

MSC SUSTAINABLE FISHERIES CERTIFICATION

Off-Site Surveillance Visit - Report for Danish and Swedish Nephrops (Swedish Component) Fishery



3rd Surveillance stage

June 2018

Certificate Code	F-ACO-0102
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Assessment Data Sheet

Fishery name	Danish and Swedish Nephrops (Swedish Component) Fishery	
Species and Stock	<i>Nephrops norvegicus</i> ICES Division IIIa Danish/Swedish Nephrops	
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Contents

1	Introduction	1
1.1	Scope of Surveillance	1
1.2	Aims of the Surveillance.....	2
1.3	Certificate Holder Details	2
2	Surveillance Process	3
2.1	Findings of the original assessment.....	3
2.2	Surveillance Activity	3
2.2.1	Surveillance team details	3
2.2.2	Date & Location of surveillance audit.....	3
2.2.3	Stakeholder consultation & meetings.....	3
2.2.4	What was inspected	3
2.2.5	Stakeholder Consultation	3
2.3	Surveillance Standards	4
2.3.1	MSC Standards, Requirements and Guidance used	4
2.3.2	Confirmation that destructive fishing practices or controversial unilateral exemptions have not been introduced.....	4
3	Updated Fishery Background	5
3.1	Changes in the management system	5
3.2	Changes in relevant regulations.....	5
3.3	Changes to personnel involved in science, management or industry.....	5
3.4	Changes to scientific base of information including stock assessments	5
3.5	Changes and updates on Ecosystem issues	10
3.6	Harmonisation	11
3.7	Any developments or changes within the fishery which impact traceability or the ability to segregate between fish from the Unit of Certification (UoC) and fish from outside the UoC (non-certified fish).....	11
3.8	TAC and catch data	11
3.9	Summary of Assessment Conditions	12
4	Results	13
4.1	Condition 1	13
4.2	Condition 2	14
4.3	Condition 3 (UoC 4 only).....	18
4.4	Condition 4 (UoC 1, 2, 3 and 4)	23
4.5	Condition 5 (UoC 1, 2, 3 and 4)	27
5	Conclusion.....	34
5.1	Summary of findings	34
6	References	34
	Appendix 1 – Re-scoring evaluation tables.....	36
	Appendix 2 - Stakeholder submissions (if any).....	37

Appendix 3 - Surveillance audit information (if necessary)	38
Appendix 4 - Additional detail on conditions/ actions/ results (if necessary)	39
Appendix 5 - Revised Surveillance Program (if necessary)	40

1 Introduction

1.1 Scope of Surveillance

This report outlines the findings of the 3rd Annual Surveillance of the Danish and Swedish Nephrops (Swedish Component) fishery. The scope of the certified fishery and therefore of this surveillance is specified in the Units of Certification set out below:

UoC 1

Species:	<i>Nephrops norvegicus</i>
Stock:	ICES Division IIIa Danish/Swedish Nephrops
Geographical area:	Skagerrak
Harvest method:	Demersal Trawl using an open topped Swedish grid.
Client Group:	Member vessels of the Fiskeri AB Ginneton that have signed up the Code of Conduct – see the list of vessels (Appendix 4). This list will be regularly announced and updated.
Other Eligible Fishers:	Swedish and Danish registered vessels covered by the certification sharing agreement

UoC 2

Species:	<i>Nephrops norvegicus</i>
Stock:	ICES Division IIIa Danish/Swedish Nephrops
Geographical area:	Kattegat
Harvest method:	Demersal Trawl using an open topped Swedish grid.
Client Group:	Member vessels of the Fiskeri AB Ginneton that have signed up the Code of Conduct – see the list of vessels (Appendix 4). This list will be regularly announced and updated.
Other Eligible Fishers:	Swedish and Danish registered vessels covered by the certification sharing agreement

UoC 3

Species:	<i>Nephrops norvegicus</i>
Stock:	ICES Division IIIa Danish/Swedish Nephrops
Geographical area:	Skagerrak
Harvest method:	Demersal SELTRA trawl
Client Group:	Member vessels of the Fiskeri AB Ginneton that have signed up the Code of Conduct – see the list of vessels (Appendix 4). This list will be regularly announced and updated.
Other Eligible Fishers:	Swedish and Danish registered vessels covered by the certification sharing agreement

UoC 4

Species:	<i>Nephrops norvegicus</i>
Stock:	ICES Division IIIa Danish/Swedish Nephrops
Geographical area:	Kattegat
Harvest method:	Demersal SELTRA trawl
Client Group:	Member vessels of the Fiskeri AB Ginneton that have signed up the Code of Conduct – see the list of vessels (Appendix 4). This list will be regularly announced and updated.

Other Eligible Fishers:	Swedish and Danish registered vessels covered by the certification sharing agreement
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UoC 5

Species:	<i>Nephrops norvegicus</i>
Stock:	ICES Division IIIa Danish/Swedish Nephrops
Geographical area:	Skagerrak
Harvest method:	Creel
Client Group:	Member vessels of the Fiskeri AB Ginneton that have signed up the Code of Conduct – see the list of vessels (Appendix 4). This list will be regularly announced and updated.
Other Eligible Fishers:	Swedish and Danish registered vessels covered by the certification sharing agreement

UoC 6

Species:	<i>Nephrops norvegicus</i>
Stock:	ICES Division IIIa Danish/Swedish Nephrops
Geographical area:	Kattegat
Harvest method:	Creel
Client Group:	Member vessels of the Fiskeri AB Ginneton that have signed up the Code of Conduct – see the list of vessels (Appendix 4). This list will be regularly announced and updated.
Other Eligible Fishers:	Swedish and Danish registered vessels covered by the certification sharing agreement

1.2 Aims of the Surveillance

The purpose of the annual Surveillance Report is fourfold:

1. to establish and report on whether or not there have been any material changes to the circumstances and practices affecting the original complying assessment of the fishery;
2. to monitor the progress made to improve those practices that have been scored as below “good practice” (a score of 80 or above) but above “minimum acceptable practice” (a score of 60 or above) – as captured in any “conditions” raised and described in the Public Report and in the corresponding Action Plan drawn up by the client;
3. to monitor any actions taken in response to any (non-binding) “recommendations” made in the Public Report;
4. to re-score any Performance Indicators (PIs) where practice or circumstances have materially changed during the intervening year, focusing on those PIs that form the basis of any “conditions” raised.

Please note: The primary focus of this surveillance audit is to assess changes made in the previous year. For a complete picture, this report should be read in conjunction with the Public Certification Report for this fishery assessment which can be found here:

<https://fisheries.msc.org/en/fisheries/danish-and-swedish-nephrops/@@assessments>

1.3 Certificate Holder Details

An up to date list of member vessels of the SFPO that have signed up to the Code of Conduct can be found on the Sveriges Fiskares Producentorganisation website: -

<http://www.sfpo.se/msc/>

2 Surveillance Process

2.1 Findings of the original assessment

As a result of the assessment, a number of conditions of certification were raised by the assessment team, and maintenance of the MSC certificate is contingent on the Swedish Nephrops fishery moving to comply with these conditions within the time-scales set at the time the certificate was issued. In addition, one recommendation was made which, whilst not obligatory, the client is encouraged to act upon within the spirit of the certification.

2.2 Surveillance Activity

2.2.1 Surveillance team details

This off-site surveillance visit was carried out by the original assessment team of Julian Addison, Lucia Revenga-Giertych and Rod Cappell. The Team Leader was Rod Cappell.

2.2.2 Date & Location of surveillance audit

An off-site surveillance was conducted via Skype on the 19th April 2018.

2.2.3 Stakeholder consultation & meetings

A Skype meeting was held between the clients (SFPO) and the assessment team.

2.2.4 What was inspected

A range of documents were provided by the client and inspected by the assessment team, namely:

1. Updated vessel list
2. TACs and landings for recent fishing years (including Kattegat cod by-catch)
3. Current SFPO Code of Conduct
4. Swedish Board of Fisheries control document example
5. Example of completed ETP log sheets
6. Catchpole et al (2007) The potential for new *Nephrops* trawl designs to positively effect North Sea stocks of cod, haddock and whiting.
7. Valentinsson et al (2008) Species-selective *Nephrops* trawling: Swedish grid experiments
8. Rhian et al (2009) Celtic Sea cod – Gear Based Technical Measures to help reduce discarding
9. Lovgren & Valentinsson, 2011 Evaluation of the Swedish article 11 (Swedish grid) using SG MOS data
10. EU Press release (December 2017): North Sea Fisheries: New Multi-annual plan agreed
11. STECF (2011) Evaluation of multi-annual plans for cod in Irish Sea, Kattegat, North Sea, and West of Scotland (STECF-11-07)

2.2.5 Stakeholder Consultation

A total of 20 stakeholder organisations and individuals having relevant interest in the assessment were identified and consulted during this surveillance audit. The interest of others not appearing on this list was solicited through the postings on the MSC website.

Documents referred to

See **Appendix 4**.

2.3 Surveillance Standards

2.3.1 MSC Standards, Requirements and Guidance used

This surveillance audit was carried out according to the MSC Fisheries Certification Requirements FAM v1.3 using MSC CR v2.0 process.

2.3.2 Confirmation that destructive fishing practices or controversial unilateral exemptions have not been introduced

No indication was given or suggested during the surveillance audit to suggest that either of these practices is in evidence for this fishery.

3 Updated Fishery Background

3.1 Changes in the management system

No significant changes to the management system are reported since the last surveillance.

The landing obligation in the CFP is being rolled out as planned, for 2019 it will have effect for many of the P2 species – see EU 2016/2250

(<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R2250&rid=1>).

Nephrops in IIIa is (still) exempt from the landings obligation *per se* (see art. 4), as its survivability has been scientifically shown to be sufficiently high in the SELTRA trawls that bringing undersized Nephrops to shore would effectively increase fishing mortality. Most of the previous discards are now landed following the replacement of the minimum landing size (MLS) of 13.5 cm TL (equivalent to 40 mm CL) with a Minimum Conservation Size (MCS) of 10.5 cm TL (equivalent to 32 mm CL). There were reports that some fishermen are now more reluctant to use selective grids in the Nephrops trawl because there is a market for the smaller Nephrops between 10.5 and 13 cm TL, even if such small individuals attract a very low price.

3.2 Changes in relevant regulations

The only reported change in the Swedish legislation for the Nephrops fishery was the requirement to incorporate a cylinder in the Nephrops creels which releases discards back underwater. The EU multi-annual plan (MAP) for demersal stocks including Nephrops in the North Sea, Skagerrak and Kattegat had not been implemented at the time of the surveillance audit.

3.3 Changes to personnel involved in science, management or industry

Since the last surveillance audit, Malin Skog had replaced Andrea Giesecke as the Client contact. There were no other changes in personnel involved in science, management or industry which would have any impact on the management of the Nephrops fisheries within the Skagerrak and Kattegat.

3.4 Changes to scientific base of information including stock assessments

Since the original certification report, there has been no change to the stock assessment methodology described in detail in the Public Certification Report (Food Certification International 2015). Since the 2nd surveillance audit report in 2017, results have become available from the 2016 underwater television (UWTV) survey which provides a fishery-independent estimate of stock biomass, and an updated stock assessment was carried out at the ICES Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK) held in Copenhagen, Denmark from 26 April to 5 May 2017 (ICES 2017a).

The total landings of Nephrops in ICES Division IIIa in 2016 were 4890 tonnes, which represented a significant increase from 2015 and the second highest landings since 2000. Landings increased in both the Skagerrak (FU3) and Kattegat (FU4). In 2016, discards were significantly lower than in previous years with a discard rate of approximately 5% (Figure 1) in comparison with discard rates of 50% or more historically. The change in discard rates can be accounted for by the change from a minimum landing size (MLS) of 13.5 cm TL (equivalent to 40 mm CL) to a Minimum Conservation Size (MCS) of 10.5 cm TL (equivalent to 32 mm CL), which has resulted in a much higher proportion of the catches being landed than in previous years. Current research on gear selectivity is likely to reduce the discard rate further. Trends in fishing effort and landings per unit effort (LPUE) based on log book returns show similar patterns in both the Swedish and Danish fleets with LPUE now stable in the Skagerrak after a recent period of increasing LPUE (Figure 2) and LPUE declining in the Kattegat (Figure 3). Danish LPUE data from log books has been standardised to account for changes in fishing power due to changes in the physical characteristics of the Nephrops fleet. The data have been analysed in various ways to elucidate the effect of factors likely to influence the effort/LPUE, e.g. vessel size. Combined Danish and Swedish relative effort declined slightly over the period 1990 to 2016 (Figure 4) while combined relative LPUE shows an increasing trend and is at a high level in the recent 7 years (Figure 5). Mean sizes of Nephrops caught in both the Skagerrak and Kattegat had remained constant over

recent years but declined in 2016 following the change from the MLS of 13.5 cm to the MCS of 10.5 cm (ICES 2017a).

