

Vottunarstofan Tún ehf.

Sustainable Fisheries Scheme

Marine Stewardship Council Sustainable Fisheries Assessment

ISF Iceland Saithe, Ling, Atlantic Wolffish and Plaice Fishery

Certificate Code: F-TUN-1106

Fourth Annual Surveillance Report

Conformity Assessment Body:	Vottunarstofan Tún ehf.
Authors:	Rod Cappell, Gudrun Gaudian, Jo Gascoigne, Paul Medley, Robert O'Boyle
Assessment Secretary:	Louise le Roux
Client:	Iceland Sustainable Fisheries Ltd.

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Acronyms

ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas
B	Biomass (PA/TRIGGER/LIM/LOSS)
CoC	Chain of Custody
CAP	Client Action Plan
DF	Directorate of Fisheries
DLS	Data Limited Stock
EEZ	Exclusive economic zone
ETP	Endangered, threatened and protected
F	Fishing mortality (MSY/PROXY)
FAO	Food and Agriculture Organisation
HCR	Harvest Control Rule
HR	Harvest rate
ICES	International Council for the Exploration of the Sea
ISF	Iceland Sustainable Fisheries Ltd
IS-SMH	Icelandic Autumn Groundfish survey biomass index
MFRI	Marine and Freshwater Research Institute
MII	Ministry of Industries and innovation
MOU	Memorandum of understanding
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NAMMCO	North Atlantic Marine Mammal Commission
OSPAR	OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic
PCR	Public Certification Report
PI	Performance indicator
PRI	Point of recruitment impairment (stock reference point)
RBF	Risk based framework
SG	Scoring guidepost
SSB	Spawning stock biomass
t	tonnes
T _{GEN}	Generation time
TAC	Total Allowable Catch
UoA	Unit of Assessment
UoC	Unit of Certification
VMS	Vessel Monitoring System

1. General Information

Fishery name	ISF Iceland Saithe, Ling, Atlantic Wolffish and Plaice Fishery		
Unit(s) of assessment	North Atlantic Saithe (<i>Pollachius virens</i>), Ling (<i>Molva molva</i>), Atlantic wolffish (<i>Anarhichas lupus</i>) and plaice (<i>Pleuribectes platessa</i>) in ICES Division Va, FAO Area 27 within the exclusive economic zone of Iceland using harvest methods demersal otter trawl, Danish seine, longline, handline, gillnet, and <i>Nephrops</i> trawl.		
Date certified	11.09.2014	Date of expiry	10.09.2019
Surveillance level and type	Level 4 surveillance; On-site surveillance		
Date of surveillance audit	8-12 th October 2018		
Surveillance stage (tick one)	1st Surveillance		
	2nd Surveillance		
	3rd Surveillance		
	4th Surveillance	X	
	Other (expedited etc)		
Surveillance team	Rod Cappell: Lead Assessor, Principle 3 expert and traceability Paul Medley: Principle 1 expert Robert O'Boyle: Principle 1 expert Gudrun Gaudian: Principle 2 expert Jo Gascoigne: Principle 2 expert Louise le Roux Assessment Secretary		
CAB name	Vottunarstofan Tún		
CAB contact details	Address	Parabakki 3, IS-109 Reykjavík, Iceland	
	Phone/Fax	+354 511 1330	
	Email	tun@tun.is	
	Contact name(s)	Gunnar Á. Gunnarsson	
Client contact details	Address	Iceland Sustainable Fisheries ehf. Grandagarður 16, IS-101 Reykjavík, Iceland	
	Phone/Fax	+354 892 6628 & +354 840 6886	
	Email	info@isf.is	
	Contact name(s)	Kristinn Hjálmarsson	

2. Background

This report contains the findings of the fourth surveillance audit for Marine Stewardship Council (MSC) fishery certification of the Iceland Sustainable Fisheries Ltd (ISF) Iceland saithe, ling, Atlantic wolffish and plaice fishery, caught by demersal otter trawl, Danish seine, longline, handline, gillnet, and *Nephrops* trawl within the Icelandic exclusive economic zone (EEZ) in the International Council for the Exploration of the Sea (ICES) Division Va and Food and Agriculture Organisation (FAO) Area 27.

The first purpose of this report is to outline any changes to the ISF Iceland saithe, ling, Atlantic wolffish and plaice fishery since the last surveillance, including (but not limited to) changes to management systems, relevant regulations, personnel involved in science, management or industry, scientific information base, and any changes that could impact traceability. The second purpose of this report is to evaluate progress against the conditions (milestones and Client Action Plan).

