00	0.01	<0.01	-	-	-	-	-		
Triglidae	0.00	0.00	0.00	0.00	0.00	0.00	0.01	<0.01	-	-	-	-	-		
Raja montagui	0.00	0.00	0.00	0.00	<0.01	<0.01	0.00	0.00	-	-	-	-	-		
Nephrops norvegicus	0.00	0.00	<0.01	<0.01	0.00	0.00	0.00	0.00	-	-	-	-	-		
Mullus spp	0.00	0.00	0.00	0.00	<0.01	<0.01	0.00	0.00	-	-	-	-	-		
Grand Total	21.58	100.00	278.11	100.00	106.41	100.00	8069.36	100.00							

5.2.3 CVO

Table 85. Summary of landings data for CVO BT and TR UoAs (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: WMR

Species	Average 2017-20 (tonnes)						Average 2017-20 (%)						Less resi-lient?	Main species							
														Assessed as main during initial assessment?						Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		
Pleuronectes platessa	5,204.27	1,432.25	5,648.88	1,795.72	57.86	1,425.19	81.30	81.15	60.79	79.06	36.43	21.92	-	P1	P1	P1	P1	P1	P1		
Limanda limanda	**405.51**	**168.96**	353.69	86.32	**16.19**	232.16	**6.33**	**9.57**	3.81	3.80	**10.19**	3.57	No	Yes	Yes	-	-	Yes	-	dab 3a,4	
Pollachius virens	4.81	1.09	0.39	1.56	35.18	86.96	0.08	0.06	<0.01	0.07	22.15	1.34	-	-	-	-	-	P1	-		
Gadus morhua	61.67	20.78	38.69	17.27	**23.48**	**341.37**	0.96	1.18	0.42	0.76	**14.79**	**5.25**	-	-	-	-	-	Yes	No	3aN-TR: cod 3aN,4,7d	4-TR2: cod 3aN,4,7d
Solea solea	86.78	32.76	1,453.16	1.40	2.81	19.34	1.36	1.86	15.64	0.06	1.77	0.30	-	-	-	P1	-	-	-		
Psetta maxima	105.43	27.13	596.19	108.10	2.39	148.31	1.65	1.54	**6.42**	4.76	1.51	2.28	No	-	-	No	-	-	-		4-BT2: turbot 4
Nephrops norvegicus	0.71	0.01	46.41	15.97	0.01	**939.66**	0.01	<0.01	0.50	0.70	<0.01	**14.45**	-	-	-	-	-	-	No		*Nephrops* 4 (FU 5) (see section 2.2.2))
Chelidonichthys lucerna	5.91	2.82	**227.56**	22.43	0.16	**761.42**	0.09	0.16	**2.45**	0.99	0.10	**11.71**	Yes	-	-	No			Yes	4-TR2: tub gurnard	4-BT2: tub gurnard
Scomber scombrus	0.04	0.00	0.04	1.62	1.26	**742.26**	<0.01	0.00	<0.01	0.07	0.79	**11.41**	-	-	-	-	-	-	Yes	mackerel NE Atlantic	

Species	Average 2017-20 (tonnes)						Average 2017-20 (%)						Less resi-lient?	Main species							
														Assessed as main during initial assessment?						Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		
Microstomus kitt	105.38	11.07	67.22	80.60	3.53	48.19	1.65	0.63	0.72	3.55	2.22	0.74	No	-	-	-	-	-	-		
Mullus surmuletus	0.01	0.00	7.63	0.73	0.00	472.66	<0.01	0.00	0.08	0.03	<0.01	7.27	-	-	-	-	-	-	-		
Merlangius merlangus	3.52	0.05	38.20	1.29	0.42	361.56	0.06	<0.01	0.41	0.06	0.27	5.56	-	-	-	-	-	-	P1		
Scophthalmus rhombus	44.98	10.10	215.32	30.35	0.78	58.54	0.70	0.57	2.32	1.34	0.49	0.90	No	-	-	-	-	-	-		
Lophius piscatorius	167.88	20.45	14.55	13.38	1.28	30.82	2.62	1.16	0.16	0.59	0.81	0.47	-	-	-	-	-	-	-		
Eutrigla gurnardus	56.46	8.13	67.60	27.02	0.19	109.29	0.88	0.46	0.73	1.19	0.12	1.68	-	-	-	-	-	-	-		
Cancer pagurus	39.68	17.27	166.11	10.33	0.72	26.24	0.62	0.98	1.79	0.45	0.45	0.40	-	-	-	-	-	-	-		
Melanogrammus aeglefinus	14.98	0.10	0.29	3.12	4.55	82.38	0.23	0.01	<0.01	0.14	2.87	1.27	No	-	-	-	-	-	-		
Merluccius merluccius	12.89	4.43	1.22	4.58	3.25	76.49	0.20	0.25	0.01	0.20	2.04	1.18	No	-	-	-	-	-	-		

Species	Average 2017-20 (tonnes)						Average 2017-20 (%)						Less resi-lient?	Main species							
														Assessed as main during initial assessment?						Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		
Trachurus trachurus	0.00	0.00	0.83	1.40	0.20	**194.73**	0.00	0.00	0.01	0.06	0.13	**2.99**	Yes	-	-	-	-	-	No		horse mackerel 3a,4b-c,7d
Loligo vulgaris	2.24	0.47	16.76	2.54	0.38	146.45	0.04	0.03	0.18	0.11	0.24	2.25	No	-	-	-	-	-	-		
Glyptocephalus cynoglossus	42.82	0.03	0.56	21.59	0.96	12.82	0.67	<0.01	0.01	0.95	0.60	0.20	-	-	-	-	-	-	-		
Martialia hyadesi	2.06	1.42	1.50	5.17	0.64	50.91	0.03	0.08	0.02	0.23	0.41	0.78	-	-	-	-	-	-	-		
Platichthys flesus	0.67	0.24	107.66	0.46	<0.01	7.49	0.01	0.01	1.16	0.02	<0.01	0.12	-	-	-	-	-	-	-		
Raja clavata	1.53	0.18	54.18	6.86	0.11	18.04	0.02	0.01	0.58	0.30	0.07	0.28	-	-	-	-	-	-	-		
Pollachius pollachius	0.28	0.03	0.01	0.03	1.20	3.26	<0.01	<0.01	<0.01	<0.01	0.76	0.05	-	-	-	-	-	-	-		
Sepia officinalis	0.03	0.00	49.86	0.05	0.00	4.38	<0.01	0.00	0.54	<0.01	0.00	0.07	-	-	-	-	-	-	-		
Anarhichas lupus	12.07	0.05	0.70	1.59	0.27	10.63	0.19	<0.01	0.01	0.07	0.17	0.16	-	-	-	-	-	-	-		
Lepidorhombus whiffiagonis	2.29	0.02	0.07	1.62	0.71	2.22	0.04	<0.01	<0.01	0.07	0.45	0.03	-	-	-	-	-	-	-		
Buccinum undatum	4.31	0.74	35.03	0.29	0.00	2.03	0.07	0.04	0.38	0.01	0.00	0.03	-	-	-	-	-	-	-		

Species	Average 2017-20 (tonnes)						Average 2017-20 (%)						Less resi-lient?	Main species							
														Assessed as main during initial assessment?						Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		
Trachinus draco	8.06	4.18	7.00	0.09	0.02	2.79	0.13	0.24	0.08	<0.01	0.01	0.04	-	-	-	-	-	-	-		
Trisopterus luscus	<0.01	0.00	18.06	0.02	0.00	15.81	<0.01	0.00	0.19	<0.01	0.00	0.24	-	-	-	-	-	-	-		
Scyliorhinus canicula	0.60	0.00	29.56	0.29	0.00	2.88	0.01	0.00	0.32	0.01	0.00	0.04	-	-	-	-	-	-	-		
Sardina pilchardus	0.00	0.00	0.00	0.00	0.00	19.51	0.00	0.00	0.00	0.00	0.00	0.30	-	-	-	-	-	-	-		
Raja montagui	0.36	0.03	11.81	1.51	0.01	2.89	0.01	<0.01	0.13	0.07	0.01	0.04	-	-	-	-	-	-	-		
Hippoglossus hippoglossus	0.95	0.02	0.08	1.09	0.16	4.63	0.01	<0.01	<0.01	0.05	0.10	0.07	-	-	-	-	-	-	-		
Aspitrigla cuculus	0.02	0.00	2.27	0.01	0.00	13.42	<0.01	0.00	0.02	<0.01	0.00	0.21	-	-	-	-	-	-	-		
Eriocheir sinensis	0.00	0.00	0.00	4.15	0.00	0.28	0.00	0.00	0.00	0.18	0.00	<0.01	-	-	-	-	-	-	-		
Molva molva	0.33	<0.01	0.10	0.14	0.08	5.91	0.01	<0.01	<0.01	0.01	0.05	0.09	-	-	-	-	-	-	-		
Mustelus mustelus	0.00	0.00	0.06	0.03	0.00	7.07	0.00	0.00	<0.01	<0.01	0.00	0.11	-	-	-	-	-	-	-		
Dicentrarchus labrax	<0.01	<0.01	2.15	0.03	0.00	5.42	<0.01	<0.01	0.02	<0.01	0.00	0.08	-	-	-	-	-	-	-		

Species	Average 2017-20 (tonnes)						Average 2017-20 (%)						Less resi-lient?	Main species							
														Assessed as main during initial assessment?						Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2	4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		4-BT1	3aN-BT1	4-BT2	4-TR1	3aN-TR	4-TR2		
Raja brachyura	0.08	0.00	4.30	0.20	0.00	2.05	<0.01	0.00	0.05	0.01	0.00	0.03	-	-	-	-	-	-	-		
Pecten maximus	0.41	0.00	5.43	0.39	0.00	0.06	0.01	0.00	0.06	0.02	0.00	<0.01	-	-	-	-	-	-	-		
Galeorhinus galeus	0.00	0.00	<0.01	0.03	0.00	3.07	0.00	0.00	<0.01	<0.01	0.00	0.05	-	-	-	-	-	-	-		
Todarodes sagittatus	1.31	0.14	0.13	0.10	0.00	0.11	0.02	0.01	<0.01	<0.01	0.00	<0.01	-	-	-	-	-	-	-		
Maja squinado	0.03	0.00	1.83	0.00	0.00	0.07	<0.01	0.00	0.02	0.00	0.00	<0.01	-	-	-	-	-	-	-		
Spondyliosoma cantharus	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.01	-	-	-	-	-	-	-		
Zeus faber	0.00	0.00	0.05	0.01	0.00	0.36	0.00	0.00	<0.01	<0.01	0.00	0.01	-	-	-	-	-	-	-		
Mustelus asterias	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	<0.01	-	-	-	-	-	-	-		
Grand Total	6,401.36	1,764.95	9,293.14	2,271.48	158.81	6,502.95	100.00	100.00	100.00	100.00	100.00	100.00	-	-	-	-	-	-	-		