Figure 1. Total catches (landings + discards) of Nephrops in ICES Division IIIa from 1960-2016. (source: ICES, 2017b)

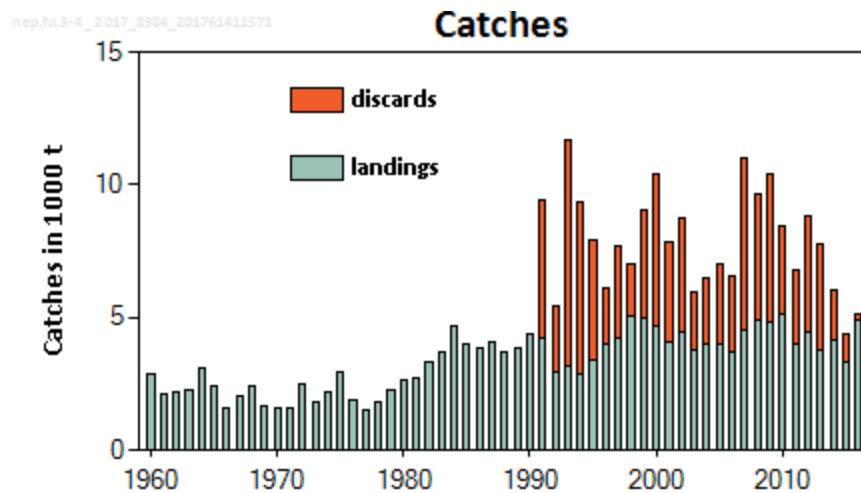


Figure 2. Long term trends in landings, effort and LPUE for Nephrops in the Skagerrak. (Source: ICES 2017a)

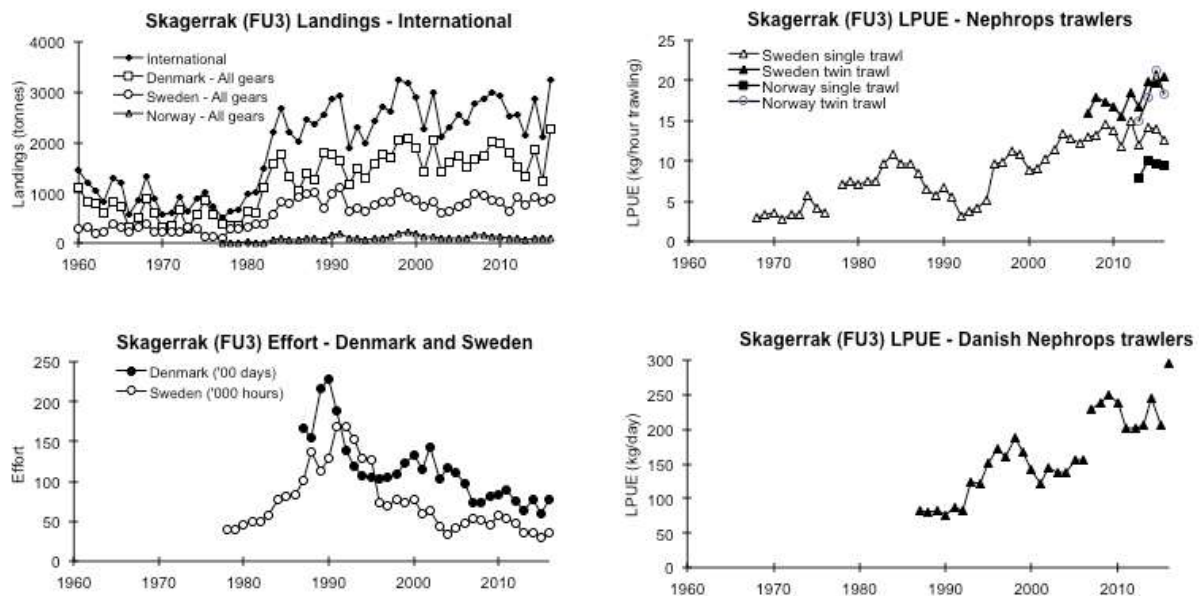


Figure 3. Long term trends in landings, effort and LPUE for Nephrops in the Kattegat. (Source: ICES 2017a)

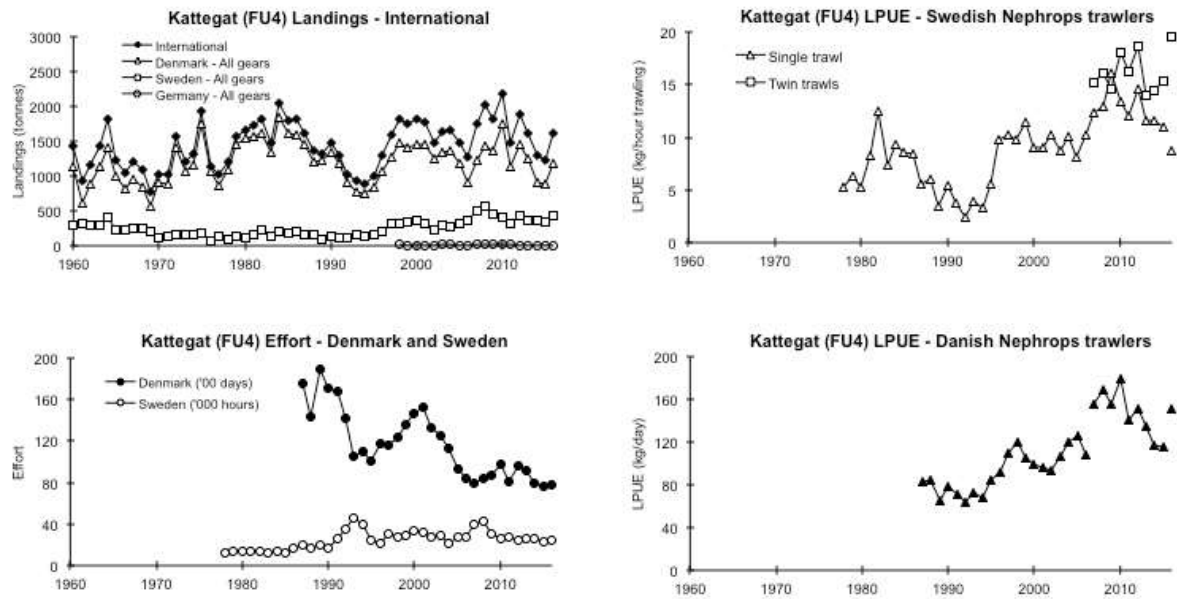


Figure 4. Combined Danish and Swedish effort for Nephrops in FUs 3 and 4 (Skagerrak and Kattegat). (Source: ICES 2017a)

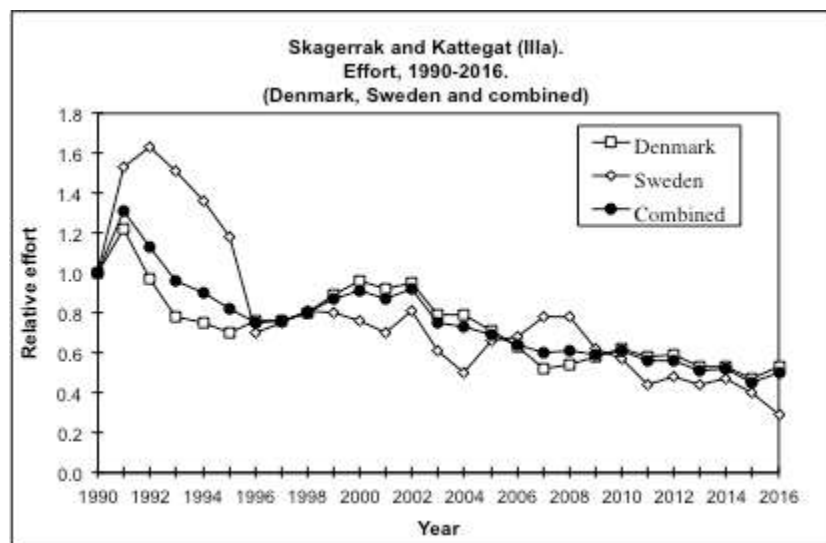
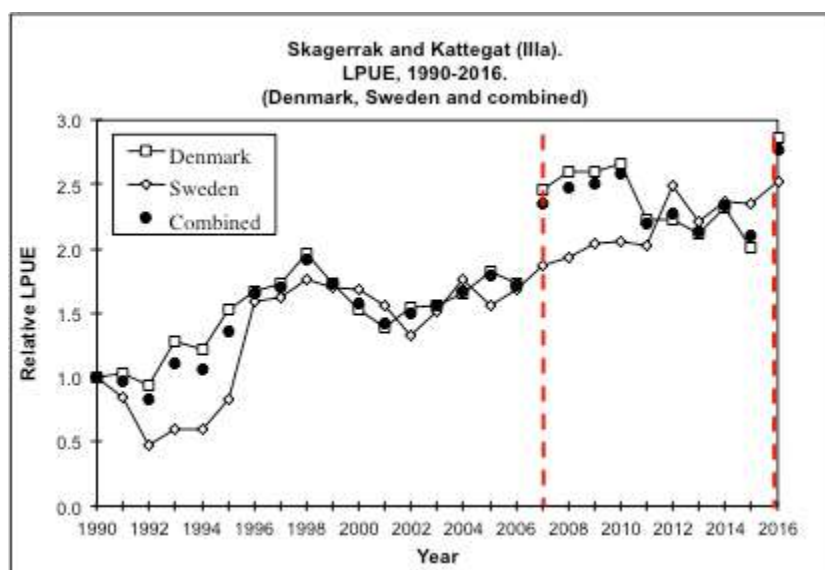


Figure 5. Combined Danish and Swedish LPUE for Nephrops in FUs 3 and 4 (Skagerrak and Kattegat). Red dotted lines represent the shift in the Danish management system in 2007 and the change from MLS to MCS. (Source: ICES 2017a)



Stock abundance of *Nephrops* is estimated annually through fishery-independent underwater television (UWTV) surveys. The surveys use a fixed grid with random stratified stations. Burrow counting and identification follows the standard protocols defined by WGNPS (ICES 2016a). Burrow density estimates are raised from the survey areas to total area of the population distribution, as estimated from VMS information of the distribution of fishing activity. Figure 6 shows the sampling locations for the UWTV survey and *Nephrops* burrow density in the Skagerrak and Kattegat in annual surveys from 2011 to 2016. In 2014, the UWTV survey was extended to cover western areas of the Skagerrak, and the 2016 survey sampled at 176 stations, more than on any previous annual survey. However there are still some important areas of the distributional range of *Nephrops* that are not covered by the UWTV survey, for example the creeling grounds on the Swedish coast, so the UWTV survey inevitably provides an underestimate of overall abundance. Following the ICES Benchmark meeting on *Nephrops* in Division IIIa held in 2016, additional stations will be added to the 2017 survey. Mean burrow density as estimated from the UWTV survey in 2016 was significantly lower than that observed in 2014 and 2015 (Figure 7). The 2017 UWTV survey has been completed, but at the time of this surveillance audit, the data had yet to be fully analysed.

The estimate of the total abundance of *Nephrops* from the 2016 survey was 2863 million individuals, which with total removals (landings + dead discards) estimated at 88 million, results in an observed harvest rate of 3.1%. Whilst abundance declined in 2016, catches remained low but did increase slightly, and therefore the harvest rate for 2016 was higher than that for 2015 (Figure 8). However this harvest rate for 2016 of 3.1% is well below the F_{MSY} proxy harvest rate of 7.9%, so it can be concluded that the *Nephrops* stock currently shows no signs of overexploitation. The estimates of abundance from the TV surveys are likely to be under-estimates, and with the survival rates for discards used currently in the stock assessment being conservatively low, the estimate of harvest rate is likely to be an overestimate.

On the basis of the 2016 UWTV stock survey and the updated stock assessment in 2016, ICES published new advice on this stock in June 2017. ICES concluded that the stock size is considered to be stable, and that the estimated harvest rate for this stock is currently well below F_{msy} . Assuming a F_{msy} proxy harvest rate of 7.9%, ICES advises that when the MSY approach is applied, total catches (landings + dead removals) should be no more than 12,431 tonnes. Assuming that the high survival exemption under the EU landing obligation remains in place in 2017 and if discarding continues below the minimum conservation size (MCS), this implies landings of no more than 11,738 tonnes. This figure is well above recent observed landings in the fishery.

The reduction in the proportion of discards in this fishery following the replacement of the previous MLS of 13.5 cm TL (40 mm CL) with a Minimum Conservation Size (MCS) of 10.5 cm TL (32 mm CL) has been taken into account in the stock assessment. To simulate the effect of a decreased MCS on the

proportion of discards, the average (2013–2015) total sampled length distribution was first used to estimate fishers' selection when sorting the catch at a MCS of 40 mm carapace length. This selection ogive was then shifted down to 32 mm MCS (assuming that fishers' selection is equally effective at the new MCS) in order to predict the new composition of landings and discards. The new mean weight in discards and landings, discard proportion and dead discard rate was used in this year's assessment (ICES 2017b).