2.1 Management systems

There have been no significant changes to the management system associated with this fishery.

2.2 Regulations

A fisheries regulatory review was undertaken by MII in 2017/18 to harmonise and simplify legislature. This has recently been submitted to the minister for approval, with any resulting changes to the regulations expected to occur in 2019.

2.3 Personnel

The team is not aware of any significant changes to personnel involved in science and management.

2.4 Scientific base of information

2.4.1 Status of Target stocks

The status of the four principle 1 target stocks (saithe, ling, wolffish and plaice) is provided below based upon the 2018 MFRI assessments. There have been no significant changes in stock status since Tun (2014; 2017) and the 2015 - 2017 surveillance audits.

2.4.1.1 Saithe

Catch was above 80,000 t in the mid-1980s before declining to about 30,000 t in the late 1990s. Since 2008, catch has fluctuated between 40,000 – 50,000 t. During 1980 – 2012, the harvest rate fluctuated at or above the target rate (0.2), but since 2013 has declined to 0.165 by 2018. Spawning stock biomass (SSB) declined to close to $B_{trigger}$ (65,000t) in the late 1990s before steadily increasing to 232,833 t by 2018 (MFRI, 2018a). Over the long-term, age 3 recruitment has been variable without trend, suggesting that the recent increase in SSB is primarily due to the decline in the harvest rate. Based on short-term projections, stock size is not expected to change significantly in coming years. The simulations undertaken as part of the 2013 evaluation of the saithe harvest control rule (HCR) indicated that SSB could be expected to fluctuate between 65,000 – 275,000 t (median 130,000 t) at a long-term harvest rate of 0.2. Current SSB is well within this range and above the median target level.

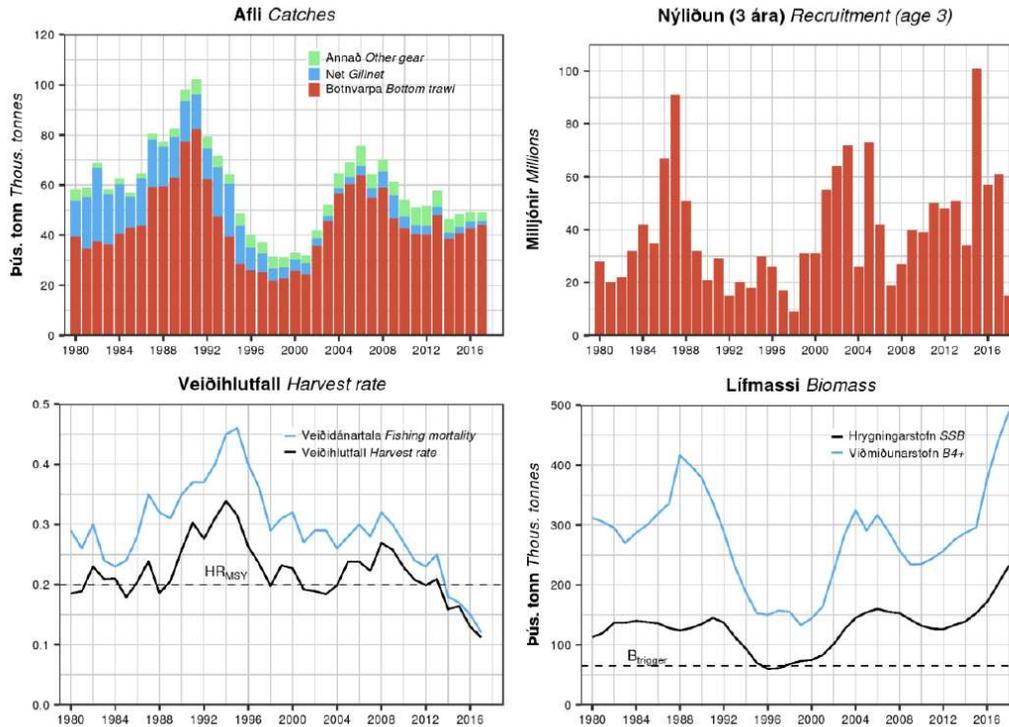


Figure 2.4.1.1. Icelandic Saithe trends in Catch, Harvest Rate (blue line is fishing mortality; black line is harvest rate), Stock Biomass (blue line is age 4+; black line is SSB) and Recruitment (age 3); from MFRI (2018a)