Table 86. Summary of DCF self-sampling data for CVO BT and TR UoAs in ICES Subarea 4 (as average proportion of commercially important target species landed and discarded per hour across the metiers within the UoA category – see Table 4 in van_Overzee et al. (2021) **and** H. van_Overzee et al. (2019) **for original data). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font.**

Species	4-BT1 (%)	4-BT2 (%)	4-TR1 (%)	4-TR2 (%)	Less resilient?	Main species					
						Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
						4-BT1	4-BT2	4-TR1	4-TR2		
Scophthalmus rhombus	1.04	0.85	0.40	1.10	-	-	-	-	-		
Gadus morhua	0.04	0.07	0.03	0.24	-	-	-	-	-		
Limanda limanda	**10.25**	**20.75**	**13.41**	**28.79**	-	Yes	Yes	Yes	Yes	dab 3a,4	
Nephrops norvegicus	0.04	0.29	2.39	**26.29**	No	-	-	-	No		*Nephrops* 4 (FU 5) (see section 2.2.2)
Pleuronectes platessa	82.37	66.21	79.12	36.73	-	P1	P1	P1	P1		
Solea solea	3.93	8.07	0.10	1.30	No	-	P1	-	-		
Psetta maxima	2.26	2.23	3.74	1.86	No	-	-	-	-		
Merlangius merlangus	0.08	1.53	0.82	3.70	Yes	-	-	-	P1		

Table 87. Summary of DCF self-sampling data for CVO BT and TR UoAs in ICES Subarea 4 (as average proportion of number of discards per hour across the metiers within the UoA category – see Table 8 in van_Overzee et al. (2021) **and** H. van_Overzee et al. (2019) **for original data). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font.**

Species	Proportion (%) of total number discarded per hour per UoA				Less resilient?	Main species					
						Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	4-BT2	4-TR1	4-TR2		4-BT1	4-BT2	4-TR1	4-TR2		
Agonus cataphractus	0.16	0.57	0.00	0.02	-	-	-	-	-		
Alosa fallax	0.00	<0.01	0.00	0.00	ETP	-	-	-	-		
Amblyraja radiata	0.45	0.10	0.17	0.03	ETP	-	-	-	-		
Ammodytes sp.	0.83	0.14	0.13	0.00	-	-	-	-	-		
Ammodytes tobianus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Arnoglossus laterna	2.04	2.56	0.27	1.06	No	-	-	-	-		
Belone belone	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Buglossidium luteum	2.70	2.23	0.23	0.32	No	-	-	-	-		
Callionymus lyra	0.67	1.02	0.23	0.84	-	-	-	-	-		
Callionymus reticulatus	0.00	0.01	0.00	<0.01	-	-	-	-	-		
Chelidonichthys cuculus	0.00	0.02	0.00	<0.01	-	-	-	-	-		
Chelidonichthys lucerna	0.10	0.25	<0.01	0.07	-	-	-	-	-		
Ciliata mustela	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Clupea harengus	0.05	0.04	0.01	0.05	-	-	-	-	-		
Dicentrarchus labrax	0.00	<0.01	0.00	0.00	-	-	-	-	-		

Species	Proportion (%) of total number discarded per hour per UoA				Less resilient?	Main species					
						Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	4-BT2	4-TR1	4-TR2		4-BT1	4-BT2	4-TR1	4-TR2		
Echiichthys vipera	0.00	0.49	0.00	0.00	-	-	-	-	-		
Enchelyopus cimbrius	0.04	0.06	0.01	0.21	-	-	-	-	-		
Entelurus aequoreus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Eutrigla gurnardus	**5.58**	1.72	**8.41**	**6.45**	-	No	-	Yes	Yes	4-TR1, TR2: grey gurnard	4-BT1: grey gurnard
Gadus morhua	0.04	0.02	0.02	0.07	-	-	-	-	-		
Glyptocephalus cynoglossus	0.00	<0.01	0.01	0.17	-	-	-	-	-		
Gobius niger	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Hippoglossoides platessoides	0.31	0.02	0.18	0.70	-	-	-	-	-		
Hyperoplus lanceolatus	0.33	0.05	0.00	0.00	-	-	-	-	-		
Leucoraja naevus	0.00	<0.01	0.05	<0.01	-	-	-	-	-		
Limanda limanda	**36.67**	**39.77**	**40.99**	**55.16**	-	Yes	Yes	Yes	Yes	dab 3a,4	
Linophryne coronata	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Liparis liparis liparis	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Lophius piscatorius	0.02	0.01	0.03	0.02	-	-	-	-	-		
Melanogrammus aeglefinus	0.04	<0.01	0.00	0.10	-	-	-	-	-		
Merlangius merlangus	0.32	2.72	3.13	6.28	-	-	-	-	P1		
Microchirus variegatus	0.00	<0.01	0.00	0.00	-	-	-	-	-		

Species	Proportion (%) of total number discarded per hour per UoA				Less resilient?	Main species					
						Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	4-BT2	4-TR1	4-TR2		4-BT1	4-BT2	4-TR1	4-TR2		
Microstomus kitt	0.33	0.58	0.85	0.53	-	-	-	-	-		
Molva molva	0.00	0.00	0.00	<0.01	-	-	-	-	-		
Mullus surmuletus	0.00	0.16	0.03	0.08	-	-	-	-	-		
Mustelus sp.	0.00	0.01	0.00	0.01	-	-	-	-	-		
Myoxocephalus scorpius	0.01	0.11	0.00	0.02	-	-	-	-	-		
Parablennius gattorugine	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Pegusa lascaris	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Phrynorhombus norvegicus	0.00	<0.01	0.01	0.03	-	-	-	-	-		
Platichthys flesus	0.02	0.36	0.00	<0.01	-	-	-	-	-		
Pleuronectes platessa	49.18	42.39	43.74	27.45	-	P1	P1	P1	P1		
Pomatoschistus sp.	0.00	0.13	0.00	<0.01	-	-	-	-	-		
Raja brachyura	0.00	0.03	0.02	<0.01	-	-	-	-	-		
Raja clavata	0.00	0.11	0.04	0.01	-	-	-	-	-		
Raja montagui	<0.01	0.13	0.32	0.10	-	-	-	-	-		
Sardinops sagax	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Scomber scombrus	0.00	<0.01	0.00	0.01	-	-	-	-	-		
Scophthalmus maximus	0.01	0.19	0.81	0.05	-	-	-	-	-		

Species	Proportion (%) of total number discarded per hour per UoA				Less resilient?	Main species					
						Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	4-BT2	4-TR1	4-TR2		4-BT1	4-BT2	4-TR1	4-TR2		
Scophthalmus rhombus	0.01	0.12	0.00	0.01	-	-	-	-	-		
Scyliorhinus canicula	0.02	0.12	0.28	0.05	-	-	-	-	-		
Solea solea	0.04	3.28	0.02	0.03	No	-	-	-	-		
Sprattus sprattus	<0.01	0.03	0.02	0.02	-	-	-	-	-		
Squalus acanthias	0.00	0.00	<0.01	<0.01	ETP	-	-	-	-		
Symphodus melanocercus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Syngnathus acus	0.00	0.01	0.00	0.00	-	-	-	-	-		
Syngnathus rostellatus	0.00	0.02	0.00	0.00	-	-	-	-	-		
Trachinus draco	<0.01	0.02	0.00	0.00	-	-	-	-	-		
Trachurus	0.00	<0.01	0.00	<0.01	-	-	-	-	-		
Trachurus esmarkii	0.00	0.00	0.00	<0.01	-	-	-	-	-		
Trisopterus luscus	0.00	0.19	0.00	0.04	-	-	-	-	-		
Trisopterus minutus	0.00	0.06	0.00	0.01	-	-	-	-	-		
Zeus faber	0.00	<0.01	0.00	<0.01	-	-	-	-	-		
Argentina silus	0.00	0.08	0.00	0.00	-	-	-	-	-		
Callionymus maculatus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Callionymus sp.	0.00	<0.01	0.00	0.00	-	-	-	-	-		

Species	Proportion (%) of total number discarded per hour per UoA				Less resilient?	Main species					
						Assessed as main during initial assessment?				Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	4-BT1	4-BT2	4-TR1	4-TR2		4-BT1	4-BT2	4-TR1	4-TR2		
Coryphoblennius galerita	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Helicolenus dactylopterus	0.00	<0.01	0.00	<0.01	-	-	-	-	-		
Holtbyrnia anomala	0.00	0.01	0.00	0.00	-	-	-	-	-		
Kogia breviceps	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Micropogonias undulatus	0.00	0.00	0.00	<0.01	-	-	-	-	-		
Pollachius virens	<0.01	0.00	0.00	0.00	-	-	-	-	-		
Pomatoschistus minutus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Rhincodon typus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Saccopharynx ampullaceus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Scyliorhinus stellaris	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Solea sp.	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Taurulus bubalis	0.00	0.01	0.00	0.00	-	-	-	-	-		
Trachurus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
Uria aalge	0.00	0.00	0.00	<0.01	ETP	-	-	-	-		
Zeugopterus punctatus	0.00	<0.01	0.00	0.00	-	-	-	-	-		
	100.00	100.00	100.00	100.00							

5.2.4 SFPO

Table 88. Summary of landings and discard data for SFPO 3a-POT UoA (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Species assessed under Principle 1 are shown in blue font. Source: SLU