As noted above, an exemption from the landings obligation for Nephrops in IIIa has been granted by the European commission following recent discard survival experiments in Sweden which estimated average survival rates to be above 50% (Valentinsson and Nilsson 2015). However ICES continues to use a survival rate of 25% in this year's assessment, although with the very low discard rates now observed, any change in discard survival rate is likely to have only minimal impact on the estimated harvest rate.

A number of issues were considered at the ICES Benchmark meeting in 2016. The spatial area of the Nephrops stocks was redefined and additional stations have consequently been added to the annual survey as from 2017. Secondly the choice of Fmsy proxy used to determine the appropriate harvest ratio ((landings + dead discards)/total stock biomass) to use within an MSY framework was based on some preliminary calculations using yield-per-recruit analyses from length cohort analyses (see ICES 2017a for a summary). These analyses utilise average length frequency data taken over the 3-year period (2008–2010). With the changes in size frequency distributions of landings following the change from MLS to MCRS, and the subsequent changes in discard rate, and with new estimates of survival rates of discards, it is clear that these provisional estimates of harvest ratios need to be reevaluated. The ICES Benchmark did consider the methods used to define MSY harvest rates, but no new values were agreed upon, and therefore the harvest rate value of 7.9% based upon Fmax remains the proxy for Fmsy for Nephrops in ICES Division IIIa. There was no resolution at the Benchmark meeting of a definition of appropriate values for a limit reference point or for MSYBtrigger

Figure 6. Sampling locations for the UWTV survey and Nephrops burrow density in the Skagerrak and Kattegat from 2011 (top left) to 2016 (bottom right). (Source: ICES 2017a)

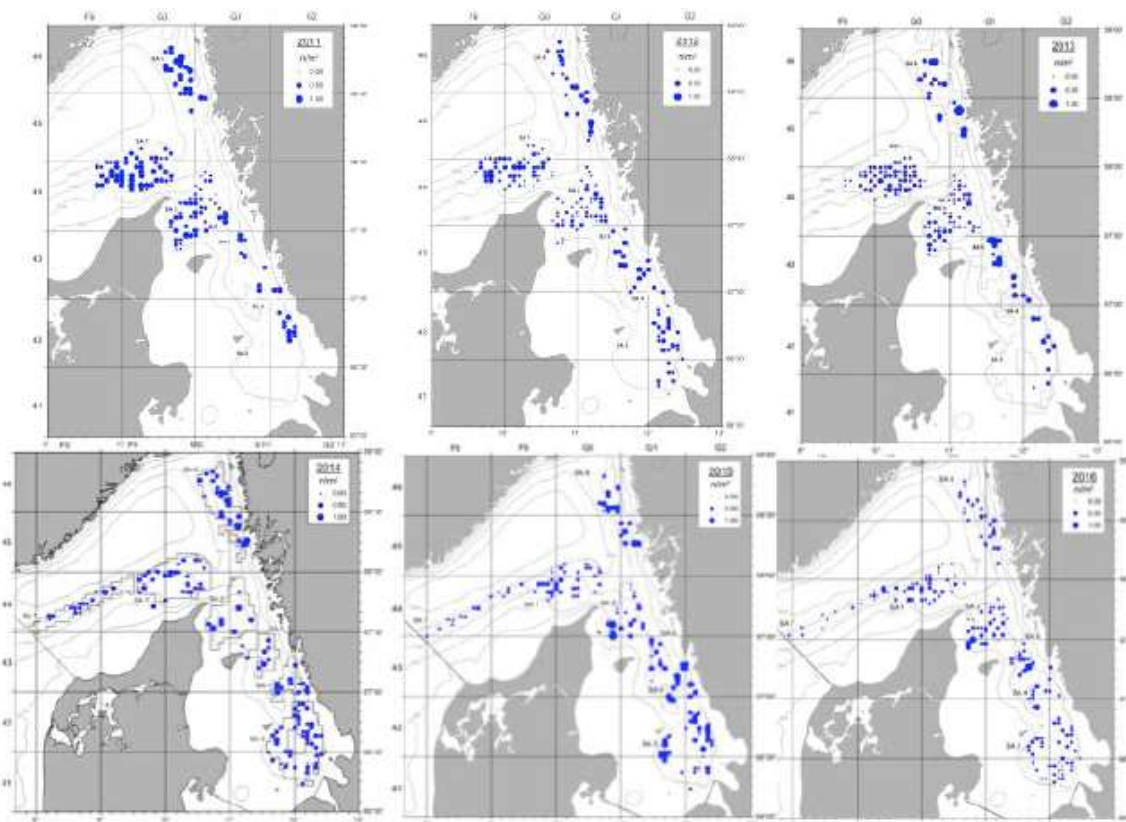


Figure 7. Mean burrow density of Nephrops in the Skagerrak and Kattegat as estimated from TV surveys from 2011 to 2016. Error bars indicate 95% confidence intervals. (Source: ICES, 2017a)

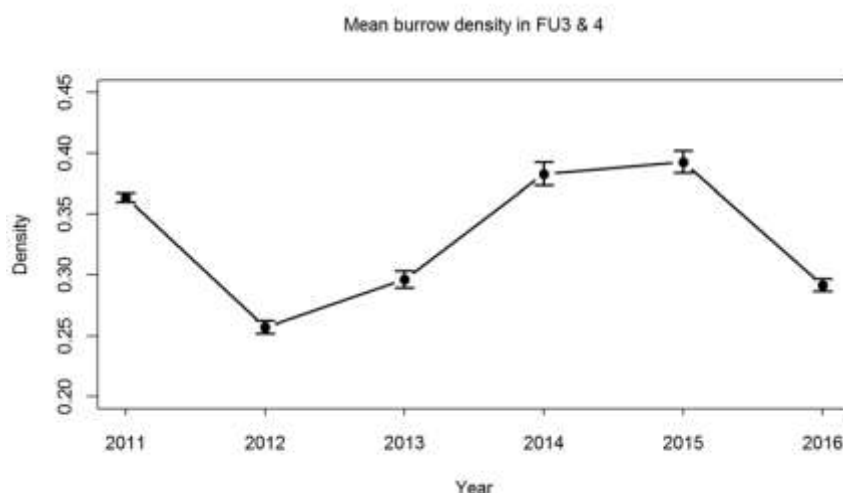
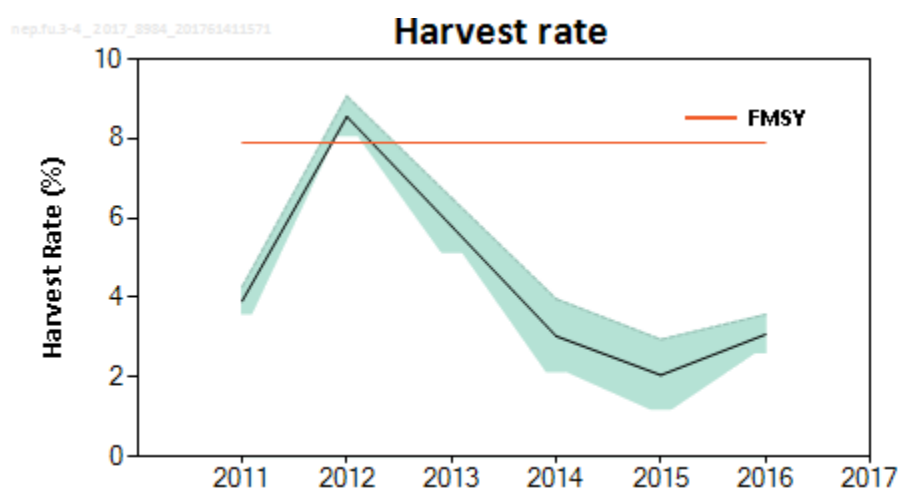


Figure 8. Observed harvest rates of Nephrops in the Skagerrak and Kattegat estimated from total fishery removals and observed abundances from TV surveys (red line is the Fmsy proxy harvest rate of 7.9%). Shaded areas are 95% confidence intervals derived from the confidence intervals for abundance shown in Figure 7. (Source: ICES 2017b)



3.5 Changes and updates on Ecosystem issues

The 2017 WKBAL report has shed new light into the reasons for the discrepancy between Kattegat cod stock removals and Kattegat cod biomass. This report highlights the importance of cod migration from the North Sea to the Kattegat Sea at an early stage and the migration back to North Sea waters a few years later. It has also been estimated that seal predation over the Kattegat cod stock is much higher than previously estimated. While ICES has not yet taken into account these new variables in the model for estimating spawning stock biomass, it is acknowledged that these factors have an important impact on the Kattegat cod stock. Previously, those unaccounted removals were attributed to the fishing fleet.

In March 2018 a proposal was published for a regulation of the European Parliament and of the Council on establishing a multi-annual plan for demersal stocks in the North Sea (and the fisheries exploiting those stocks, repealing Council Regulation (EC) 676/2007 and Council Regulation (EC) 1342/2008. This proposal refers to species of roundfish (such as cod), flatfish, cartilaginous fish, Norway lobster (target species for the present UoCs) and Northern prawn that live at or near the bottom of the water column. While not approved nor implemented yet, the proposal shows the authorities will to review the present management of these stocks.

New research has been published on innovative ways of reducing bycatch in the Nephrops fishery (Melli *et al.* 2017). FLEXSELECT is a simple counter-herding device that aims at reducing the bycatch of fish by scaring them away from the trawl path without affecting the catches of the target species. FLEXSELECT was tested in the Nephrops directed trawl fishery. No significant effect on the target species, Nephrops, was detected, whereas a reduction of 39% (CI: 29%–46%) was obtained for the overall number of fish. Catches of all the six fish species examined (cod, haddock, whiting, hake, plaice, lemon sole) were significantly reduced by FLEXSELECT, with the efficiency varying considerably among species and over length classes.

Relevant to the protection of habitat types as fishing takes place in Danish waters as well as Swedish waters, the Danish Ministry of Fisheries released in December 2017 Executive Order No.1389 (which entered into force in January 2018), on Special fisheries regulation in marine Natura 2000 areas for the protection of reef structures. Specifically, this regulation establishes fishing restrictions for demersal trawlers in 10 Natura 2000 areas (most of which are located in the Kattegat Sea). At the time of this surveillance (May 2018) there is an ongoing consultation process regarding the implementation of similar measures in another 4 Natura 2000 areas in the Skagerrak Sea.

Recently (2017) Sweden implemented the mandatory use of cylinder for releasement of bycatch. The use of these cylinders (which could conduct the bycatch from the deck to under the water) would serve to avoid bird predation and to facilitate the survival of living released individuals.

3.6 Harmonisation

There are no other certified Nephrops fisheries either in the Skagerrak and Kattegat or elsewhere, and therefore there is no need to harmonise scores for Principle 1. There are however other trawl fisheries certified in the Skagerrak and Kattegat, although no harmonisation process has been undertaken. The Nephrops fishery will be due to start the re-certification process next year under MSC Certification Requirements v2.0 when it will be necessary to harmonise the scores for Principles 2 and 3 for all certified fisheries within the region. However the audit team noted that the Nephrops fishery is part of the Joint Demersal fisheries assessment which is currently assessing a wide range of fisheries in the North Sea and adjacent waters during which a full harmonisation process with all fisheries in the region will be undertaken. Further details of the Joint Demersal Fisheries assessment can be found at:

https://fisheries.msc.org/en/fisheries/joint-demersal-fisheries-in-the-north-sea-and-adjacent-waters/@_assessments

3.7 Any developments or changes within the fishery which impact traceability or the ability to segregate between fish from the Unit of Certification (UoC) and fish from outside the UoC (non-certified fish)

No developments in the fishery or changes to the UoCs are identified that would impact traceability.

The Swedish Agency for Marine and Water Management (SWAM) is introducing tighter controls on traceability of fisheries and aquaculture products on 1 January in order to meet new EU requirements.