2.4.1.2 Ling

During 1982 – 2003, catch ranged 3,000 – 6,000 t and then rose to a peak of 14,000 t by 2014. Since then, it has modestly declined just below 9,000 t. Since 1982, the harvest rate has fluctuated between 0.25 – 0.60 and above the 0.18 management target. The current harvest rate (0.24) is the lowest since 1982. Fishing pressure is now defined in terms of harvest rate of biomass of ling 75 cm and larger, but in the assessments prior to 2017, it was defined in terms of fishing mortality for ages 14–19. In previous assessments, a fixed maturity ogive had been used, but maturity is now estimated in the model. Due to strong recruitment during 2004 – 2011, B₇₅₊ (biomass used in the harvest control rule) rose above B_{PA} (9,930 t) to reach a peak of 38,033 t in 2015. Since then, it has declined to 34,748 t in 2018 (Figure 2.4.1.2). Short term projections indicate a declining SSB and catches as the result of low recruitment during 2012–2016. The simulations undertaken as part of the 2017 evaluation of the HCR indicated that SSB, which is similar to B₇₅₊, is expected to range 20,400 – 72,500 t (median of 40,800 t). Current biomass is well within this range.

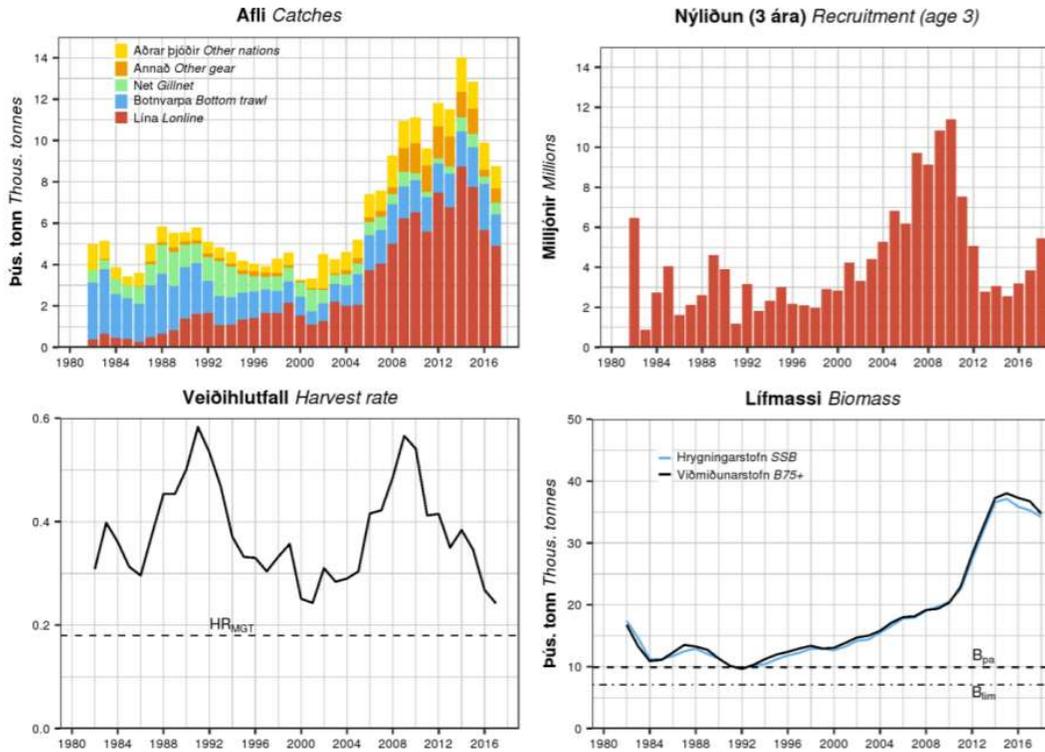


Figure 2.4.1.2 Icelandic Ling trends in Catch, Harvest Rate, Stock Biomass (blue line is SSB; black line is 75 cm+) and Recruitment (age 3); from MFRI (2018b)