Species	Average 2017-19 (tonnes)	Average 2017-19 (%)	Less resilient?	Main species		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Nephrops norvegicus	300.76	69.10	N/a – P1	-	-	-
Cancer pagurus	**59.51**	**13.67**	-	No	-	edible crab
Liocarcinus depurator	**40.09**	**9.21**		No	-	harbour crab
Gadus morhua	**10.02**	**2.30**	Yes	Yes	cod 3aS	
Asteroidea	6.42	1.47	-	-	-	-
Molva molva	3.49	0.80	-	-	-	-
Buccinum undatum	2.30	0.53	-	-	-	-
Homarus gammarus	1.92	0.44	-	-	-	-
Limanda limanda	1.70	0.39	-	-	-	-
Trisopterus minutus	1.58	0.36	-	-	-	-
Carcinus maenas	1.55	0.36	-	-	-	-
Merlangius merlangus	1.16	0.27	-	-	-	-
Anarhichas lupus	0.74	0.17	-	-	-	-
Galatheidae	0.65	0.15	-	-	-	-
Microstomus kitt	0.49	0.11	-	-	-	-
Lithodes maja	0.43	0.10	-	-	-	-
Raniceps raninus	0.41	0.09	-	-	-	-
Anarhichas spp	0.30	0.07	-	-	-	-
Enchelyopus cimbrius	0.22	0.05	-	-	-	-
Pollachius virens	0.21	0.05	-	-	-	-
Labrus bergylta	0.12	0.03	-	-	-	-
Hippoglossoides platessoides	0.11	0.03	-	-	-	-
Anguilla anguilla	0.11	0.03	-	-	-	-
Zeugopterus punctatus	0.10	0.02	-	-	-	-
Pandalus spp	0.10	0.02	-	-	-	-
Eutrigla gurnardus	0.10	0.02	-	-	-	-
Gobius niger	0.09	0.02	-	-	-	-
Labrus bimaculatus	0.09	0.02	-	-	-	-
Ciliata mustela	0.08	0.02	-	-	-	-
Portunidae	0.05	0.01	-	-	-	-
Symphodus melops	0.05	0.01	-	-	-	-

Species	Average 2017-19 (tonnes)	Average 2017-19 (%)	Less resilient?	Main species		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Eledone cirrosa	0.04	0.01	-	-	-	-
Callionymus lyra	0.03	0.01	-	-	-	-
Cancridae	0.03	0.01	-	-	-	-
Cottunculus microps	0.03	0.01	-	-	-	-
Scomber scombrus	0.03	0.01	-	-	-	-
Sebastes viviparus	0.02	0.01	-	-	-	-
Clupea harengus	0.02	0.01	-	-	-	-
Syngnathus acus	0.02	<0.01	-	-	-	-
Ctenolabrus rupestris	0.02	<0.01	-	-	-	-
Rossia macrosoma	0.01	<0.01	-	-	-	-
Entelurus aequoreus	0.01	<0.01	-	-	-	-
Arnoglossus laterna	0.01	<0.01	-	-	-	-
Agonus cataphractus	0.01	<0.01	-	-	-	-
Capros aper	0.01	<0.01	-	-	-	-
Solea solea	0.01	<0.01	-	-	-	-
Brosme brosme	<0.01	<0.01	-	-	-	-
Trachinus draco	<0.01	<0.01	-	-	-	-
Echinoidea	<0.01	<0.01	-	-	-	-
Scophthalmus rhombus	<0.01	<0.01	-	-	-	-
Grand Total	435.24	100.00	-	-	-	-

Table 89. Summary of landings and discard data for SFPO 3aS SN UoA (in tonnes and % species composition – data only available for 2019). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Species assessed under Principle 1 are shown in blue font. Source: SLU

Species	2019 catch (tonnes)	2019 catch composition (%)	Less resilient?	Main species		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Pleuronectes platessa	8.42	18.93	-	P1	-	-
Cyclopterus lumpus	**7.57**	**17.03**	-	Yes	lumpfish 3a	-
Limanda limanda	**5.78**	**13.00**	-	No	-	dab 3a,4
Solea solea	4.93	11.08	-	P1	-	-
Psetta maxima	**4.47**	**10.06**	-	Yes	turbot 3a	-
Platichthys flesus	**3.30**	**7.42**	-	No	-	flounder 3a, 4
Scophthalmus rhombus	**3.19**	**7.17**	-	No	-	brill 3a, 4, 7
Homarus gammarus	1.74	3.91	No	-	-	-
Gadus morhua	**1.70**	**3.83**	Yes	-	cod 3aS	-
Cancer pagurus	1.29	2.89	No	-	-	-
Merlangius merlangus	0.76	1.70	-	-	-	-
Eutrigla gurnardus	0.19	0.43	-	-	-	-
Glyptocephalus cynoglossus	0.17	0.37	-	-	-	-
Clupea harengus	0.14	0.32	-	-	-	-
Merluccius merluccius	0.12	0.27	-	-	-	-
Microstomus kitt	0.11	0.25	-	-	-	-
Pollachius pollachius	0.11	0.24	-	-	-	-
Scomber scombrus	0.07	0.16	-	-	-	-
Scyliorhinus canicula	0.07	0.15	-	-	-	-
Salmo trutta	0.06	0.13	-	-	-	-
Labrus bergylta	0.05	0.11	-	-	-	-
Anarhichas spp	0.05	0.10	-	-	-	-
Molva molva	0.04	0.10	-	-	-	-
Pollachius virens	0.04	0.09	-	-	-	-
Chelidonichthys lucerna	0.03	0.06	-	-	-	-
Callionymus lyra	0.03	0.06	-	-	-	-
Raniceps raninus	0.01	0.03	-	-	-	-
Hippoglossoides platessoides	0.01	0.03	-	-	-	-
Agonus cataphractus	0.01	0.02	-	-	-	-
Symphodus melops	0.01	0.01	-	-	-	-
Zeugopterus punctatus	<0.01	0.01	-	-	-	-
Trachinus draco	<0.01	<0.01	-	-	-	-

Species	2019 catch (tonnes)	2019 catch composition (%)	Less resilient?	Main species		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Brachyura	<0.01	<0.01	-	-	-	-
Entelurus aequoreus	<0.01	<0.01	-	-	-	-
Grand Total	44.48	100.00		-	-	-

Table 90. Summary of landings and discard data for SFPO 3aN TR PRAWN UoA (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main Species assessed under Principle 1 are shown in blue font. Source: SLU

Species	Average 2017-19 (tonnes)	Average 2017-19 (%)	Less resilient?	Main species		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Pandalus borealis	1,256.19	59.02	-	P1	-	-
Trisopterus esmarkii	**310.81**	**14.60**	-	Yes	Norway pout 3a,4	
Pollachius virens	220.05	10.34	-	P1	-	-
Gadus morhua	**104.77**	**4.92**	Yes	Yes	cod 3aN,4,7d	
Cyclopterus lumpus	28.20	1.32	-	-	-	-
Glyptocephalus cynoglossus	25.15	1.18	-	-	-	-
Raja radiata	24.44	1.15	ETP	-	-	-
Argentina silus	23.54	1.11	-	-	-	-
Lophius piscatorius	16.51	0.78	-	-	-	-
Raja lintea	13.78	0.65	-	-	-	-
Nephrops norvegicus	11.26	0.53	-	-	-	-
Micromesistius poutassou	10.16	0.48	-	-	-	-
Merlangius merlangus	9.02	0.42	-	-	-	-
Scomber scombrus	5.12	0.24	-	-	-	-
Molva molva	7.41	0.35	-	-	-	-
Melanogrammus aeglefinus	7.15	0.34	-	-	-	-
Hippoglossoides platessoides	6.85	0.32	-	-	-	-
Merluccius merluccius	6.53	0.31	-	-	-	-
Maurolicus muelleri	5.37	0.25	-	-	-	-
Chimaera monstrosa	4.75	0.22	-	-	-	-
Clupea harengus	3.49	0.16	-	-	-	-
Phycis blennoides	3.42	0.16	-	-	-	-
Gadiculus argenteus	3.31	0.16	-	-	-	-
Etmopterus spinax	3.02	0.14	-	-	-	-
Pleuronectes platessa	2.69	0.13	-	-	-	-
Liocarcinus depurator	2.19	0.10	-	-	-	-

Species	Average 2017-19 (tonnes)	Average 2017-19 (%)	Less resilient?	Main species		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Pollachius pollachius	2.12	0.10	-	-	-	-
Hippoglossus hippoglossus	1.68	0.08	-	-	-	-
Molva dypterygia	1.00	0.05	-	-	-	-
Raja batis	0.83	0.04	ETP	-	-	-
Argentina sphyraena	0.92	0.04	-	-	-	-
Argentina spp	0.67	0.03	-	-	-	-
Raja clavata	0.57	0.03	-	-	-	-
Illex coindetii	0.37	0.02	-	-	-	-
Squalus acanthias	0.56	0.03	ETP	-	-	-
Coryphaenoides rupestris	0.55	0.03	-	-	-	-
Trisopterus minutus	0.49	0.02	-	-	-	-
Loliginidae	0.49	0.02	-	-	-	-
Brosme brosme	0.43	0.02	-	-	-	-
Anguilla anguilla	0.14	0.01	-	-	-	-
Enchelyopus cimbrius	0.39	0.02	-	-	-	-
Pandalus montagui	0.25	0.01	-	-	-	-
Octopodidae	0.27	0.01	-	-	-	-
Limanda limanda	0.25	0.01	-	-	-	-
Lycodes spp	0.21	0.01	-	-	-	-
Osteichthyes	0.21	0.01	-	-	-	-
Benthosema glaciale	0.13	0.01	-	-	-	-
Penaeus spp	0.12	0.01	-	-	-	-
Loligo forbesi	0.11	0.01	-	-	-	-
Microstomus kitt	0.16	0.01	-	-	-	-
Todaropsis eblanae	0.15	0.01	-	-	-	-
Notoscopelus spp	0.14	0.01	-	-	-	-
Illex spp	0.08	<0.01	-	-	-	-
Alloteuthis subulata	0.12	0.01	-	-	-	-
Todarodes sagittatus	0.04	<0.01	-	-	-	-
Sepietta oweniana	0.09	<0.01	-	-	-	-
Anarhichas spp	0.09	<0.01	-	-	-	-
Trachurus trachurus	0.08	<0.01	-	-	-	-
Helicolenus dactylopterus	0.05	<0.01	-	-	-	-
Myxine glutinosa	0.07	<0.01	-	-	-	-