3.8 TAC and catch data

TAC and Catch Data

TAC	Year	2017	Amount	11738 tonnes
UoA share of TAC	Year	2017	Amount	10196 tonnes
UoC share of TAC	Year	2017	Amount	10196 tonnes
Total green weight catch by UoC	Year (most recent)	2017	Amount	1439 tonnes
	Year (second most recent)	2016	Amount	1404 tonnes

3.9 Summary of Assessment Conditions

Summary of Assessment Conditions following this Audit

Condition number	Performance indicator (PI)	Status	PI original score	PI revised score
1	1.1.2	On target	75	Not revised
2	1.2.2	On target	65	Not revised
3 (UoC 4 only)	2.1.1	On target	60	Not revised
4 (UoCs 1,2,3,4)	2.4.1	On target	70	Not revised
5 (UoCs 1,2,3,4)	2.4.2	On target	75	Not revised

4 Results

4.1 Condition 1

Performance Indicator(s) & Score(s)	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
	1.1.2	SG80b Requirement: The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.	75
Condition	By the fourth annual surveillance a limit reference point for the Nephrops fishery in Division IIIa should be formally defined.		
Milestones	<p>Annual surveillance 2. Show written evidence of consultation with the relevant authorities to consider options for defining a limit reference point.</p> <p>Annual surveillance 3. Provide evidence that the definition of a suitable limit reference point has been agreed through consultation with the relevant authorities.</p> <p>Annual surveillance 4. Implementation of an explicitly defined limit reference point through consultation with the relevant authorities.</p>		
Client action plan	<p>When a sufficient data series of the UWTV survey is available, we will encourage and support ICES in adopting a Bmsy trigger (or equivalent) reference point to ensure that the harvest rate is reduced at low stock abundance to avoid an increased risk of impaired recruitment. We will also encourage and support the refinement of the estimation of the target harvest ratio to ensure that the main uncertainties are taken into account.</p> <p>Year 2: The certificate holder will show evidence of contact with the relevant national/ICES scientists to consider the options for developing a Bmsy trigger and the refinement of the estimation of the target harvest ratio.</p> <p>Year 3: The certificate holder will show evidence that a Bmsy trigger (or equivalent) reference point has been agreed, and that methods for taking the main uncertainties in the estimation of the target harvest ratio into account have been investigated and agreed where applicable.</p> <p>Year 4: The certificate holder will show evidence that a Bmsy trigger (or equivalent) reference point and methods for taking the main uncertainties in the estimation of the target harvest ratio into account have been implemented in the ICES advisory framework for this Nephrops unit.</p>		
Progress on Condition [Year 1]	<p>There is no formal milestone for this condition in Year 1. However considerable progress has been made in relation to meeting the milestone for Year 2.</p> <p>Since the original certification, three further UWTV surveys have been completed. The data for the 2013 and 2014 are now fully worked up providing a times series of four annual abundance estimates (see section 2.4.1), and the 2015 survey has been completed but at the time of this surveillance audit, the survey data for 2015 had not been analysed fully. These survey results could be used in developing a biomass reference point. Through the EU INTERREG project, OBJFISK, the Client has been working with the relevant national and ICES scientists in considering options for developing a MSYBtrigger reference point. The ICES WKLIFE group has also been considering the development of reference points for stocks where the data are limited. Finally there will be an ICES benchmark of the Division IIIa Nephrops stock in 2016 which will consider refinement of the development of Fmsy proxies and the estimation of the target harvest ratio to ensure that the main uncertainties are taken into account.</p>		
Progress on Condition [Year 2]	<p>Since the 1st surveillance audit, a further UWTV survey was conducted in 2015 providing a time series of five annual abundance estimates (see Figure 7), and the 2016 survey has been completed, but at the time of this surveillance audit, the survey data for 2016 had not been analysed fully. The Client has continued to work with the relevant national and ICES scientists in considering options for developing a limit reference point. The Client requested that the 2016 ICES</p>		

	<p>Benchmark considered this issue, but was advised after the Benchmark that this was not yet possible because the approach used in other Nephrops fisheries, where the limit reference point has been defined as the lowest observed point in the time series of abundance estimates from the UWTV surveys, is not yet possible for the Nephrops stock in Division IIIa because there is no clear trend yet in the limited times series of abundance estimates from the UWTV surveys. The ICES WKLIFE group has also been considering the development of reference points for stocks where the data are limited.</p> <p>At the 2nd surveillance audit in 2017, the audit team concluded that the condition was on target. However given the current short time series of data on stock abundance from the UWTV surveys, the audit team concluded that the Client was unlikely to meet the condition by the 4th annual surveillance audit as set out in the original certification report. The audit team therefore revised the annual milestones as follows:</p> <p>Annual surveillance 3. Continue to show written evidence of consultation with the relevant authorities to consider options for defining a limit reference point.</p> <p>Annual surveillance 4. Continue to show written evidence of consultation with the relevant authorities to consider options for defining a limit reference point.</p> <p>In the final year of certification. Provide evidence that an explicitly defined limit reference point has been agreed and implemented through consultation with the relevant authorities.</p>
Progress on Condition [Year 3]	<p>Since the 2nd surveillance audit in 2017, a further UWTV survey was conducted in 2016 providing a time series of six annual abundance estimates (see Figure 7). The 2017 UWTV survey has been completed, but at the time of this surveillance audit, the survey data for 2017 had not been analysed fully. The Client has continued to work with the relevant national and ICES scientists in considering options for developing a limit reference point. The approach used in other Nephrops fisheries, where the limit reference point has been defined as the lowest observed point in the time series of abundance estimates from the UWTV surveys, is still not possible for the Nephrops stock in Division IIIa because there is no clear trend yet in the limited times series of abundance estimates from the UWTV surveys. The 2016 ICES Benchmark considered this issue but did not provide any resolution on the definition of a limit reference point. There is currently a proposal for a regulation of the European Parliament and the Council on establishing a multi-annual plan (MAP) for demersal stocks in the North Sea including Nephrops in the Skagerrak and Kattegat. The MAP will address the reduction in fishing mortality when stock biomass declines below MSYBtrigger and therefore when stock biomass approaches Blim or similar limit reference point. The MAP has not yet been implemented and its implementation requires the definition of a limit reference point for the Nephrops stocks. Nevertheless there have been consultations to consider options for defining a limit reference point.</p>
Status of condition	The audit team concluded that this condition is on target.

4.2 Condition 2

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	1.2.2	<p>SG80a Requirement:</p> <p>Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as</p>	65

	limit reference points are approached.	
Condition	By the fourth annual surveillance well defined harvest control rules should be in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. The selection of the harvest control rules should take into account the main uncertainties.	
Milestones	<p>Annual surveillance 2. Show written evidence of consultation with the relevant authorities to consider options for controlling exploitation rate if limit reference points are approached including taking the main uncertainties into account.</p> <p>Annual surveillance 3. Provide evidence that a mechanism for controlling exploitation rate if limit reference points are approached, including taking the main uncertainties into account, has been agreed through consultation with the relevant authorities.</p> <p>Annual surveillance 4. Implementation of well-defined harvest control rules including taking the main uncertainties into account through consultation with the relevant authorities.</p>	
Client action plan	<p>When a sufficient data series of the UWTV survey is available, we will encourage and support ICES in adopting a B_{MSY} trigger (or equivalent) reference point to ensure that the harvest rate is reduced at low stock abundance to avoid an increased risk of impaired recruitment. We will also encourage and support the refinement of the estimation of the target harvest ratio to ensure that the main uncertainties are taken into account.</p> <p>Year 2: The certificate holder will show evidence of contact with the relevant national/ICES scientists to consider the options for developing a B_{MSY} trigger and the refinement of the estimation of the target harvest ratio.</p> <p>Year 3: The certificate holder will show evidence that a B_{MSY} trigger (or equivalent) reference point has been agreed, and that methods for taking the main uncertainties in the estimation of the target harvest ratio into account have been investigated and agreed where applicable.</p> <p>Year 4: The certificate holder will show evidence that a B_{MSY} trigger (or equivalent) reference point and methods for taking the main uncertainties in the estimation of the target harvest ratio into account have been implemented in the ICES advisory framework for this Nephrops unit.</p>	
Progress on Condition [Year 1]	<p>There is no formal milestone for this condition in Year 1. However considerable progress has been made in relation to meeting the milestone for Year 2.</p> <p>Since the original certification, three further UWTV surveys have been completed. The data for the 2013 and 2014 are now fully worked up providing a times series of four annual abundance estimates (see section 2.4.1), and the 2015 survey has been completed but at the time of this surveillance audit, the survey data for 2015 had not been analysed fully. These survey results could be used in developing a biomass reference point which will be an integral part of a harvest control rule, and through the EU INTERREG project, OBJFISK, the Client has been working with the relevant national and ICES scientists in considering options for developing a MSY trigger reference point. The ICES WKLIFE group has also been considering the development of reference points for stocks where the data are limited.</p> <p>There will be an ICES benchmark of the Division IIIa Nephrops stock in 2016 which will consider refinement of the development of F_{msy} proxies and the estimation of the target harvest ratio to ensure that the main uncertainties are taken into account. The benchmark will also consider uncertainties in growth rate and survival of discarded Nephrops which are two of the main uncertainties underlying the selection of the harvest control rule.</p>	
Progress on Condition [Year 2]	<p>Since the 1st surveillance audit, a further UWTV survey was conducted in 2015 providing a time series of five annual abundance estimates (see Figure 7), and the 2016 survey has been completed, but at the time of this surveillance audit, the survey data for 2016 had not been analysed fully. The Client has continued to work with the relevant national and ICES scientists in considering options for developing a limit reference point. However, the approach used in other Nephrops fisheries, where the limit reference point has been defined as the lowest observed point in the time series of abundance estimates from the</p>	

	<p>UWTV surveys, is not yet possible for the Nephrops stock in Division IIIa because there is no clear trend yet in the limited times series of abundance estimates from the UWTV surveys.</p> <p>Despite the problems in defining a limit reference point (condition 1), significant progress has been made since the 1st surveillance audit in developing a well-defined harvest control taking into account the main uncertainties.</p> <p>An EU proposal for a multi-annual plan (MAP) for the North Sea (including Skagerrak & Kattegat) was published in 2016 (EC 2016). The proposed plan contains a common set of harvest control rules for all 'category 1 and 2 stocks' (those where MSY reference point advice exists), directly based upon the ICES MSY framework. The plan incorporates F_{MSY} based management allowing a certain flexibility within a range (to accommodate for mixed-fisheries interactions, discard avoidance objectives, avoiding too drastic TAC changes etc.) with a precautionary cap to minimize the risk of stock biomass dropping below the limit reference point (B_{LIM}). In addition there would be safeguard rules for situations where stock biomass falls below $MSY_{trigger}$ (fishing mortality will be reduced below F_{MSY}) and if stock biomass falls below B_{LIM} (fishing mortality will be limited to bycatch only or similar measures).</p> <p>If the proposed plan is implemented, the F_{msy} proxy management already being used for Nephrops will become enshrined in the MAP harvest control rule legislation. However this will first require the definition of $MSY_{trigger}$ and a limit reference point for the Nephrops stock in Division IIIa.</p> <p>The proposal is for MAP to be adopted in 2017, and it is currently being negotiated in parallel in the European Parliament's Fisheries Group and in the Council.</p> <p>The ICES Benchmark for Nephrops in Division IIIa held in 2016 investigated many of the main uncertainties underlying the stock assessment and the setting of reference points and accompanying harvest control rules. These include extending the geographical coverage of the UWTV surveys, revising the extent of the Nephrops grounds, development of F_{msy} proxies and the estimation of the target harvest ratio and uncertainties in growth rate and survival of discarded Nephrops.</p> <p>The audit team also recognised that the ICES decision-making framework for MSY proxies determines that if the abundance of Nephrops in the area falls below a threshold burrow density of less than 0.3/m², then the F_{msy} proxy would be $F_{0.1}$ (rather than F_{max}) – which would lead to a reduction in the maximum harvest rate from 7.9 % to 5.6 %. In other words, this "rule" would therefore work to "ensure that the exploitation rate is reduced as limit reference points are approached" even under a scenario in which a limit reference point is not formally defined.</p> <p>At the 2nd surveillance audit in 2017 the audit team concluded that the condition was on target. Significant progress had been made on developing a multi-annual plan (MAP) for the North Sea, Skagerrak and Kattegat including Nephrops in Division IIIa. However the current short time series of data on stock abundance from the UWTV surveys currently restricts the ability of ICES to define a limit reference point and $MSY_{trigger}$. The audit team concluded that the Client was unlikely to meet the condition by the 4th annual surveillance audit as set out in the original certification report. The audit team therefore revised the annual milestones as follows:</p> <p>Annual surveillance 3. Continue to show written evidence of consultation with the relevant authorities to consider options for controlling exploitation rate if limit reference points are approached including taking the main uncertainties into account.</p> <p>Annual surveillance 4. Continue to show written evidence of consultation with the relevant authorities to consider options for controlling exploitation rate if</p>
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	<p>limit reference points are approached including taking the main uncertainties into account.</p> <p>In the final year of certification. Provide evidence that a mechanism for controlling exploitation rate if limit reference points are approached, including taking the main uncertainties into account, has been agreed and implemented through consultation with the relevant authorities.</p>
Progress on Condition [Year 3]	<p>Since the 2nd surveillance audit in 2017, a further UWTV survey was conducted in 2016 providing a time series of six annual abundance estimates (see Figure 7). The 2017 UWTV survey has been completed, but at the time of this surveillance audit, the survey data for 2017 had not been analysed fully. The Client has continued to work with the relevant national and ICES scientists in considering options for developing a limit reference point. The approach used in other Nephrops fisheries, where the limit reference point has been defined as the lowest observed point in the time series of abundance estimates from the UWTV surveys, is still not possible for the Nephrops stock in Division IIIa because there is no clear trend yet in the limited times series of abundance estimates from the UWTV surveys. The 2016 ICES Benchmark considered this issue but did not provide any resolution on the definition of a limit reference point.</p> <p>The EU proposal for a multi-annual plan (MAP) for the North Sea including Skagerrak & Kattegat, as described in last year's surveillance audit report, has now been agreed in the Committee on Fisheries and will soon be implemented. There would be safeguard rules for situations where stock biomass/abundance falls below $MSYB_{trigger}$ (fishing mortality will be reduced below F_{MSY}) and if stock biomass/abundance falls below B_{lim} (fishing mortality will be limited to bycatch only or similar measures). Fishing opportunities shall in any event be fixed in such a way as to ensure that there is less than a 5 % probability of the spawning stock biomass falling below the limit spawning stock biomass/abundance reference point (B_{lim}).</p> <p>When the MAP is implemented in 2018, the F_{MSY} proxy management already being used for Nephrops will become enshrined in the MAP harvest control rule legislation. However this will first require the definition of $MSYB_{trigger}$ and a limit reference point for the Nephrops stock in Division IIIa, both of which have yet to be defined.</p> <p>The choice of F_{msy} proxy used to determine the appropriate harvest ratio ((landings + dead discards)/total stock biomass) to use within an MSY framework was based on some preliminary calculations using yield-per-recruit analyses from length cohort analyses (see ICES 2017a for a summary). These analyses utilise average length frequency data taken over the 3-year period (2008–2010). With the changes in size frequency distributions of landings following the change from MLS to MCS, and the subsequent changes in discard rate, and with new estimates of survival rates of discards, it is clear that these provisional estimates of harvest ratios need to be reevaluated. The ICES Benchmark did consider the methods used to define MSY harvest rates, but no new values were agreed upon, and therefore the harvest rate value of 7.9% based upon F_{max} remains the proxy for F_{msy} for Nephrops in ICES Division IIIa.</p> <p>In summary the imminent implementation of the EU MAP will provide the basis for developing well-defined harvest control rules, but in the absence of defined values for $MSYB_{trigger}$ and B_{lim}, and the need to resolve the uncertainties underlying the choice of F_{msy} proxy, further work is required before this condition can be closed.</p>