2.4.1.3 Atlantic Wolffish

Atlantic wolffish catch rose from 8,000 t in 1980 to over 15,000 t by 1992 and ranged 12,000 – 18,000 t until about 2008, at which time it started to decline to 7,545 t by fishing year 2016/2017. Fishing mortality ranged 0.4 – 1.0 up until 2008 and above the 0.3 F_{MSY} target, at which time it started to decline, being below this target since 2014. Over the long term, there has been a steady decline in recruitment. Age 5 recruitment has been comparatively low since 2006, compared to the two previous decades. On the other hand, since the late 1990s, harvestable biomass has increased, being close to the highest level observed in the time series (30,400 t in 2018). As noted above, since about 2008, fishing mortality has declined from above to below the F_{MSY} proxy, a period of 10 years, and less than a generation time ($T_{GEN} = 16.5$ years 50% age of maturity is 6.5 years; based on MFRI (2018d) and FishBase, respectively). Tun (2017) scored PI 1.1.1 as 80, argued that harvestable biomass, given the trends in fishing mortality and recruitment, is likely in the range of that consistent with F_{MSY} . The stock situation has generally improved since 2014. Further, there is indication in the most recent assessment (MFRI, 2018c) of a retrospective pattern in which harvestable biomass is being consistently underestimated. Harvestable biomass is likely in the range of that expected at F_{MSY} , perhaps at its lower end. It is noteworthy that, based on information obtained during the site visit, the stock is to undergo a benchmark and HCR review during 2019.

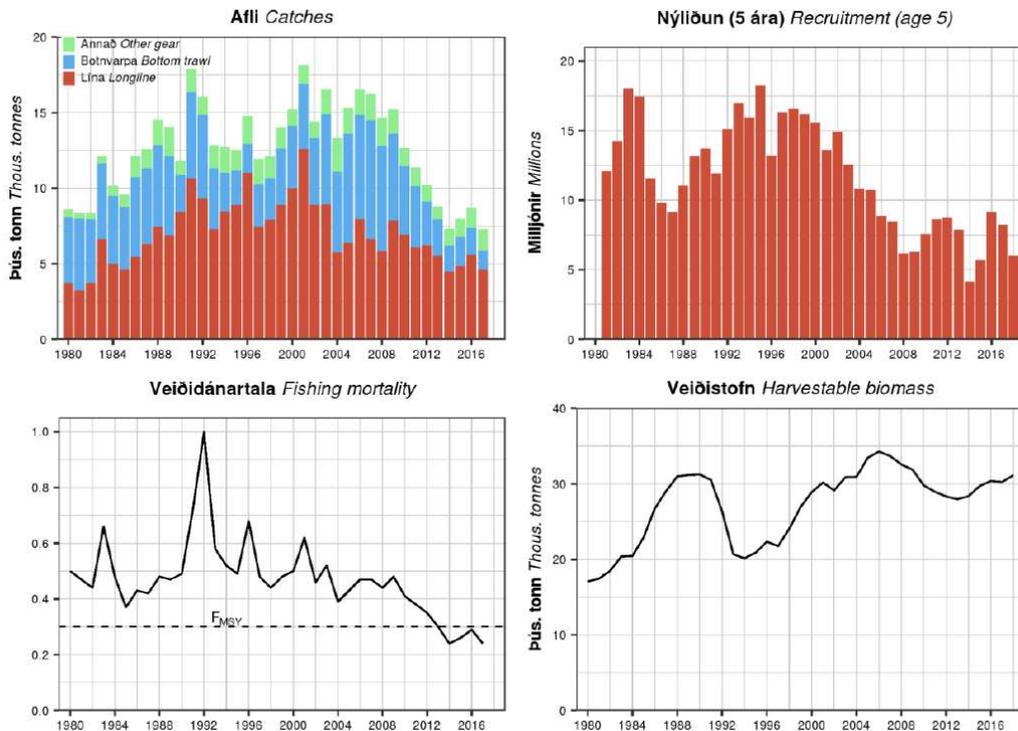


Figure 2.4.1.3 Icelandic Atlantic Wolffish trends in Catch, Fishing Mortality, Harvestable Biomass and Recruitment (age 5); from MFRI (2018c)

2.4.1.4 Plaice

Catch rose to relatively high levels (10,000-15,000 t) during the 1980s-1990s and has subsequently ranged 5,000 – 6,500 t since then. Fishing mortality was well above the F_{MSY} proxy ($F_{0.1}$) = 0.22 until about 2000, at which time it started to decline, being in the vicinity of the target by 2003 and declining below the target in 2011. Thus, fishing mortality has likely been fluctuating around the F_{MSY} proxy for about 15 years or about two generations ($T_{GEN} = 7$ years; Tun, 2017). Harvestable biomass was in the order of 40,000 t in the early 1990s before declining to a time series low by 2000. Since then, harvestable biomass has steadily increased to reach a time series high by 2015, being 46,619 t in 2018. This long-term increase in biomass is largely due to the decline in fishing mortality as age 3 recruitment has been stable since the mid-1990s (Figure 2.4.1.4).