Species	Average 2017-19 (tonnes)	Average 2017-19 (%)	Less resilient?	Main species		
				Assessed as main during initial assessment?	Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
Myctophidae	0.02	<0.01	-	-	-	-
Sebastes spp	0.06	<0.01	-	-	-	-
Callionymus lyra	0.04	<0.01	-	-	-	-
Eledone cirrosa	0.03	<0.01	-	-	-	-
Psetta maxima	0.03	<0.01	-	-	-	-
Sprattus sprattus	0.03	<0.01	-	-	-	-
Eutrigla gurnardus	0.02	<0.01	-	-	-	-
Scophthalmus rhombus	0.01	<0.01	-	-	-	-
Sepiidae, Sepiolidae	<0.01	<0.01	-	-	-	-
Mullus surmuletus	0.01	<0.01	-	-	-	-
Sebastes viviparus	<0.01	<0.01	-	-	-	-
Trachipterus arcticus	<0.01	<0.01	-	-	-	-
Sepiola atlantica	<0.01	<0.01	-	-	-	-
Labrus bergylta	<0.01	<0.01	-	-	-	-
Sparidae	<0.01	<0.01	-	-	-	-
Gobiidae	<0.01	<0.01	-	-	-	-
Lithodes maja	<0.01	<0.01	-	-	-	-
Arnoglossus laterna	<0.01	<0.01	-	-	-	-
Cephalopoda	<0.01	<0.01	-	-	-	-
Triglops murrayi	<0.01	<0.01	-	-	-	-
Agonus cataphractus	<0.01	<0.01	-	-	-	-
Gobius niger	<0.01	<0.01	-	-	-	-
Crangon crangon	<0.01	<0.01	-	-	-	-
Solea solea	<0.01	<0.01	-	-	-	-
Paralepididae	<0.01	<0.01	-	-	-	-
Ommastrephidae	<0.01	<0.01	-	-	-	-
Lesueurigobius friesii	<0.01	<0.01	-	-	-	-
Dicentrarchus labrax	<0.01	<0.01	-	-	-	-
Zeugopterus punctatus	<0.01	<0.01	-	-	-	-
Spirontocaris lilljeborgii	<0.01	<0.01	-	-	-	-
Grand Total	2,128.57	100.00				

Table 91. Summary of landings and discard data for SFPO 3aN-TR and 3aS-TR UoAs (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: SLU

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
						Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aS-TR	3N-TR	3aS-TR	3N-TR		3aS-TR	3N-TR		
Nephrops norvegicus	796.79	1,207.45	57.46	40.38	-	P1	P1	-	-
Gadus morhua	**53.26**	**419.95**	**3.84**	**14.04**	Yes	Yes	Yes	3aN-TR: cod 3aN,4,7d 3aS-TR: cod 3aS	-
Pollachius virens	0.31	243.01	0.02	8.13	-	-	P1	-	-
Pleuronectes platessa	94.05	157.20	6.78	5.26	-	P1	P1	-	-
Glyptocephalus cynoglossus	6.01	**145.21**	0.43	**4.86**	Yes	-	Yes	3aN-TR: witch 3a,4,7d	-
Melanogrammus aeglefinus	6.01	116.37	0.43	3.89	No	-	-	-	-
Limanda limanda	**172.53**	113.88	**12.44**	3.81	No	Yes	-	3aS-TR: dab 3a,4	-
Lophius piscatorius	0.40	**78.09**	0.03	**2.61**	Yes	-	No	-	3aN-TR: anglerfish 3a,4,6
Merluccius merluccius	16.66	75.52	1.20	2.53	No	-	-	-	-
Raja radiata	0.37	67.45	0.03	2.26	ETP	-	-	-	-
Merlangius merlangus	56.58	66.18	4.08	2.21	No	-	-	-	-
Hippoglossoides platessoides	42.36	61.64	3.06	2.06	No	Yes	Yes	Yes no longer main on data from 2017-2020	-
Liocarcinus depurator	9.88	50.12	0.71	1.68	-	-	-	-	-
Squalus acanthias	13.86	46.82	1.00	1.57	ETP	-	-	-	-
Pollachius pollachius	0.10	18.40	0.01	0.62	-	-	-	-	-
Molva molva	0.93	16.61	0.07	0.56	-	-	-	-	-
Eutrigla gurnardus	22.49	15.15	1.62	0.51	-	-	-	-	-
Scomber scombrus	1.94	9.90	0.14	0.33	-	-	-	-	-
Microstomus kitt	7.63	8.29	0.55	0.28	-	-	-	-	-
Trachurus trachurus	0.43	6.94	0.03	0.23	-	-	-	-	-
Anarhichas spp	0.29	5.84	0.02	0.20	-	-	-	-	-
Scophthalmus rhombus	17.39	5.81	1.25	0.19	-	-	-	-	-
Loliginidae	0.84	5.28	0.06	0.18	-	-	-	-	-
Raja clavata	4.29	5.15	0.31	0.17	-	-	-	-	-
Platichthys flesus	26.38	4.95	1.90	0.17	-	-	-	-	-
Octopodidae	0.19	3.75	0.01	0.13	-	-	-	-	-
Cyclopterus lumpus	0.59	3.41	0.04	0.11	-	-	-	-	-
Clupea harengus	4.97	2.84	0.36	0.10	-	-	-	-	-
Lithodes maja	0.05	2.78	<0.01	0.09	-	-	-	-	-
Trisopterus esmarkii	0.51	2.36	0.04	0.08	-	-	-	-	-
Solea solea	8.50	2.22	0.61	0.07	-	-	-	-	-
Loligo forbesi	0.47	2.11	0.03	0.07	-	-	-	-	-

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
						Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aS-TR	3N-TR	3aS-TR	3N-TR		3aS-TR	3N-TR		
Chimaera monstrosa	0.00	1.81	0.00	0.06	-	-	-	-	-
Hippoglossus hippoglossus	0.01	1.73	<0.01	0.06	-	-	-	-	-
Micromesistius poutassou	0.00	1.61	0.00	0.05	-	-	-	-	-
Raja lintea	0.00	1.42	0.00	0.05	-	-	-	-	-
Callionymus lyra	0.36	1.36	0.03	0.05	-	-	-	-	-
Psetta maxima	3.11	1.35	0.22	0.05	-	-	-	-	-
Trachinus draco	11.32	1.26	0.82	0.04	-	-	-	-	-
Scyliorhinus canicula	0.25	1.05	0.02	0.03	-	-	-	-	-
Cancer pagurus	3.34	0.93	0.24	0.03	-	-	-	-	-
Trisopterus minutus	0.61	0.78	0.04	0.03	-	-	-	-	-
Cephalopoda	0.02	0.67	<0.01	0.02	-	-	-	-	-
Squalidae	0.00	0.56	0.00	0.02	-	-	-	-	-
Asteroidea	0.00	0.53	0.00	0.02	-	-	-	-	-
Enchelyopus cimbrius	0.27	0.46	0.02	0.02	-	-	-	-	-
Phycis blennoides	0.00	0.45	0.00	0.01	-	-	-	-	-
Chelidonichthys lucerna	0.20	0.40	0.01	0.01	-	-	-	-	-
Pandalus borealis	<0.01	0.35	<0.01	0.01	-	-	-	-	-
Osteichthyes	0.76	0.31	0.05	0.01	-	-	-	-	-
Anarhichas lupus	0.04	0.27	<0.01	0.01	-	-	-	-	-
Buccinum undatum	0.00	0.26	0.00	0.01	-	-	-	-	-
Etmopterus spinax	0.00	0.24	0.00	0.01	-	-	-	-	-
Arnoglossus laterna	0.20	0.21	0.01	0.01	-	-	-	-	-
Loligo spp	<0.01	0.16	<0.01	0.01	-	-	-	-	-
Cancridae	0.00	0.16	0.00	0.01	-	-	-	-	-
Todarodes sagittatus	0.02	0.12	<0.01	<0.01	-	-	-	-	-
Mustelus asterias	0.00	0.11	0.00	<0.01	-	-	-	-	-
Raja naevus	0.00	0.09	0.00	<0.01	-	-	-	-	-
Zeus faber	0.02	0.08	<0.01	<0.01	-	-	-	-	-
Brosme brosme	0.00	0.08	0.00	<0.01	-	-	-	-	-
Illex spp	0.01	0.07	<0.01	<0.01	-	-	-	-	-
Dicentrarchus labrax	0.01	0.07	<0.01	<0.01	-	-	-	-	-
Todaropsis eblanae	0.16	0.07	0.01	<0.01	-	-	-	-	-
Lycodes spp	0.02	0.07	<0.01	<0.01	-	-	-	-	-
Alloteuthis subulata	0.11	0.06	0.01	<0.01	-	-	-	-	-