Status of condition	The audit team concluded that this condition is on target.
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4.3 Condition 3 (UoC 4 only)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	2.1.1	SG80c Requirement for the Kattegat cod stock: If main retained species are outside the limits there is a partial strategy of demonstrably effective measures in place such that the fishery does not hinder recovery and rebuilding.	60
Condition	By the 4 th annual surveillance the client shall ensure that demonstrably effective cod recovery measures are in place such that the fishery does not hinder recovery and rebuilding of the Kattegat cod stock.		
Milestones	<p>Annual surveillance 1: The client shall report on the efficacy of measures implemented by UoC vessels to reduce cod bycatch and to record cod catch and discards by UoC vessels in the context of Kattegat cod fishing mortality. If measures are not proven to be effective through field trials or if Kattegat cod recovery is not evident, the client is to identify what additional bycatch minimisation measures are to be applied.</p> <p>Annual surveillance 2: The client shall repeat 1st annual surveillance actions until either: - Demonstrably effective measures are implemented - Kattegat cod recovery is evident.</p> <p>Annual surveillance 3: The client shall continue to do as in the previous annual surveillance. If demonstrably effective measures are in place such that the fishery does not hinder recovery and rebuilding of the Kattegat cod stock then SG80 is met.</p> <p>Annual surveillance 4: If SG80 is not met by Annual Surveillance 3, then the client shall continue to do as in the previous annual surveillance.</p>		
Client action plan	<p><i>The Ginnerton has worked with researchers and authorities for many years in the implementation of measures to ensure that the Kattegat Nephrops fishery can reduce its impact on the cod stock to a level that would allow this stock to recover. These measures have already allowed recovery (the biomass has almost doubled over the last 4 years), but the stock is still not at the level where we want to see it. Year 1 (and onwards): The Ginnerton will implement mandatory registration of all cod discards in the Kattegat through the existing ETP by-catch data collection methods (ETP log and VDEC). Year 1-4: The Ginnerton will report annually on the efficacy of the implemented measures regarding cod catches and on the recovery of the cod stock, including collated data from the cod discard registration.</i></p> <p><i>If the measures prove not to be effective and/or cod stock recovery is not evident, the Ginnerton will identify, and subsequently implement, further measures as appropriate to reduce catches and/or improve documentation of total catches.</i></p>		

<p>Progress on Condition [Year 1]</p>	<p>During this first year surveillance the client should report on the efficacy of measures implemented by UoC vessels to reduce cod bycatch, and to record cod catch and discards by UoC vessels in the context of Kattegat cod fishing mortality. And if measures are not proven to be effective through field trials or if Kattegat cod recovery is not evident, the client is to identify what additional bycatch minimisation measures are to be applied.</p> <p>One of these measures is the prohibition of the 90 mm mesh in the Kattegat Sea since January 2016. This should help prevent the catch of undersized species.</p> <p>As regards ICES June 2015 Advice on Kattegat cod, the Spawning stock biomass is increasing from a historical low, however the stock is still considered to be in a poor state. Therefore, the measures taken so far could be considered effective but should be maintained (or increased) until the cod recovery is evident.</p> <p>The client should be recording both catch and discards of Kattegat cod, until Kattegat cod recovery is evident and the stock reaches a safe status. The client presented cod catches for 2015 (30.8 tonnes), but discard data was not presented. Some data might be available through SLU research or the STECF, but the client is encouraged to record all cod discards on UoC vessels (either electronically in the ETP book or manually in paper records).</p> <p>At the yr2 surveillance (as was required for yr1) the client shall report on the efficacy of measures implemented by UoC vessels to reduce cod bycatch and to record cod catch and discards by UoC vessels in the context of Kattegat cod fishing mortality.</p>
<p>Progress on Condition [Year 2]</p>	<p>A significant concern at assessment was a discrepancy between cod stock models and fishery data, suggesting higher levels of fishing mortality than was being reported. Recently genetic evidence has come to light suggesting the existence of two subsidiary stocks, one of which is distinctive to the Kattegat, and another more closely related to the North Sea/Skagerrak stock. It may be that the historic discrepancy can be explained by outmigration of "North Sea" cod around the age of 4 (perhaps equivalent to 2000t), rather than unreported capture and discard by the fleet. This also has implications for the quality of the assessment of cod status in the Kattegat.</p> <p>Nonetheless the client was unable to furnish data on all bycatch, retained or discarded, including cod, that might contribute to confirmation of this hypothesis. This data should have been collected in the "ETP logbook" or in the official fisher log-book. It appears that there is distrust between authorities and fishers (originating around the issue of area closures for cod), and that logbook data in either format is sporadic and unreliable. Furthermore, the authorities do not support the recording of cod discards in the ETP logbook. The assessment team therefore lacks the data to assess the extent to which the trawls being operated by the UoC and fitted with the Swedish grid, are working as intended to reduce cod (and other unwanted species) bycatch and contribute to stock rebuilding.</p> <p>The technical regulations for the North Sea including the Kattegat were revised from January 1st, 2017. There is no longer a days at sea restriction, and the maximum size restriction for the panels above the grid has been scrapped. The selective grid can now can be used routinely without a special exemption.</p> <p>https://www.slu.se/globalassets/ew/org/inst/aqua/externwebb/selektivt-fiske/projekt-2015/faktablad-krafttrist_webb.pdf</p> <p>Cod recovery appears to be continuing (though significant uncertainty remains (ICES 2016b)). A recent ICES benchmark meeting on Kattegat cod considered the subsidiary stock migration issues noted above; and it is hoped that this analysis, together with up-to-date observer based estimates of cod discards, will allow for more informed ICES advice on Kattegat cod to be generated in May/June 2017.</p>

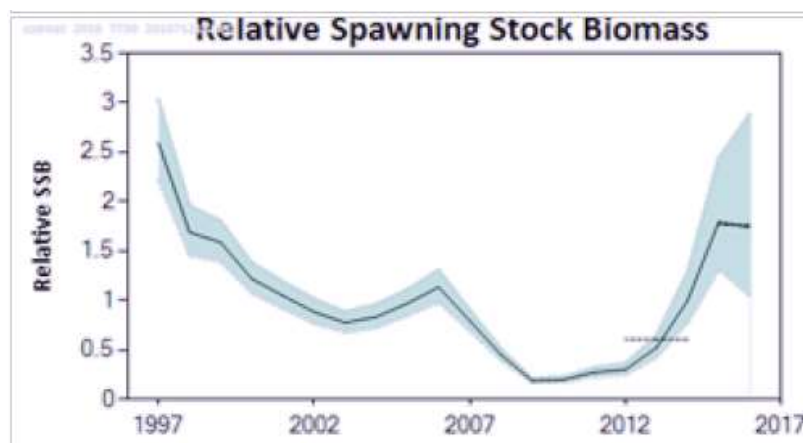
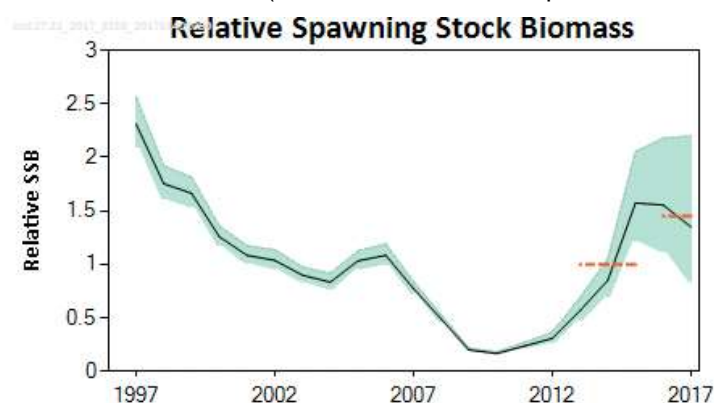


Figure 1: Recovery in cod spawning stock biomass in Kattegat

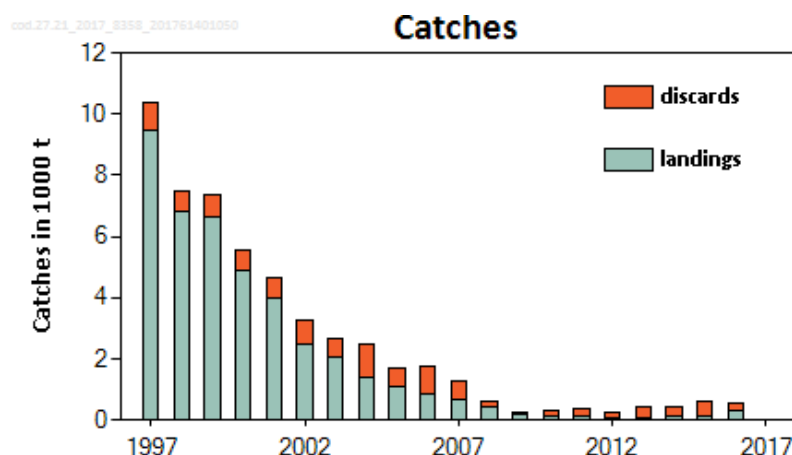
**Progress on
Condition
[Year 3]**

ICES 2017 advice on Kattegat cod (ICES, 2017d) and the WKBALT (ICES, 2017c) report bring new information of interest to the assessment.

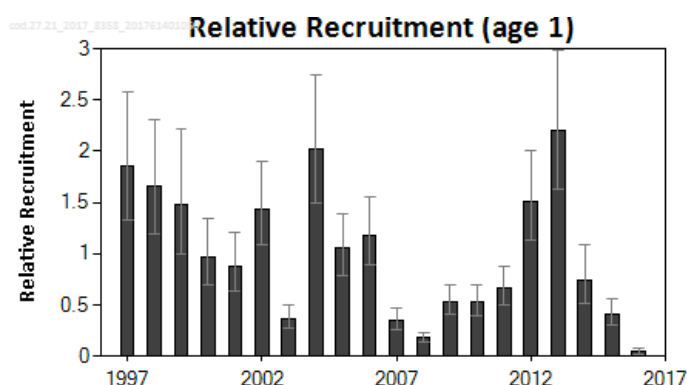
According to the ICES advice, spawning-stock biomass (SSB) has increased since 2009 from a historical low level (although it has decreased since previous advice). However, the recent increase in SSB should be interpreted in the light of a much higher SSB during the seventies (ICES, 2012). Therefore, the levels of actual SSB continue to be considered as low (there are no reference points for the stock).



The mortality has decreased since 2008, when the management plan was implemented, and discarding (of Kattegat cod in the Kattegat Sea) has been reduced in recent years. WKBALT (ICES, 2017c) concludes the catch data (including landings and discards) to be of reasonable quality from 2011 onwards (when statistically sound discard sampling commenced). The discard estimates from the observer program are expected to reliably represent the order of magnitude of discards. WKBALT estimates that the impact of fishing in Kattegat cod has been reduced by a factor of 5 since 2007.



On the other hand, while recruitment in 2013 was the highest in the time-series, recruitment in 2016 is the lowest in the time-series.