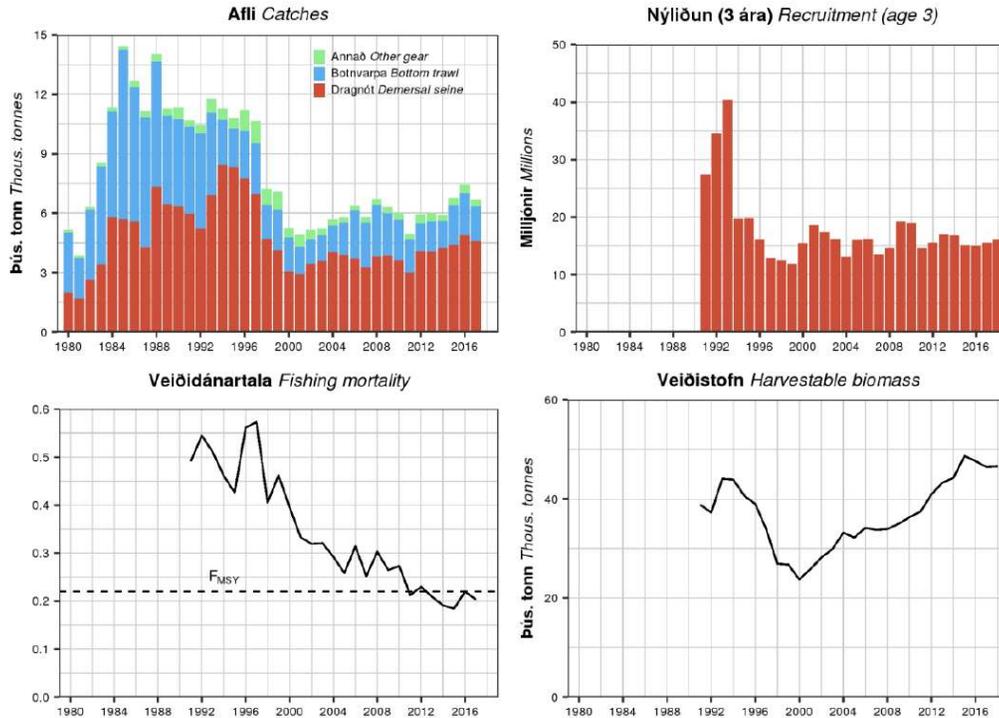


Figure 2.4.1.4 Icelandic Plaice trends in Catch, Fishing Mortality, Harvestable Biomass and Recruitment (age 3); from MFRI (2018e)

2.4.2 Retained Catch

The most recent estimates of stock status for the main retained species are in the table below. Based on the 2018 assessments, there are no significant changes to the status of retained catch stocks.

Table 1: Species/stock status for main retained species only for each gear type in the main assessment.

Species/Stock	Gear	Above Point of Recruitment Impairment	Reference
Cod <i>Gadus morhua</i> ICES Division V.a	All	SSB (2018) is at a 40 year high, and harvest rate (2015–2016) is at assessment time-series low (SSB > B _{trigger} ; HR < HR _{msy}). The 2015 year-class, that enters the reference stock in 2019, is above the average of 1955–2017. Year class 2016 is estimated below average and year-class 2017 is around average. The size of the reference stock is not expected to change markedly for the next three years.	MFRI, 2018f
Haddock <i>Melanogrammus aeglefinus</i> ICES Division V.a	Demersal trawl Danish Seine Longline	SSB increased from 2001–2004, after several strong year classes, and was large until 2008. Since 2008, the SSB has decreased but in recent years has stabilized above B _{trigger} . Harvest rate during 2015–2017 is estimated close to its lowest level in the assessment time series and is currently close to HR _{MGT} . Recruitment of 2 year old haddock in 2010–	MFRI, 2018g