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
						Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aS-TR	3N-TR	3aS-TR	3N-TR		3aS-TR	3N-TR		
Sprattus sprattus	1.23	0.05	0.09	<0.01	-	-	-	-	-
Sebastes viviparus	0.02	0.05	<0.01	<0.01	-	-	-	-	-
Ciliata mustela	0.00	0.04	0.00	<0.01	-	-	-	-	-
Eledone cirrosa	0.00	0.04	0.00	<0.01	-	-	-	-	-
Lesueurigobius friesii	0.04	0.04	<0.01	<0.01	-	-	-	-	-
Sebastes spp	0.00	0.03	0.00	<0.01	-	-	-	-	-
Coryphaenoides rupestris	0.00	0.03	0.00	<0.01	-	-	-	-	-
Serranidae	0.00	0.03	0.00	<0.01	-	-	-	-	-
Gadiculus argenteus	0.00	0.03	0.00	<0.01	-	-	-	-	-
Rossia macrosoma	0.05	0.02	<0.01	<0.01	-	-	-	-	-
Alosa fallax	0.00	0.02	0.00	<0.01	ETP	-	-	-	-
Illex coindetii	0.18	0.02	0.01	<0.01	-	-	-	-	-
Sepietta oweniana	0.04	0.02	<0.01	<0.01	-	-	-	-	-
Myxine glutinosa	0.00	0.02	0.00	<0.01	-	-	-	-	-
Conger conger	<0.01	0.02	<0.01	<0.01	-	-	-	-	-
Molva dypterygia	0.00	0.01	0.00	<0.01	-	-	-	-	-
Argentina spp	0.00	0.01	0.00	<0.01	-	-	-	-	-
Pandalus spp	0.00	0.01	0.00	<0.01	-	-	-	-	-
Argentina sphyraena	0.00	0.01	0.00	<0.01	-	-	-	-	-
Helicolenus dactylopterus	0.00	0.01	0.00	<0.01	-	-	-	-	-
Reinhardtius hippoglossoides	0.00	<0.01	0.00	<0.01	-	-	-	-	-
Pecten maximus	0.06	<0.01	<0.01	<0.01	-	-	-	-	-
Capros aper	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-
Gobius niger	0.00	<0.01	0.00	<0.01	-	-	-	-	-
Galatheidae	0.00	<0.01	0.00	<0.01	-	-	-	-	-
Labrus bergylta	0.07	<0.01	0.01	<0.01	-	-	-	-	-
Clupeidae	0.08	0.00	0.01	0.00	-	-	-	-	-
Anguilla anguilla	0.04	0.00	<0.01	0.00	-	-	-	-	-
Mullus surmuletus	0.03	0.00	<0.01	0.00	-	-	-	-	-
Homarus gammarus	0.01	0.00	<0.01	0.00	-	-	-	-	-
Agonus cataphractus	0.01	0.00	<0.01	0.00	-	-	-	-	-
Gaidropsarus vulgaris	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Sepia spp	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Buglossidium luteum	<0.01	0.00	<0.01	0.00	-	-	-	-	-

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
						Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aS-TR	3N-TR	3aS-TR	3N-TR		3aS-TR	3N-TR		
Raja batis	<0.01	0.00	<0.01	0.00	ETP	-	-	-	-
Loligo vulgaris	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Gobiidae	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Grand Total	1386.655	2990.359	100	100					

Table 92. Summary of landings and discard data from STECF for Swedish 3aN-SN and 3aS-SN UoAs (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: STECF

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
	3aN-SN	3aS-SN	3aN-SN	3aS-SN		Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
						3aN-SN	3aS-SN		
Nephrops norvegicus	0.41	0.00	0.17	0.00	-	-	-	-	-
Pollachius virens	5.06	0.21	2.08	0.29	No	-	-	-	-
Gadus morhua	**65.46**	**6.00**	**26.88**	**8.02**	-	Yes	Yes	3aN-SN: cod 3aN,4,7d 3aS-SN: cod 3aS	-
Melanogrammus aeglefinus	0.22	0.03	0.09	0.03	-	-	-	-	-
Pleuronectes platessa	4.88	11.87	2.00	15.86	No	-	P1	-	-
Glyptocephalus cynoglossus	0.20	0.12	0.08	0.16	-	-	-	-	-
Trachinus draco	0.03	0.06	0.01	0.08	-	-	-	-	-
Scomber scombrus	**101.92**	**10.60**	**41.85**	**14.16**	-	Yes	Yes	mackerel NE Atlantic	-
Merlangius merlangus	0.10	0.02	0.04	0.03	-	-	-	-	-
Merluccius merluccius	0.39	0.03	0.16	0.04	-	-	-	-	-
Lophius piscatorius	3.06	0.00	1.26	0.00	-	-	-	-	-
Limanda limanda	0.03	2.58	0.01	3.45	No	-	-	-	-
Pollachius pollachius	**23.93**	0.60	**9.83**	0.80	-	Yes	-	3aN-SN: pollack 3a	-
Molva molva	0.53	0.05	0.22	0.07	-	-	-	-	-
Clupea harengus	23.93	2.59	9.83	3.46	Yes (herring WBSS)	Yes	Yes	herring NSAS, herring WBSS	-
Anarhichas spp.	0.56	0.11	0.23	0.14	-	-	-	-	-

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
						Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider i scoring under P2
	3aN-SN	3aS-SN	3aN-SN	3aS-SN		3aN-SN	3aS-SN		
Eutrigla gurnardus	<0.01	0.08	<0.01	0.10	-	-	-	-	-
Scophthalmus rhombus	0.25	3.81	0.10	5.09	-	-	-	-	-
Cyclopterus lumpus	2.03	**15.63**	0.83	**20.88**	-	-	Yes	3aS-SN: lumpfish 3a	-
Platichthys flesus	0.00	3.14	0.00	4.19	No	-	-	-	-
Cancer pagurus	10.01	**4.10**	4.11	**5.48**	No	-	Yes	3aS-SN: edible crab	-
Microstomus kitt	0.16	0.06	0.06	0.08	-	-	-	-	-
Solea solea	0.04	**7.21**	0.02	**9.63**	-	-	P1	-	-
Psetta maxima	0.17	**5.89**	0.07	**7.87**	-	-	Yes	3aS-SN: turbot 3a	-
Trachurus trachurus	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Loliginidae	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Hippoglossus hippoglossus	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Osteichthyes	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Lithodes maja	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Brosme brosme	0.05	0.00	0.02	0.00	-	-	-	-	-
Belone belone	0.07	<0.01	0.03	<0.01	-	-	-	-	-
Salmo trutta	0.00	0.06	0.00	0.08	-	-	-	-	-
Sebastes spp.	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Conger conger	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Labrus bergylta	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Chelon labrosus	0.00	<0.01	0.00	<0.01	-	-	-	-	-

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
	3aN-SN	3aS-SN	3aN-SN	3aS-SN		Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider i scoring under P2
						3aN-SN	3aS-SN		
Homarus gammarus	0.00	<0.01	0.00	<0.01	-	-	-	-	-
Brachyura	0.00	<0.01	0.00	<0.01	-	-	-	-	-
Trisopterus minutus	<0.01	0.00	<0.01	0.00	-	-	-	-	-
Grand Total	243.51	74.84	100.00	100.00					

Table 93. Summary of landings and discard data from STECF for Swedish 3aN-SDN and 4-SDN UoAs (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: STECF

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
	3aN-SDN	4-SDN	3aN-SDN	4-SDN		Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
						3aN-SDN	4-SDN		
Nephrops norvegicus	1.06	0.00	0.90	0.00	-	-	-	-	-
Pollachius virens	8.83	25.06	7.51	33.97	-	P1	P1	-	-
Gadus morhua	**19.11**	**33.63**	**16.26**	**45.59**	-	Yes	Yes	cod 3aN,4,7d	
Melanogrammus aeglefinus	12.05	3.51	10.25	4.76	No	P1	-	-	-
Pleuronectes platessa	42.96	1.04	36.57	1.41	-	P1	-	-	-
Glyptocephalus cynoglossus	1.72	0.62	1.47	0.85	-	-	-	-	-
Scomber scombrus	0.65	0.05	0.56	0.06	-	-	-	-	-
Merlangius merlangus	1.54	0.38	1.31	0.51	-	-	-	-	-
Merluccius merluccius	20.33	7.53	17.30	10.20	-	P1	P1	-	-
Lophius piscatorius	1.02	0.90	0.87	1.22	-	-	-	-	-
Limanda limanda	3.63	0.09	3.09	0.13	No	-	-	-	-
Pollachius pollachius	1.23	0.03	1.04	0.04	-	-	-	-	-
Molva molva	0.18	0.16	0.15	0.22	-	-	-	-	-
Anarhichas spp	0.74	0.16	0.63	0.22	-	-	-	-	-
Eutrigla gurnardus	0.41	0.02	0.35	0.03	-	-	-	-	-
Scophthalmus rhombus	0.01	0.00	0.01	0.00	-	-	-	-	-
Microstomus kitt	0.53	0.09	0.45	0.12	-	-	-	-	-

Species	Average 2017-19 (tonnes)		Average 2017-19 (%)		Less resilient?	Main species			
	3aN-SDN	4-SDN	3aN-SDN	4-SDN		Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
						3aN-SDN	4-SDN		
Psetta maxima	0.03	0.03	0.02	0.04	-	-	-	-	-
Trachurus trachurus	0.05	0.12	0.04	0.16	-	-	-	-	-
Hippoglossus hippoglossus	0.23	0.21	0.20	0.28	-	-	-	-	-
Octopodidae	1.19	0.15	1.01	0.20	-	-	-	-	-
Grand Total	117.50	73.78	100.00	100.00					

Table 94. Summary of landings and discard data from STECF for Swedish 3aN-TR, 3aS-TR, 4-TR1 UoAs (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: STECF

Species	Average 2017-19 (tonnes)			Average 2017-19 (%)			Less resilient?	Main species				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to conside in scoring under P2
	3aN-TR	3aS-TR	4-TR1	3aN-TR	3aS-TR	4-TR1		3aN-TR	3aS-TR	4-TR1		
Nephrops norvegicus	738.05	590.43	0.12	35.61	56.95	0.01	-	P1	P1	-	-	-
Pollachius virens	233.84	0.21	787.91	11.28	0.02	58.94	-	P1	-	P1	-	-
Gadus morhua	**397.29**	**47.56**	**292.97**	**19.17**	**4.59**	**21.91**	Yes	Yes	Yes	Yes	3aN-TR, 4-TR1: cod 3aN,4,7d 3aS-TR: cod 3aS	-
Melanogrammus aeglefinus	103.01	5.87	125.27	4.97	0.57	9.37	-	P1	-	P1	-	-
Pleuronectes platessa	98.53	77.67	2.25	4.75	7.49	0.17	No	P1	P1	-	-	-
Glyptocephalus cynoglossus	**143.26**	4.95	0.71	**6.91**	0.48	0.05	-	Yes	-	-	3aN-TR: witch 3a,4,7d	-
Trachinus draco	0.70	**139.93**	0.00	0.03	**13.50**	0.00	-	-	No	-	-	3aS-TR: greater weever 3a
Merlangius merlangus	58.69	**51.81**	3.70	2.83	**5.00**	0.28	No	-	Yes	-	3aS-TR: whiting 3a	-
Lophius piscatorius	**76.67**	0.38	20.33	**3.70**	0.04	1.52	Yes	No	-	-	-	3aN-TR: anglerfish 3a,4,6
Limanda limanda	52.77	31.84	0.18	2.55	3.07	0.01	No	-	-	-	-	-
Merluccius merluccius	51.40	14.57	11.75	2.48	1.41	0.88	No	-	-	-	-	-