According to ICES 2017 advice on Kattegat cod, in recent years, reported landings and the discard estimates, based on observer trips, did not represent the total removals from the stock. Historically, unreported catches have been considered to be an issue for this stock and have been estimated as part of the unaccounted removals within the assessment model. However, WKBALT (ICES, 2017c) concluded that unaccounted removals estimated in the model include inflow of recruits from the North Sea cod and their return migration when they become mature, as well as possibly increased natural mortality from seal predation (it has been estimated to be 1500 tons of cod which might be preyed upon by harbour seals in the Kattegat Sea (however there are uncertainties associated with this estimate as the dataset of seal diet was considered small and possibly not representative for the entire Kattegat and for all seasons). In any case, this estimate is much higher (double) than all cod removals by all fisheries in the Kattegat Sea.

2017 catch advice for 2018 (stated at 772 tonnes) is based on an assessment of indicative trends. The current absolute level of mortality is still unknown because of a pronounced difference between the catch data (landings plus discards) and the total removals from the stock estimated within the model. WKBALT 2017 report demonstrates that a large part of these unallocated removals can be explained by migration and possibly increased natural mortality.

The 2017 advice concludes both that cod discarding in the area has been reduced in the past years (although it does not specify the reasons for this reduction or the fisheries that are responsible for this reduction) and that unaccounted removals are not fully due to the fisheries in the area, but that stock mixing, migration, and even seal predation are also responsible.

	<p>Specifically, for the Swedish seltra trawl, discards show a declining trend for the past 3 years (as reported by SLU, Swedish University on Agricultural Sciences, Department of Aquatic Resources).</p> <p>In relation to the management of the Kattegat cod stock, in March 2018 a proposal has been published for a regulation of the European Parliament and of the Council on establishing a multi-annual plan for demersal stocks in the North Sea (and the fisheries exploiting those stocks and repealing Council Regulation (EC) 676/2007 and Council Regulation (EC) 1342/2008. This proposal refers to roundfish (such as cod), flatfish, cartilaginous fish, Norway lobster (target species for the present UoCs) and Northern prawn that live at or near the bottom of the water column. While not approved nor implemented yet, the proposal shows the authorities will to review the present management of these stocks.</p> <p>As regards cod discard registration, the Swedish seltra fleet continues to record Kattegat cod landings and discards. Discards of cod in the Kattegat are estimated using the onboard observer sampling program run by SLU.</p> <p>While in 2015 the UoC reported 30 tonnes of Kattegat cod landed (and there were no records of discards), for 2017 data on the fishery (as collected and analysed by SWAM: Swedish Agency for Marine and Water Management)) shows that in 2017 there were 50 tonnes of Kattegat cod landed and a very low level of discards (with 120 kg of Kattegat cod discarded by the UoC in 2017). These 50 tonnes of Kattegat cod caught represent approximately 15 % of the total catch by the seltra Nephrops fishery in the Kattegat Sea. According to SLU, for 2017 there were 80 tonnes of Kattegat cod caught by the seltra and other trawling gears, and 14 tonnes landed by grids, making a total of 94 tonnes caught by all Swedish trawling gear types in the Kattegat Sea for 2017.</p> <p>SWAN also offers information on the high level of compliance of the seltra fleet with the various regulations in place, showing a low level of infractions (175 inspections in 2017, of which 1.75% (i.e. 2 infractions, both for Skagerrak and Kattegat Seas) were related to misreporting of cod in the logbook.</p>
Status of condition	<p>The condition is on target.</p> <p>It is demonstrated that unaccounted removals of Kattegat cod are due to other factors such as migration and seal predations, together with mortality. There is information that cod catches and discards by the UoC have been reduced in the area in recent years. Besides, the recently discovered seal predation rates and cod migration patterns show that it is unlikely that the Nephrops fishery is hindering the recovery of the stock.</p> <p>The condition remains open in order to evaluate the future behaviour of the stock and to further evaluate the impact of the UoC on the Kattegat cod stock. The client is required to continue recording Kattegat cod catch and discards by the Uoc</p>

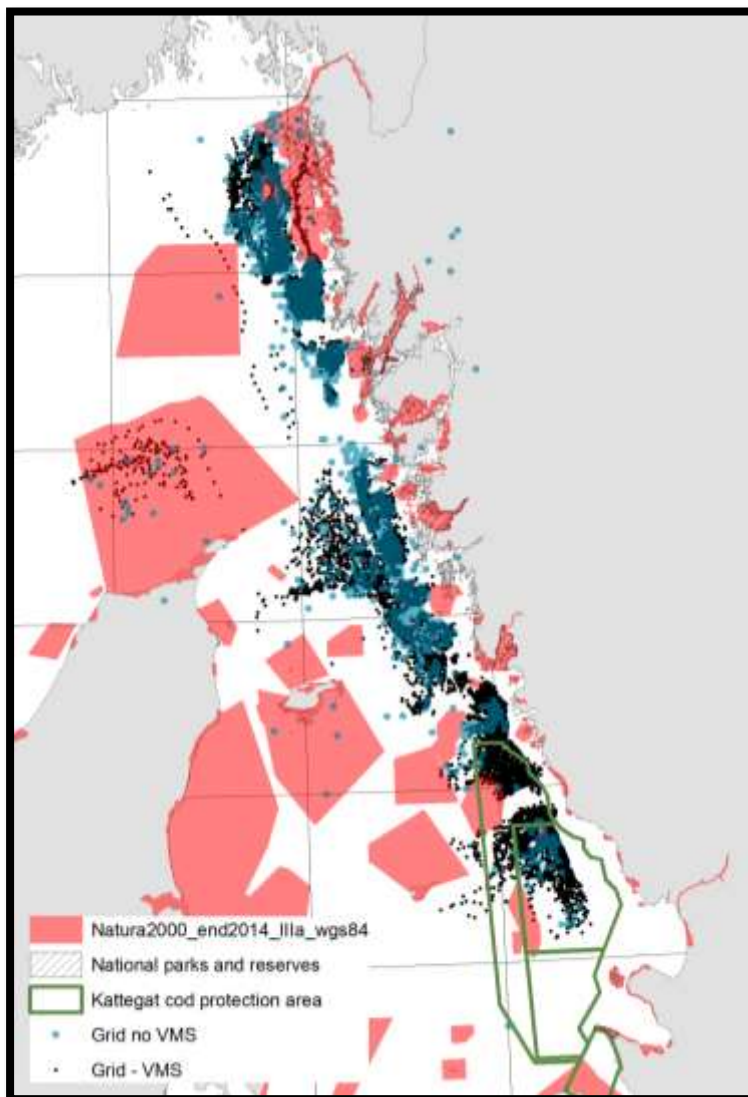
4.4 Condition 4 (UoC 1, 2, 3 and 4)

Performance Indicator(s) & Score(s)	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
	2.4.1	The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.	70
Condition	<p>By the 4th annual surveillance the client shall demonstrate that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p> <p>The client shall avoid defined sensitive areas until management measures are defined for them, and shall comply with them once these are settled. The client shall provide detailed overlap habitat and / or seabed community maps of the fishing grounds, with particular focus on OSPAR sensitive locations, Natura 2000 areas and most intensively fished areas, in order for the fishery to clearly demonstrate which habitat types may be affected by the fishery. It is not intended that the client should have to produce such maps, as it is likely that significant relevant information already exists within governments and EU research organizations.</p> <p>The client shall maintain a record of encounters with vulnerable seabed habitats and work in the identification of these species when there are interactions. The CoC should encourage vessels and fishermen to participate in the collection of information about benthos and benthic features.</p>		
Milestones	<p>Annual surveillance 1: The client shall modify its Code of conduct in order to include the avoidance of sensitive areas, and shall provide overlap maps of fishing activities and sensitive areas on an ongoing basis in order to illustrate this avoidance. These maps will also serve to identify potential impacts on sensitive areas. Client shall report data on encounters with OSPAR indicator species and identification, when possible, of vulnerable seabed habitats. If there is evidence of potential impact of the fishery on vulnerable seabed habitats, the client should develop mitigation measures.</p> <p>Annual surveillance 2: The client shall update overlay maps when new information becomes available, and report data on encounters (and identification when possible) with indicator species of vulnerable seabed habitats. If there is evidence of potential impact of the fishery on vulnerable seabed habitats, the client should develop mitigation measures.</p> <p>Annual surveillance 3: The client shall continue to do as in the previous annual surveillance.</p> <p>Annual surveillance 4: The client shall continue to do as in the previous annual surveillance. SG80 will be met once there is a time series of observations from which it can be concluded that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p>		
Client action plan	<p>The certificate holder is a very active participant in the process of creating management plans for the designated Natura 2000 areas, and we will continue to do so as these are finalized.</p> <p>Through its own Code of Conduct, the certificate holder will have a fleet wide reporting requirements for encounters with sensitive habitats including a visual guide that enables fishermen to distinguish these. Collated positions of encounters are made available to the rest of the fleet to enable future avoidance.</p> <p>Year 1: The certificate holder will provide evidence that collated habitat encounter reports, implemented Natura 2000 management measures, and any new</p>		

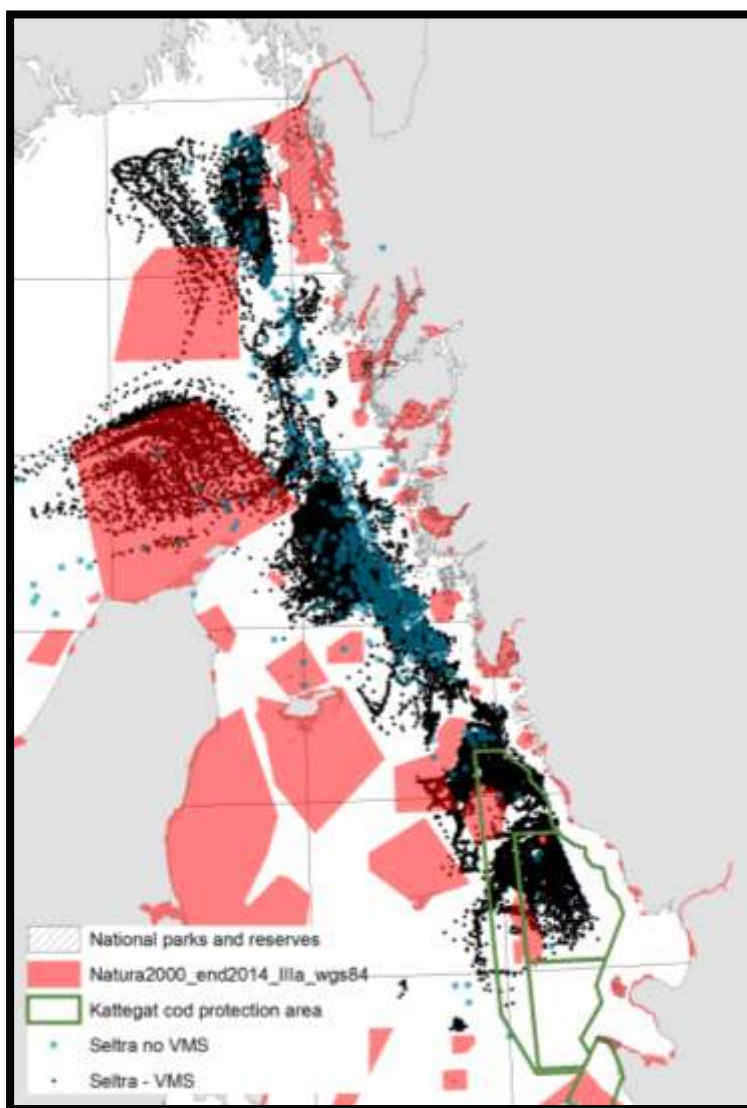
	<p>information on vulnerable habitats in the area are available to the fleet in the form of chart layers so that these areas can be avoided by all vessels.</p> <p>Year 2 and 3: The certificate holder will show evidence of management responses to reduce or mitigate unacceptable habitat impacts, and of further implementation of the vulnerable habitat avoidance measures.</p> <p>Year 4: The certificate holder will show evidence that Natura 2000 management measures are implemented in the fishery to the extent that this – along with measures implemented by the fleet itself – will provide confidence that the combined partial strategy for habitats will work.</p>
Progress on Condition [Year 1]	<p>Even though the client's Code of Conduct reflects its consciousness regarding environmental protection, the avoidance of sensitive habitats is not explicitly stated in it. For the 2nd surveillance the client shall modify its Code of Conduct in order to explicitly include this.</p> <p>The client has provided overlap detailed maps of fishing activities and sensitive areas for both the Skagerrak and the Kattegat Seas, as well as a study by SLU (Swedish University of Agricultural Sciences) which specifies fishing hours inside and outside the different protected areas for each one of the different gears. Both the maps and the SLU study satisfy this milestone. As regards habitat protection, Swedish Administration is working in the protection of several areas, both in the Kattegat and Skagerrak Seas. Fishermen participate in this process as stakeholders together with SWaM, the County Administrative Board and other stakeholders.</p> <p>The client has reported no encounters with OSPAR vulnerable species during 2015.</p>
Progress on Condition [Year 2]	<p>The code of conduct and logbook have been updated and now explicitly require recording of ETP (marine mammals and birds) and VME encounters by all MSC fishers. Guidance on VMEs has been updated and fishers are encouraged to include photographic records. However, the emphasis remains on ETP (sharks, rays, birds) rather than VME.</p> <p>The UoC has also sought to rationalize reporting by including everything in the official e-logbook. Unfortunately the authorities (the Marine Agency, SWaM) are unenthusiastic: encounters are few; data will be of limited quality; and changes to e-log book should be minimal as a matter of principle, and in accordance with EU guidance. In other words, this is not regarded by the authorities as either necessary or cost effective.</p> <p>In practice log-book data is generally inconsistent and of poor quality and the response to the condition is more strongly focused on cooperating with the wider initiatives to protect benthic habitats in the Skagerrak and Kattegat.</p> <p>Under the Commission Delegated Regulation (EU) 2017/118, since 5th January, parts of the Bratten area are closed for fishing, and for the whole area fishing vessels must operate AIS.</p> <p>A network of closed areas in Swedish waters continues to be developed and implemented under the EU Natura programme and the OSPAR programme (see condition 5). Under the Marine Strategy Framework Directive some deep mud and burrowing megafauna habitats (which are typically targeted by the Nephrops fleet) are likely to gain some protection.</p> <p>Mapping of marine habitats is relatively well developed and on-going.</p>
Progress on Condition [Year 3]	<p>The client has provided the assessment team with overlay maps of the Swedish fishing activity with grids and seltra trawls for year 2017. These maps show that all UoCs are complying with the management measures designed by Swedish and Danish authorities. While there are some vessels entering certain MPA's, these areas are not closed to fishing, as an area could be given the MPA status in order to protect marine mammals or birds in the area, not necessarily habitat types (so that fishing in those areas would be allowed with certain limitations). SLU conducted an analysis both on the position of vessel activity in 2017 as well as an</p>