Species	Average 2017-19 (tonnes)			Average 2017-19 (%)			Less resilient?	Main species				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to conside in scoring under P2
	3aN-TR	3aS-TR	4-TR1	3aN-TR	3aS-TR	4-TR1		3aN-TR	3aS-TR	4-TR1		
Pollachius pollachius	17.15	0.10	36.91	0.83	0.01	2.76	No	-	-	-	-	-
Molva molva	16.36	0.92	18.82	0.79	0.09	1.41	-	-	-	-	-	-
Eutrigla gurnardus	8.72	15.89	0.23	0.42	1.53	0.02	-	-	-	-	-	-
Anarhichas spp.	5.07	0.28	19.37	0.24	0.03	1.45	-	-	-	-	-	-
Hippoglossoides platessoides	21.55	2.24	0.00	1.04	0.22	0.00	-	-	-	-	-	-
Scophthalmus rhombus	3.06	14.21	0.01	0.15	1.37	<0.01	-	-	-	-	-	-
Platichthys flesus	1.18	14.00	0.00	0.06	1.35	0.00	-	-	-	-	-	-
Microstomus kitt	6.57	4.89	3.68	0.32	0.47	0.28	-	-	-	-	-	-
Scomber scombrus	8.21	1.89	1.34	0.40	0.18	0.10	-	-	-	-	-	-
Solea solea	1.31	6.12	0.00	0.06	0.59	0.00	-	-	-	-	-	-
Loliginidae	4.29	0.81	1.84	0.21	0.08	0.14	-	-	-	-	-	-
Trachurus trachurus	6.40	0.39	0.02	0.31	0.04	<0.01	-	-	-	-	-	-
Hippoglossus hippoglossus	1.43	0.01	4.53	0.07	<0.01	0.34	-	-	-	-	-	-
Clupea harengus	0.84	4.04	0.00	0.04	0.39	0.00	-	-	-	-	-	-
Psetta maxima	1.08	2.77	0.92	0.05	0.27	0.07	-	-	-	-	-	-
Squalus acanthias	3.94	0.00	0.00	0.19	0.00	0.00	ETP	-	-	-	-	-
Osteichthyes	0.25	0.76	2.56	0.01	0.07	0.19	-	-	-	-	-	-
Lithodes maja	2.72	0.05	0.00	0.13	<0.01	0.00	-	-	-	-	-	-
Octopodidae	2.40	0.08	0.01	0.12	0.01	<0.01	-	-	-	-	-	-

Species	Average 2017-19 (tonnes)			Average 2017-19 (%)			Less resilient?	Main species				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to conside in scoring under P2
	3aN-TR	3aS-TR	4-TR1	3aN-TR	3aS-TR	4-TR1		3aN-TR	3aS-TR	4-TR1		
Cancer pagurus	0.55	1.66	0.00	0.03	0.16	0.00	-	-	-	-	-	-
Cyclopterus lumpus	1.42	0.19	0.11	0.07	0.02	0.01	-	-	-	-	-	-
Brosme brosme	0.08	0.00	1.32	<0.01	0.00	0.10	-	-	-	-	-	-
Raja clavata	1.28	0.00	0.00	0.06	0.00	0.00	-	-	-	-	-	-
Raja lintea	1.16	0.00	0.00	0.06	0.00	0.00	-	-	-	-	-	-
Chimaera monstrosa	0.67	0.00	0.00	0.03	0.00	0.00	-	-	-	-	-	-
Pandalus borealis	0.34	<0.01	0.00	0.02	<0.01	0.00	-	-	-	-	-	-
Buccinum undatum	0.15	0.00	0.00	0.01	0.00	0.00	-	-	-	-	-	-
Trisopterus esmarkii	0.09	0.05	0.00	<0.01	<0.01	0.00	-	-	-	-	-	-
Todarodes sagittatus	0.12	0.02	0.00	0.01	<0.01	0.00	-	-	-	-	-	-
Pecten maximus	<0.01	0.06	0.00	<0.01	0.01	0.00	-	-	-	-	-	-
Sebastes spp.	0.02	0.00	0.02	<0.01	0.00	<0.01	-	-	-	-	-	-
Micromesistius poutassou	0.03	0.00	0.00	<0.01	0.00	0.00	-	-	-	-	-	-
Conger conger	0.02	0.00	0.01	<0.01	0.00	<0.01	-	-	-	-	-	-
Labrus bergylta	0.00	0.02	0.00	0.00	<0.01	0.00	-	-	-	-	-	-
Chelidonichthys lucerna	0.00	0.02	0.00	0.00	<0.01	0.00	-	-	-	-	-	-
Dicentrarchus labrax	0.01	<0.01	0.00	<0.01	<0.01	0.00	-	-	-	-	-	-
Molva dypterygia	0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-	-	-
Zeus faber	<0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-	-	-

Species	Average 2017-19 (tonnes)			Average 2017-19 (%)			Less resilient?	Main species				
								Assessed as main during initial assessment?			Stocks to update status on at surveillance under P2	New stocks to conside in scoring under P2
	3aN-TR	3aS-TR	4-TR1	3aN-TR	3aS-TR	4-TR1		3aN-TR	3aS-TR	4-TR1		
Reinhardtius hippoglossoides	<0.01	0.00	0.00	<0.01	0.00	0.00	-	-	-	-	-	-
Sepia spp.	0.00	<0.01	0.00	0.00	<0.01	0.00	-	-	-	-	-	-
Raja batis	0.00	<0.01	0.00	0.00	<0.01	0.00	ETP	-	-	-	-	-
Homarus gammarus	0.00	<0.01	0.00	0.00	<0.01	0.00	-	-	-	-	-	-
Grand Total	2072.70	1036.68	1336.89	100.00	100.00	100.00						

Table 95. Summary of landings and discard data from STECF for Swedish 3aN-TR PRAWN, 3aS-TR PRAWN UoAs (in tonnes and % species composition). Amongst the species making up between 2-5% of the total catch, those that are 'less resilient' (SA3.4.2.2) are indicated. Species that make up more than 5% of the total catch, or more than 2% and are less resilient, are considered as 'main' and are marked in bold. Main species assessed under Principle 1 are shown in blue font. Source: STECF

Species	Average tonnes		Average %		Less resilient?	Main species			
						Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aS-TR PRAWN	3aN-TR PRAWN	3aS-TR PRAWN	3aN-TR PRAWN		3aS-TR PRAWN	3aN-TR PRAWN		
Pandalus borealis	11.69	1411.49	84.73	63.20	-	P1	P1	-	-
Trisopterus esmarkii	<0.01	**296.96**	0.01	**13.30**	-	-	Yes	3aN-TR PRAWN: Norway pout 3a,4	-
Pollachius virens	0.01	**212.78**	0.09	**9.53**	-	-	P1	-	-
Gadus morhua	**1.97**	**114.01**	**14.28**	**5.10**	-	Yes	Yes	3aN-TR PRAWN: cod 3aN,4,7d 3aS-TR PRAWN: cod 3aS	-
Micromesistius poutassou	0.00	67.00	0.00	3.00	No	-	-	-	-
Glyptocephalus cynoglossus	<0.01	35.33	<0.01	1.58	-	-	-	-	-
Lophius piscatorius	<0.01	16.08	0.01	0.72	-	-	-	-	-
Raja lintea	0.00	12.06	0.00	0.54	-	-	-	-	-
Cyclopterus lumpus	0.01	11.58	0.06	0.52	-	-	-	-	-
Nephrops norvegicus	0.01	10.41	0.10	0.47	-	-	-	-	-
Merlangius merlangus	<0.01	8.83	0.02	0.40	-	-	-	-	-
Molva molva	<0.01	7.12	0.02	0.32	-	-	-	-	-
Melanogrammus aeglefinus	0.02	6.50	0.12	0.29	-	-	-	-	-

Species	Average tonnes		Average %		Less resilient?	Main species			
						Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aS-TR PRAWN	3aN-TR PRAWN	3aS-TR PRAWN	3aN-TR PRAWN		3aS-TR PRAWN	3aN-TR PRAWN		
Merluccius merluccius	<0.01	6.20	0.02	0.28	-	-	-	-	-
Clupea harengus	0.00	3.88	0.00	0.17	-	-	-	-	-
Pleuronectes platessa	0.06	3.03	0.42	0.14	-	-	-	-	-
Chimaera monstrosa	0.00	2.27	0.00	0.10	-	-	-	-	-
Pollachius pollachius	0.01	1.77	0.11	0.08	-	-	-	-	-
Hippoglossus hippoglossus	0.00	1.65	0.00	0.07	-	-	-	-	-
Osteichthyes	0.00	1.18	0.00	0.05	-	-	-	-	-
Molva dypterygia	0.00	0.73	0.00	0.03	-	-	-	-	-
Brosme brosme	0.00	0.45	0.00	0.02	-	-	-	-	-
Coryphaenoides rupestris	0.00	0.40	0.00	0.02	-	-	-	-	-
Loliginidae	0.00	0.40	0.00	0.02	-	-	-	-	-
Octopodidae	<0.01	0.24	0.01	0.01	-	-	-	-	-
Pandalus montagui	0.00	0.19	0.00	0.01	-	-	-	-	-
Trisopterus minutus	0.00	0.18	0.00	0.01	-	-	-	-	-
Microstomus kitt	<0.01	0.16	<0.01	0.01	-	-	-	-	-
Penaeus spp.	0.00	0.13	0.00	0.01	-	-	-	-	-
Limanda limanda	0.00	0.10	0.00	<0.01	-	-	-	-	-
Anarhichas spp.	<0.01	0.06	0.02	<0.01	-	-	-	-	-
Sebastes spp.	0.00	0.06	0.00	<0.01	-	-	-	-	-

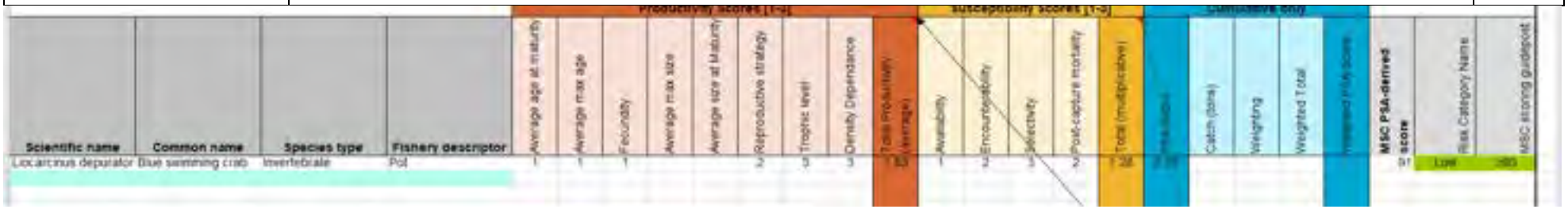
Species	Average tonnes		Average %		Less resilient?	Main species			
						Assessed as main during initial assessment?		Stocks to update status on at surveillance under P2	New stocks to consider in scoring under P2
	3aS-TR PRAWN	3aN-TR PRAWN	3aS-TR PRAWN	3aN-TR PRAWN		3aS-TR PRAWN	3aN-TR PRAWN		
Raja clavata	0.00	0.05	0.00	<0.01	-	-	-	-	-
Psetta maxima	0.00	0.03	0.00	<0.01	-	-	-	-	-
Trachurus trachurus	0.00	0.03	0.00	<0.01	-	-	-	-	-
Scophthalmus rhombus	0.00	0.02	0.00	<0.01	-	-	-	-	-
Eutrigla gurnardus	0.00	0.01	0.00	<0.01	-	-	-	-	-
Trachinus draco	0.00	0.01	0.00	<0.01	-	-	-	-	-
Pecten maximus	0.00	<0.01	0.00	<0.01	-	-	-	-	-
Trachipterus arcticus	0.00	<0.01	0.00	<0.01	-	-	-	-	-
Grand Total	13.79743	2233.361	100	100					

5.3 RBF – *Liocarcinus depurator* (blue-leg swim crab)

Table 96. Productivity Susceptibility Analysis for *Liocarcinus depurator* (blue-leg swim crab)

a. Productivity (from https://www.marlin.ac.uk/species/detail/1175 unless otherwise indicated)		
Attribute	**Rationale**	**Score**
Average age at maturity	1 year	1
Average maximum age	<10 years	1
Fecundity	100,000-1,000,000 eggs	1
Reproductive strategy	Females carry the eggs but larvae are planktonic – precautionary score of 2.	2
Trophic level	3.4 – 3.5	3
Density dependence (to be used when scoring invertebrate species only)	Not known – precautionary score of 3	3
b. Susceptibility (from https://www.marlin.ac.uk/species/detail/1175 unless otherwise indicated)		
Attribute	**Rationale**	**Score**
Areal Overlap	Distributed from Norway to West Africa including the Mediterranean. SFPO *Nephrops* pot fishery is restricted to 3a only. Areal overlap estimated at less than 10%.	1

	 **Figure 37. Areas fished by the Swedish pot fleet in the Kattegat (within blue border), with Natura 2000 sites shown. Source: SFPO – from Public Certification Report**	
Encounterability	Depth range -5m to -300m+. *Nephrops* are commonly found at depths of between 5m to -300m+. According to stakeholder D. Valentinsson (SLU) the absolute majority (>90 %) of the *Nephrops* creel fishery in 3a takes place at depths between 35 m - 80 m. Vertical overlap is estimated at less than 10%. However, because of bait use a more precautionary score of 2 is given.	2
Selectivity of gear type	Gear selectivity unknown - Individuals < size at maturity maybe frequently caught. – precautionary score given	3
Post capture mortality	>99% are discarded according to SLU observer data. Mortality rates are unknown. According to stakeholder D. Valentinsson (SLU) despite mortality rates being unknown for this gear and species he noted that crustacean fisheries around the world are managed by minimum sizes and v-notch/berried female restrictions- these management measures are all dependent on high survivability. He sees no reason to expect any difference for *Liocarcinus* and proposed to change the score to 1 on this basis. In view of these comments, but considering the lack of species-specific data, the team awarded a precautionary risk score of 2.	2



Stakeholder engagement on RBF

Stakeholder were informed of the need to undertake an RBF for *Liocarcinus depurator* (blue-leg swim crab) via an MSC notification which contained the information below. A single email response was received and accounted for in the scoring by the assessment team. This response is shown below the RBF information

5.3.1 Information Background

Following analysis of data records in the Year 1 surveillance audit of the Joint demersal fisheries in the North Sea and adjacent waters, one secondary main species was identified in Subarea 3a (Skagerrak and Kattegat), which were not included in the original assessment.

No biologically based limits are available for this stock, derived either from analytical stock assessment or using empirical approaches. As such CU (UK) are required to announce the use of RBF for PI2.2.1 for these elements.

The species and area concerned are:

Liocarcinus depurator - blue-leg swim crab in subarea 3a

The gear types concerned are:

Nephrops Pots

As per the requirements of Annex PF of the MSC FCP2.2., the required approach for PI 2.2.1 is use of the Productivity Susceptibility Analysis (PSA). The PSA is a tool that can be used by MSC Assessment Teams to assess the risk posed by a fishery to species for which there is only limited information available. The RBF process is intended to gather and use information from stakeholders in a structured manner; it is also intended to produce a more precautionary assessment of impact than if the MSC's default assessment tree is employed. We have tried to simplify the PSA process to produce this questionnaire, but there is still some complexity in the process. Where we ask for information from stakeholder on areas of this PSA we have highlighted in the following sections in green highlight.

If you have any queries about the MSC process, you can find more information at the MSC website (www.msc.org), including information about the fishery (https://fisheries.msc.org/en/fisheries/joint-demersal-fisheries-in-the-north-sea-and-adjacent-waters/@@view); alternatively, you can get in touch with us directly (using the contact details below). The MSC also provides an official template for stakeholder comments, to use if you have views on this aspect of the fishery; it can be downloaded at http://www.msc.org/documents/get-certified/stakeholders. Thank you for taking the time to participate in this assessment.

Control Union (UK) Limited
56 High Street, Lymington,
Hampshire, SO41 9AH
United Kingdom
Tel: 01590 613007
Fax: 01590 671573
Email: infofishuk@controlunion.com
Web: uk.controlunion.com

5.3.2 Stakeholder information

Before you start the questionnaire, we need to have your contact details so that we can keep in touch with you as the assessment of the fishery proceeds through its different steps. This will ensure that you are kept fully up to date with progress and that you have further opportunities to participate in the assessment process.

We respect your privacy and security and will only use this information in accordance with the statement below and in compliance with EU GDPR.

5.3.3 Privacy, Transparency and Confidentiality

1. We ask for your e-mail address in case we need to contact you for clarification of your comments.

2. The MSC process requires assessment inputs to be transparent and verifiable. We will list you as a stakeholder that has contributed to this assessment and may publish your interview response in assessment documents.

3. Your privacy is important to us. We will not publish your e-mail address, nor will we share it with any third parties.

In accordance with the statement above, please provide the following information:

Name:

Company/Organisation:

City/Town:

Country:

Email Address:

Phone Number (please include international code):

5.3.3.1 Catch profiles and data availability

During the initial assessment, UoA catch profile data were assessed for years up to 2016 only. The current surveillance therefore aimed to update the datasets, to include the period 2017-19 (at the time of surveillance not all 2020 datasets were fully available; the decision was therefore made to apply the 2019 cut-off for consistency). As per the initial assessment, the catch profiles were compiled from a number of datasets which differ between fishery clients. For this RBF the SLU dataset for the SFPO client is the one of interest.

SFPO

SLU in Sweden have continued their observer programme under the EU DCF which involves a risk-based sampling of vessels by métier, target species and gear type with 5 strata developed for the Kattegat/Skagerrak area:

2017-19 observer data were available for the SFPO UoA 3a-POT.

The above observer data were supplemented with data downloaded from the STECF database covering catch (i.e. landings plus estimated discards where available) by species and gear type. It should be noted that these data cover the entire Swedish fleet rather than just SFPO landings, as per the approach used at full assessment. For the 3a-POT UoA, the STECF database includes *Nephrops* creels as 'POTS' along with other types of pots such as edible crab and lobster pots, whereas in practice there is no overlap between these fisheries. The bycatch profile for this UoA is therefore solely based on the observer data.

5.3.4 Supporting information

The table below shows the stock and gear combination under consideration for the RBF stakeholder input

Table 97. Overview of new main secondary species for UoAs identified at Surveillance Year 1.

3a-POT
blue-leg swim crab (*Liocarcinus depurator*) 3a

In line with Annex PF of the MSC Fisheries Certification Process FCP 2.2, the following information should be provided to stakeholders prior to the RBF workshop taking place:

- Management arrangements in place together with any specific strategies, such as bycatch mitigation or recovery strategies
- Descriptions of any monitoring strategies in place, including at-sea observer programmes (coverage, duration, objectives).
- Maps of the distribution of fishing effort within the jurisdictional boundaries of the fishery
- Maps of distribution of all fishing effort on the target stock outside the fishery being certified
- Species, habitat and community distributions (including depth ranges)

5.3.5 Management systems

Note: mesh size measures as detailed in **850/98**

(http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1998R0850:20060117:EN:PDF)

and **Omnibus regulation** (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R0812&from=EN)

Stock	**management**
blue-leg swim crab (*Liocarcinus depurator*)	Commercial pots used in shallow water (<30m) must have a 75mm diameter opening; restrictions on the amount of gear for recreational fishers

5.3.6 Monitoring strategies

Stock	Monitoring
blue-leg swim crab (*Liocarcinus depurator*)	UoA observer data analysis of the pot fishery

5.3.7 Guide to PSA

The PSA is described in detail in the MSC Fisheries Certification Process V2.2 (Annex PF4, MSC 2018).