analysis of hours of fishing activity by the different gear types both inside and outside the different MPA's. According to these data, 95% of the fishing activity takes place outside the different MPA's. The overlay maps shown below show that there were no infringements as regards the position of trawlers with Swedish grids or seltra trawl when fishing in Skagerrak and Kattegat Seas (note: that there is room for small errors in the maps as no corrections have been made to the vessels' position. These errors are considered to be relatively small and not affect the overall results or the description of the location of the fishery).

Fishing activity and location of MPAs by the Swedish grid Nephrops fishery:



Fishing activity and location of MPA's by the Swedish seltra trawl Nephrops fishery.



Notwithstanding the client's accomplishment of enforced management measures implemented both by Swedish and Danish authorities, the client is reminded of the need to improve its performance regarding the following requirements:

- Reporting of encounters with indicator species of vulnerable marine ecosystems (at present it is uncertain whether the vessels are complying with this management measure or if there are no encounters to record. Common ETP and VME hand written records for encounters with vulnerable species just show no bycatch)
- Avoidance of OSPAR identified sensitive marine habitats.
- The client's Code of Conduct currently includes measures to minimise environmental impacts to vulnerable species but doesn't make specific reference to vulnerable habitat types. During the 1st surveillance the client reported that the Code of Conduct was to be updated in 2016, however the Code of Conduct provided at this audit (in 2018) still lacks explicit

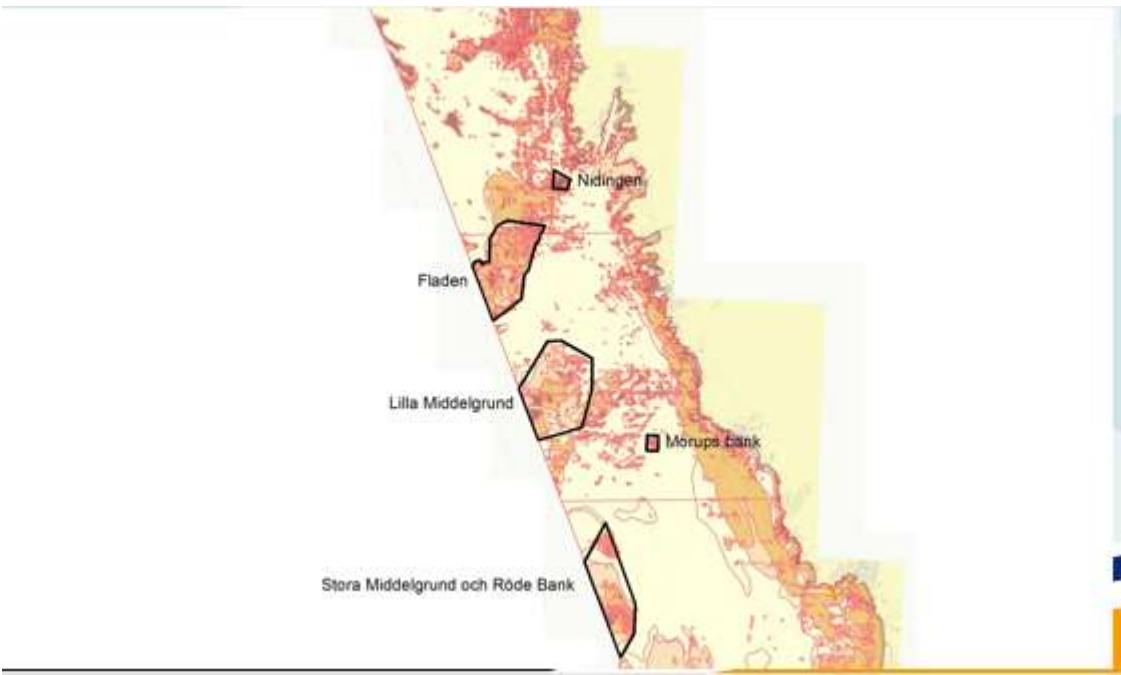
	<p>statements on the importance of avoiding bottom fishing activity on vulnerable habitat types.</p> <ul style="list-style-type: none"> - Working at a client level or at a national level to promote the implementation of management measures to protect vulnerable habitat types.
Status of condition	<p>The condition is on target. The condition is expected to be closed at the 4th surveillance audit once it demonstrates compliance with the recent area closures implemented in January 2018. The client is reminded of the need to specify in its Code of Conduct the avoidance of such areas and the importance of collecting information on encounters with indicator species of vulnerable marine ecosystems. It is also recommended that clear and appropriate 'move-on' rules are included in future iterations of the Code of Conduct.</p>

4.5 Condition 5 (UoC 1, 2, 3 and 4)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	2.4.2	<p>SG80b Requirement:</p> <p>There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.</p>	75
Condition	<p>By the 4th annual surveillance the client shall demonstrate the accomplishment of those Natura 2000 management measures designed during the lifetime of the certificate. Moreover, while the design of these measures is fulfilled by the relevant authorities, the client shall develop a spatial plan for the fishery which incorporates new habitats and integrates habitat considerations into the Code of Conduct, including measures to manage the habitat component of the fishery's footprint and to mitigate adverse and unavoidable impacts on vulnerable habitats.</p>		
Milestones	<p>Annual surveillance 1: Have developed a habitat management partial strategy for the fishery which incorporates new habitat data and integrates habitat considerations into the CoC including measures to reduce unacceptable impacts on sensitive habitats such as gear modifications, avoidance and area closures. This should include special attention to management measures within OSPAR and Natura2000 sites to protect and maintain the biodiversity of these sites. Develop list of sensitive habitats that need to be avoided by the fleet. At fleet level the client must develop a system for annually summarizing and reporting on this data for all certified vessels.</p> <p>Annual surveillance 2: Provide evidence of implementation of the habitat management partial strategy developed in year 1.</p> <p>Annual surveillance 3: Report to the team on management responses with the aim of reducing impacts on sensitive habitats.</p> <p>Annual surveillance 4: Demonstrate implementation of a partial strategy to manage the habitat component of the fishery's footprint and to mitigate adverse and unavoidable impacts (such as by temporal closures of some areas for all fleets). Demonstrate due regard to OSPAR and Natura 2000 sites and capture OSPAR and Natura 2000 management requirements in the fishery spatial plan.</p>		
Client action plan	<p>Through its own Code of Conduct, the certificate holder will have a fleet wide reporting requirements for encounters with sensitive habitats including a visual guide that enables fishermen to distinguish these. Collated positions of encounters are made available to the rest of the fleet to enable future avoidance.</p>		

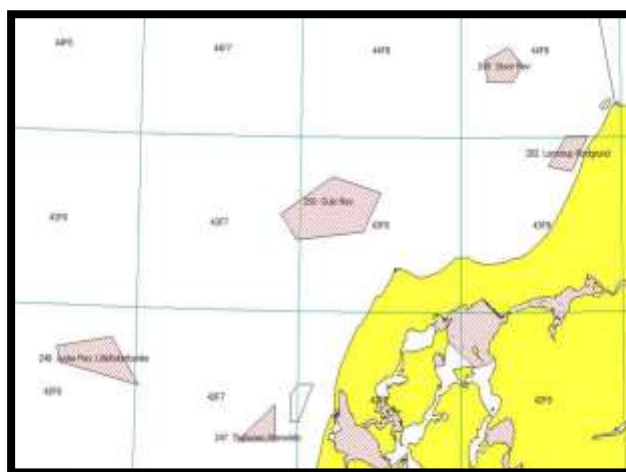
	<p>Year 1: The certificate holder will provide evidence that collated habitat encounter reports, implemented Natura 2000 management measures, and any new information on vulnerable habitats in the area are available to the fleet in the form of chart layers so that these areas can be avoided by all vessels.</p> <p>Year 2 and 3: The certificate holder will show evidence of management responses to reduce or mitigate unacceptable habitat impacts, and of further implementation of the vulnerable habitat avoidance measures.</p> <p>Year 4: The certificate holder will show evidence that Natura 2000 management measures are implemented in the fishery to the extent that this – along with measures implemented by the fleet itself – will provide confidence that the combined partial strategy for habitats will work.</p>
Progress on Condition [Year 1]	<p>The client has presented a broad summary of Swedish legislation regarding the protection of the habitats using Marine Protected Areas in the Skagerrak and Kattegat Seas. While the team recognises the increase in the protection of identified sensitive habitats by both countries (Sweden and Denmark), the condition is seeking for a more pro-active approach to minimising habitat impacts. It requires the client to develop a Habitat Strategy that minimises habitat impacts, not only by avoiding protected areas, but also the reporting and avoidance of such habitats encountered outside protected areas.</p> <p>The client's Code of Conduct currently includes measures to minimise environmental impacts, but doesn't make reference to minimising the impacts on habitat. The client reports that this Code of Conduct will be updated during 2016 in order to reflect new management measures in protected areas, however, the code of conduct should seek further protection of marine habitats, and not only to those already protected by different regulations.</p> <p>The client should work on the fulfilment of the different activities detailed under the first annual milestone in addition to the requirements under year 2, in order to show progress on this condition is on target.</p>
Progress on Condition [Year 2]	<p>A substantial suite of MPAs is being developed in the Skagerrak and Kattegat¹.</p> <p>In addition several areas are now planned to be closed in order to protect VMEs and other benthic habitats. Marine protected from offshore areas in Halland now include:</p> <ul style="list-style-type: none"> • Large Middlegrund and Red Bank: Sub-littoral sandbars, deep soft bottoms, seabird, and Belt sea porpoise population. (Natura 2000, OSPAR and HELCOM MPA) • Morups Bank: Sub-littoral sandbanks and deep soft bottoms. (Natura 2000, OSPAR and HELCOM MPA) • Little Middlegrund: Reefs, sublittoral sand, deep soft bottoms, seabird, porpoise (Belt Sea Population). (Natura 2000, OSPAR and HELCOM MPA) • Fladen: Sublittoral sand, deep soft bottoms, seabird, porpoise (Belt Sea population and Skagerrakpopulationen) (Natura 2000, OSPAR and HELCOM MPA) • Nidingen Sublittorala: Sandbars, deep soft bottoms, seabird, harbour seal (Natura 2000 and nature reserve)

¹ <http://natura2000.eea.europa.eu/#>

	 <p>By annual surveillance 2, the client is required to provide <i>evidence of implementation of the habitat management partial strategy</i> developed in year 1.</p> <p>The strategy includes the following elements:</p> <ul style="list-style-type: none"> • Compliance with restrictions related to national and EU related marine protected area and MSFD initiatives • Avoidance of OSPAR identified and fleet identified sensitive marine habitats • Reporting of encounters with VMEs <p>The client has provided some evidence for implementation of the strategy. It is important that more concrete evidence – in the form of</p> <ol style="list-style-type: none"> a) comprehensive overlay maps (showing fishing activity, sensitive habitats and protected areas), and b) reports or data compilation/synthesis on encounters with vulnerable habitats and ETP <p>be provided to the assessment team at SA3 so that evidence of both implementation and management response is available.</p>
<p>Progress on Condition [Year 3]</p>	<p>The Swedish Nephrops fishery takes place both in Swedish and Danish waters, although according to VMS maps most of the fishing takes place in Swedish waters.</p> <p>As regards the management of habitat types in Swedish waters, there are different figures of protection of Swedish waters. These include:</p> <ul style="list-style-type: none"> - Swedish marine reserves and national parks: Gullmarn and Kosterhavets. - Cod spawning protection area in the Kattegat Sea. - Natura 2000 areas: These include Bratten, Farvandet nord for Anholt, Fladen, Gullmarsfjorden, Kims Top og den Kinesiske Mur, Kosterfjorden-Väderöfjorden, Lilla Middelgrund, Morups bank, Nidingen, Skagens Gren og Skagerrak, Stora Middelgrund och Röde bank, and Vrångöskärgården <p>As regards management of habitat types in Danish waters, these are also protected by different protection figures and regulations. Specifically, reefs are found on the designation basis in 65 of the 97 Danish marine Natura 2000 sites. Denmark is committed to ensuring</p>

reefs a favourable conservation status and protecting them from irreversible effects. In accordance with this commitment, Danish Order No. 1048 of 28 August 2013 and Executive Order No.1389 regulate fishing activity in marine Natura 2000 areas, specifically prohibiting trawling activities in the following Danish Natura 2000 areas: 1-"Mejl Flak"; 2-"Stenrev southeast of Langeland"; 3-"Kirkegrund"; 4-"Bøchers Grund"; 5-"Hesselø with surrounding stone reefs"; 6-"The sea and coast between Præstø Fjord and Grønsund"; 7-"Smålands farvann north of Lolland, Guldborg Sund, Bøtø Nor and Hyllekrog-Rødsand"; 8- "Lillebælt"; 9- "Sydfynske Øhav"; 10-"Stevns Rev"; 11-"Horsens Fjord, the sea east of Endelave"; 12- "Hirsholmene, the west of the west for this and Ellinge å's expiration"; 13-"Stavns Fjord, Samsø Østerflak and Nordby Hede" and 14- "Nakskov Fjord and inderfjord".

This order also establishes fishing limitations in this and other Danish Natura 2000 areas for other gear types such as passive gears or even recreational fishing. Again, coastal reefs are the main habitat protected by this regulation. The Danish Ministry of Foreign Affairs is discussing forthcoming initiatives and concrete fisheries regulation measures with members of the Ministry's "Dialogue Forum for Natura 2000 and Sea Strategy", in which both the Danish fishing industry (including DFPO), NGO's and other stakeholders are represented. Specifically, at present the introduction of fishing regulations are being discussed in another 4 Natura 2000 areas which are located inside Danish EEZ: 202: Lønstrup Rødgrund; 247: Thyborøn Stenvolve; 248: Jyske Rev; 249: Store (big) Rev and 250: Gule (yellow) Rev.

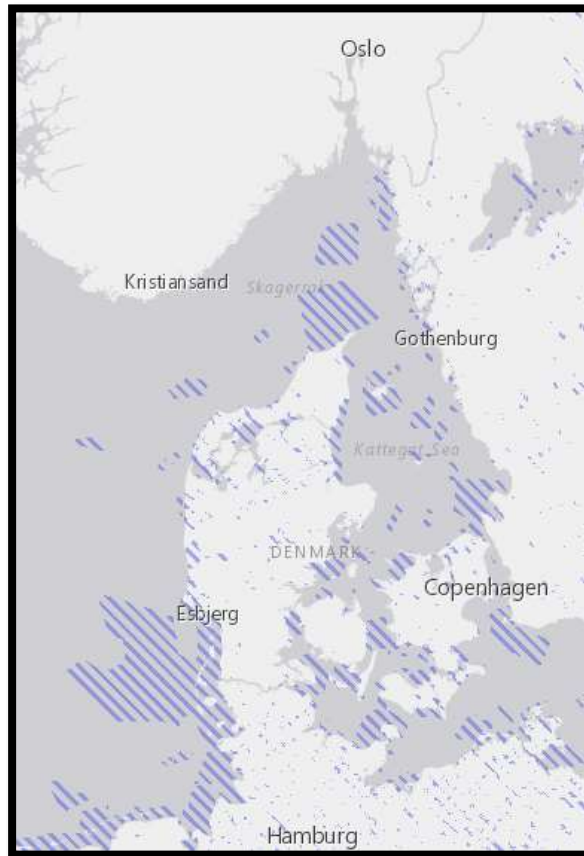


Other protected areas in Danish waters where fishing is regulated include: Herthas Flak; Læsø Trindel og Tønneberg Banke; Lysegrund and bubble areas in the Bratten area.

Additionally, soft bottom areas in all EU are protected under the Marine Strategy Directive.

The following Figure gives a broader view of which are the different Natura 2000 habitat types in the Skagerrak and Kattegat Seas (as in May 2018). Source:

<http://natura2000.eea.europa.eu/#>

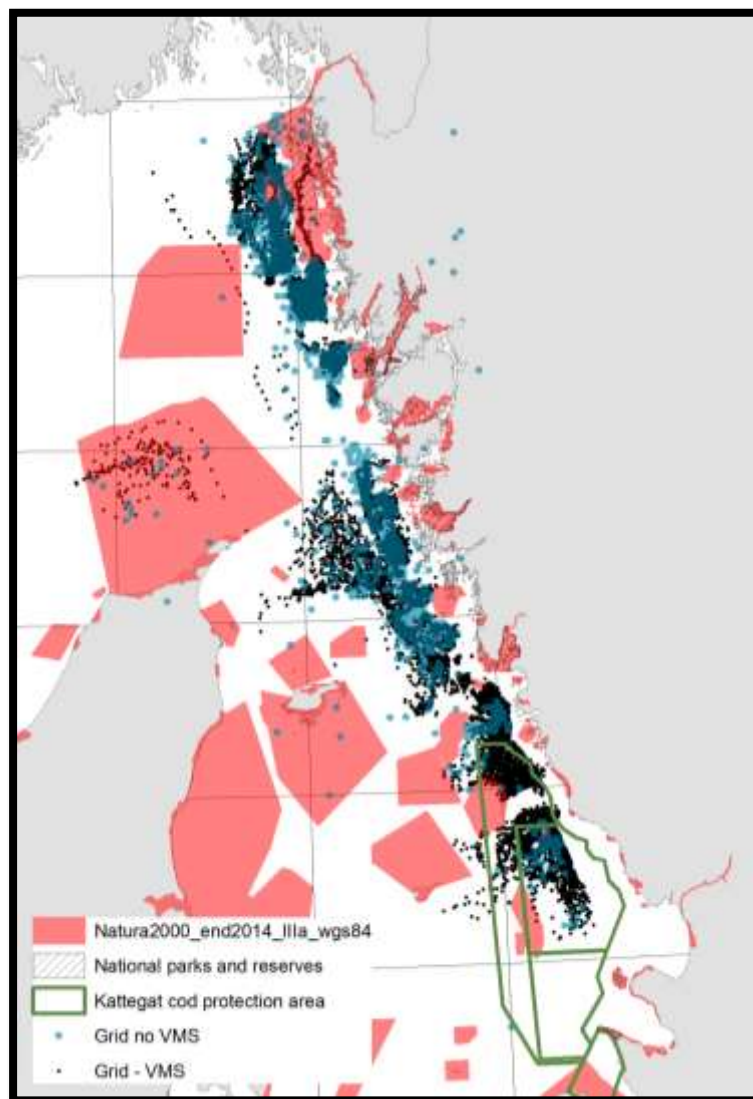


The client has provided the assessment team with overlay maps of the Swedish fishing activity with grids and seltra trawls for year 2017. Such maps show that all UoCs are accomplishing with the management measures designed by Swedish and Danish authorities. While there are some vessels entering certain MPA's, these areas are not closed to fishing, as an area could be given the MPA status in order to protect marine mammals or birds in the area, not necessarily habitat types (so that fishing in those areas would be allowed with certain limitations).

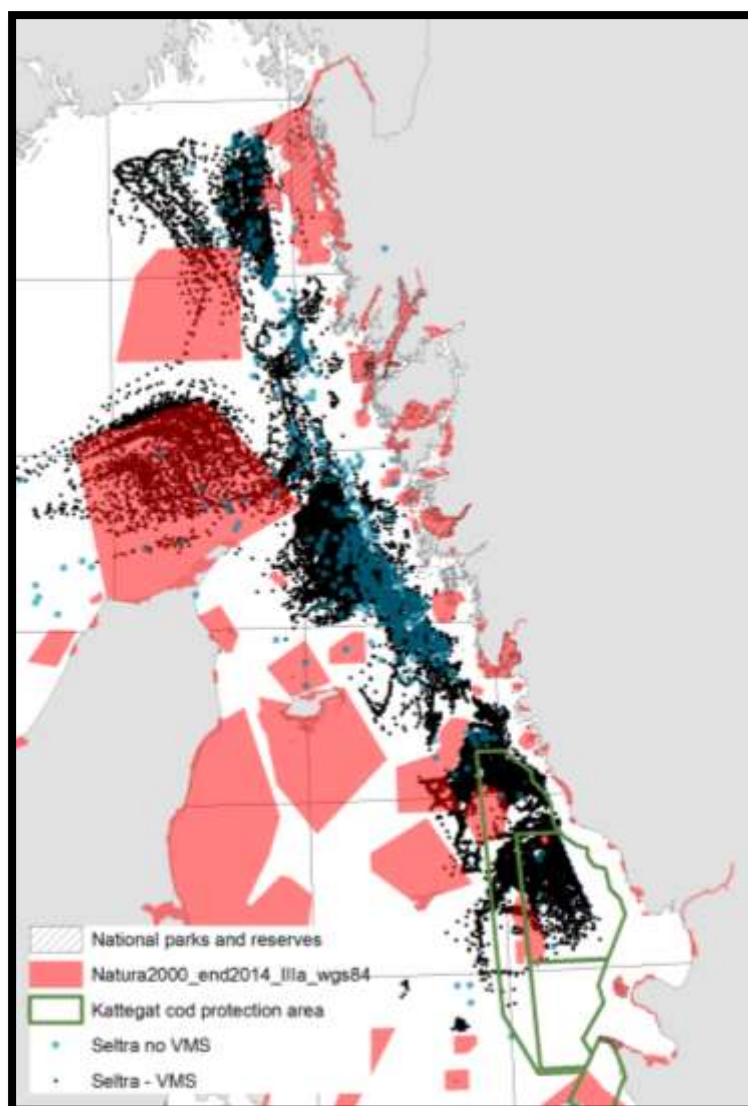
SLU conducted an analysis both on the position of vessel activity in 2017 as well as an analysis of hours of fishing activity by the different gear types both inside and outside the different MPA's. According to these data, 95% of the fishing activity takes place outside the different MPA's.

The overlay maps shown below show that there were no infringements as regards the position of Swedish grids and seltra trawlers when fishing in Skagerrak and Kattegat Seas (note that there is room for small errors in the maps as no corrections have been made to the vessels position. These errors are considered to be relatively small and not affecting the overall results or the description of the location of the fishery).

Fishing activity and location of MPAs by the Swedish grid Nephrops fishery:



Fishing activity and location of MPA's by the Swedish seltra Nephrops fishery.



Notwithstanding the client's accomplishment of enforced management measures implemented both by Swedish and (more intensively) Danish authorities, the client is reminded of the need to improve its performance regarding the following requirements:

- Reporting of encounters with indicator species of vulnerable marine ecosystems (at present it is uncertain as whether the vessels are accomplishing with this management measure or if there are no encounters to record. Common ETP and VME hand written records for encounters with vulnerable species just show no bycatch)
- Avoidance of OSPAR identified sensitive marine habitats.
- The client's Code of Conduct currently includes measures to minimise environmental impacts to vulnerable species but doesn't make specific reference to vulnerable habitat types. During the 1st surveillance the client reported that the Code of Conduct was to be updated in 2016, however the Code of Conduct provided at this audit (in 2018) still lacks explicit statements on the importance of avoiding bottom fishing activity on vulnerable habitat types.
- Working at a client level or at a national level to promote the implementation of management measures to protect vulnerable habitat types.

Status of condition	<p>The condition is on target.</p> <p>The condition is on target due to the management measures adopted by relevant authorities (specifically, by Danish authorities in Natura 2000 areas located in Danish waters). The assessment team would like to see similar actions by Swedish authorities or the client group.</p>
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5 Conclusion

5.1 Summary of findings

The surveillance audit team recommend that the Swedish Nephrops fishery remain certified as all open conditions are assessed as being on target.

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Appendix 1 – Re-scoring evaluation tables

None

Appendix 2 - Stakeholder submissions (if any)

None received

Appendix 3 - Surveillance audit information (if necessary)

n/a

Appendix 4 - Additional detail on conditions/ actions/ results (if necessary)

n/a

Appendix 5 - Revised Surveillance Program (if necessary)

No revision proposed.

Year 4 surveillance is proposed to be on-site ahead of re-certification of the fishery.