In summary, the data required for the PSA are divided in to two sections, one covering 'productivity' attributes (which effectively describe the biological attributes of the species', and one covering 'susceptibility' attributes (which effectively describe the potential for interaction between the species and the UoA).

The productivity attributes for a species are species-specific and do not change between fisheries, and the Assessment Team has already derived productivity information for each species from available online sources.

Information and provisional scoring of 'Productivity' is provided in the following sections. We request that you review this information and confirm that you agree with the Assessment Team's findings, or otherwise.

Information of "Susceptibility" is provided in the following sections. Please, review the 'Susceptibility' information provided and please use the space provided to draft your own scores for susceptibility to support finalisation of the PSA scores for the species under review.

5.3.8 Susceptibility attributes and scores

A few guidance notes have been listed below to aid stakeholders in the completion of the susceptibility questionnaire. Please note that this guidance is not exhaustive and stakeholders are encouraged to consult the MSC Fisheries Certification Requirements v2.01 (Annex PF).

Table: PSA susceptibility attributes and scores (extract from MSC FCRv2.0, Annex PF)

Susceptibility attribute	Low susceptibility (Low risk, score=1)	Medium susceptibility (medium risk, score=2)	High susceptibility (high risk, score=3
Areal overlap (availability) Overlap of the fishing effort with a species concentration of the stock	<10% overlap	10-30% overlap	>30% overlap
Encounterability The position of the stock/species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Low overlap with fishing gear (low encounterability)	Medium overlap with fishing gear	High overlap with fishing gear (high encounterability) Default score for target species (P1)
Selectivity of gear type Potential of the gear to retain species	a Individual < size at maturity are rarely caught	a Individuals < size at maturity are regularly caught	a Individuals < size at maturity are frequently caught
	b Individuals < size at maturity can escape or avoid gear	b Individuals < half the size at maturity can escape or avoid gear	b Individuals < half the size at maturity are retained by gear
Post-capture mortality (PCM) The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Evidence of majority released postcapture and survival	Evidence of some released postcapture and survival	Retained species or majority dead when released Default score for retained species (P1 or P2)

Where there is limited information available to score a susceptibility attribute, the more precautionary score shall be awarded

Aerial overlap:

- Where the impacts of fisheries other than the UoA are taken into account, the areal overlap shall be scored as the combined overlap of all listed fisheries with the areal concentration of a stock

- The scoring of areal overlap shall consider the concentration of species and the overlap of the fishing gear with the concentration species

Encounterability:

- Where the impacts of fisheries other than the UoA are taken into account, encounterability shall be scored as the combined encounterability of all listed fisheries

- The scoring of encounterability shall consider the concentration of species and the overlap of the fishing gear with the concentration species

- The deployment of fishing gear in relation to each species adult habitat is the main aspect to be considered for each species

Gear selectivity:

'Rarely' means that the capture of individuals smaller than the size at maturity occurs in less than 5% few gear deployments.

'Regularly' means that the capture of individuals smaller than the size at maturity occurs in 5% to 50% of the gear deployments.

'Frequently' means that the capture of individuals smaller than the size at maturity occurs in more than 50% of gear deployments.

Post-capture mortality:

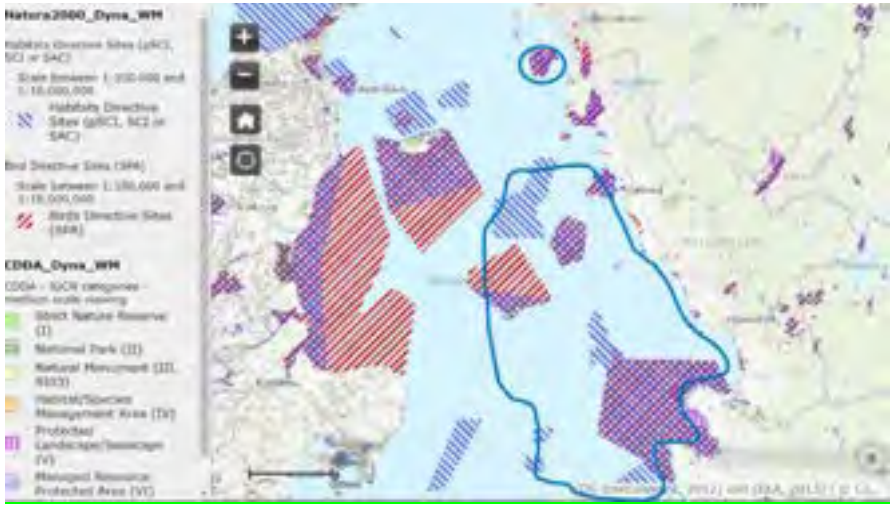
- The team shall use its knowledge of species biology and fishing practice together with independent field observations to assess the chance that, if captured, a species would be released and that it would be in a condition to permit subsequent survival

- In the absence of observer data or other verified field observations made during commercial fishing operations that indicate the individuals are released alive and post-release survivorship is high, the default value for the PCM of all species shall be high

5.3.8.1 *Liocarcinus depurator* (blue-leg swim crab)

Table 98. Productivity Susceptibility Analysis for *Liocarcinus depurator* (blue-leg swim crab)

a. Productivity (from https://www.marlin.ac.uk/species/detail/1175 unless otherwise indicated)		
Attribute	**Rationale**	**Score**
Average age at maturity	1 year	1
Average maximum age	<10 years	1
Fecundity	100,000-1,000,000 eggs	1
Reproductive strategy	Females carry the eggs but larvae are planktonic – precautionary score of 2.	2
Trophic level	3.4 – 3.5 (Fishbase)	3
Density dependence (to be used when scoring invertebrate species only)	Not known – precautionary score of 3	3
b. Susceptibility (from https://www.marlin.ac.uk/species/detail/1175 unless otherwise indicated)		
Attribute	**Rationale**	**Score**
Areal Overlap	Distributed from Norway to West Africa including the Mediterranean. SFPO *Nephrops* pot fishery is restricted to 3a only. Areal overlap estimated at less than 10%.	1

	 **Figure. Areas fished by the Swedish pot fleet in the Kattegat (within blue border), with Natura 2000 sites shown. Source: SFPO – from Public Certification Report**	
Encounterability	Depth range -5m to -300m+. *Nephrops* are commonly found at depths of between 200-800 m. Vertical overlap estimated at less than 10%. However, because of bait being used in pots which would attact the crabs a more precautionary score of 2 is given.	2
Selectivity of gear type	Commercial pots used in shallow water (<30m) must have a 75mm diameter opening; which is larger than the average size of adults (51 mm wide and 40 mm long). SLU comment that the openings on all crab traps are constructed so that crabs can escape all the time and if they are caught are returned with assumed high survivability. Given the above information a medium score is assigned	2
Post capture mortality	>99% are discarded according to SLU observer data. Mortality rates are unknown but SLU assume a high survivability of crabs associated with pot captures. A precautionary medium score (2) is given on the basis of the SLU opinion.	2

5.3.9 Stakeholder comments on *Liocarcinus depurator* (blue-leg swim crab) PSA

1) Are there any 'Productivity' provisional scores that you do not agree with?

2) If you disagree with any provisional score, please provide your score and any supporting information with references if available.

3) Are there any 'suspectability' provisional scores that you do not agree with?

4) If you disagree with any provisional score, please provide your score and any supporting information with references if available.

5.3.9.1 Stakeholder comments

Från: Daniel Valentinsson <daniel.valentinsson@slu.se>
Skickat: den 1 juli 2021 14:09
Till: Lizette <lizette@sfpo.se
Ämne: Re: VB: 3135 (Stakeholders) JDF Joint demersal fisheries

Hej- nu har jag tittat lite snabbt på PSA:n de föreslog. Jag har dels kommenterat i pdf-dokumentet (bifogas) och vill också göra dem uppmärksamma på ett examensarbete som just gjorts vid Göteborgs Universitet och där jag varit delaktig- detta arbete har just tittat på PSA:er för ryggradslösa djur gentemot svenska fisken (och där denna simkrabba och burfisket finns med)- se bifogad wordfil. Förslag till text att skicka vidare från mig:

Hi
I have read your preliminary PSA-assessment and made some comments and corrections to the text (see pdf). I also attach a draft version of a master thesis by Linnea Morgan at Göteborg University (obs this is a draft version not to be spread). She has used PSA-methodology to broadly identify knowledge gaps and potential species/fisheries of larger concerns/risks for marine invertebrates in 3a. Liocarcinus depurator is one of the species in this work and also the Nephrops creel fishery is one of the fisheries covered in her work- the PSA-scores in the thesis are generally lower than the ones you proposed- see attached word file
Best regards Daniel

Daniel Valentinsson
Sveriges Lantbruksuniversitet / Swedish University of Agricultural Sciences
Institutionen för Akvatiska Resurser / Department of Aquatic Resources (SLU Aqua)
Havsfiskelaboratoriet / Institute of Marine Research
Turistgatan 5
S- 453 30 Lysekil
Sweden
Tel +46(0)10478 4049
web: www.slu.se/sv/institutioner/akvatiska-resurser/kontakt/havsfiskelaboratoriet/
personal web: www.slu.se/sv/institutioner/akvatiska-resurser/kontakt/personliga-sidor/personpresentation-daniel-valentinsson/

CONTROLUNION

Control Union (UK) Limited

Joint demersal fisheries in the North Sea and adjacent waters

MSC Use of the Risk-Based Framework (RBF)

CAB Response:

thank you for your input the comments are well received, and we have amended scores in the PSA as result	Accepted (information for PI has changed, score increased)