		2015 was low, but is estimated high for 2016 and close to average for the last two years. Reference biomass will increase in 2017, as the 2014 cohort enters the reference stock. The 2015–2017 cohorts are estimated close to the long-term mean recruitment.	
Greenland halibut <i>Reinhardtius hippoglossoides</i>	Demersal Trawl	The stock was well above $B_{trigger}$ in the early part of the time-series. After dropping below $B_{trigger}$ in 2004 and 2005, it has steadily increased and is currently above $B_{trigger}$. Fishing mortality has decreased in recent years and is estimated to be close to F_{MSY} .	MFRI, 2018h
Deepwater Redfish <i>Sebastes mentella</i> Icelandic slope stock	Demersal trawl	Demersal beaked redfish is considered a Data Limited Stock (DLS) because limited information is available on stock productivity. The abundance index of fish <30 cm has been at low levels since 2007, indicating little recruitment. The lack of long time-series of abundance indices prevents the determination of stock status of this long-lived species. Catches in the past five years have been the lowest since 1980. Tun (2014) scored this stock based upon its management. (c) Management measures in place such that fishery does not hinder recovery and rebuilding. This situation has not changed.	MFRI, 2018i
Tusk <i>Brosme brosme</i>	Longline	Recruitment in 2012-2015 was low, but has increased since then. Harvest rate has declined in recent years and is below HR_{MGT} . SSB has increased in recent years while the reference biomass (tusk >40 cm) has declined but remains at a high level and above B_{PA} .	MFRI, 2018j
Nephrops <i>Nephrops norvegicus</i>	Nephrops trawl	Nephrops is considered a Data Limited Stock (DLS). Fishing mortality has been below F_{MSY} since 1995. Recruitment has decreased since 2005 and has never been lower. Harvestable biomass has decreased sharply and is at its lowest level. The biomass of large specimens is high but has decreased since 2009. (c) Management measures in place such that fishery does not hinder recovery and rebuilding.	MFRI, 2018k
Grey sole (witch) <i>Glyptocephalus cynoglossus</i>	Nephrops trawl	Grey sole is considered a Data Limited Stock (DLS). The fall biomass index has been high since 2004. The recruitment index has, however, declined since 2009, and reached an all-time low in 2016. The F_{proxy} has remained relatively low and stable over the last six years. (c) Management measures in place such that fishery does not hinder recovery and rebuilding.	MFRI, 2018l

Anglerfish <i>Lophius piscatorius</i>	Nephrops trawl	The status is uncertain. Anglerfish is considered a Data Limited Stock (DLS). The biomass index was high in 2005–2011 compared to previous years, but has since decreased substantially. Juvenile indices show strong recruitment for year-classes 1998–2007, but poor recruitment before and after this period. The F_{PROXY} was stable when the stock peaked, but has decreased in recent years. It has fluctuated about the F_{MSY} proxy target since about 2002. (c) Management measures in place such that fishery does not hinder recovery and rebuilding.	MFRI, 2018m
Golden Redfish <i>Sebastes norvegicus</i> ICES Divisions 5, 6, 12 and 14	Demersal trawl Danish Seine	The stock is likely above its PRI. The 2000–2005 year-classes accounted for most of the catches in 2017. The 2008–2014 year-classes are estimated to be below average. Fishing mortality has decreased in the past two decades but remains above F_{MSY} . Notwithstanding this, spawning stock biomass (SSB) has steadily increased for the past 20 years and is well above $B_{trigger}$.	MFRI, 2018n

2.4.3 Stock assessment and management

During the site visit, an update of MFRI activities on stock assessment and Harvest Control Rule evaluation was provided. Currently, Icelandic plaice and wolffish are assessed by MFRI independent of ICES. For these and other non-ICES stocks, stock assessments are undertaken under the auspices of three working groups (demersal, pelagic, invertebrate) with an internal peer review conducted by a designated group of MFRI scientists. It was indicated that an MOU is being arranged with ICES to conduct the plaice and wolffish stock assessment within ICES in the future.

Evaluations of the HCRs, which are on a 5-year schedule, have been and will be conducted by ICES as part of the benchmark meetings. Past and current HCR reviews include:

- Saithe: 2013 HCR rolled over to 2018 and will be reviewed in 2019
- Plaice: new HCR currently under review
- Ling: Reviewed and in place since 2017
- Blue Ling: DLS HCR in place since 2016
- Tusk: Reviewed and in place since 2017
- Golden Redfish: 2014 HCR to be reviewed in 2020
- Atlantic Wolffish: HCR currently under review
- Cod: HCR in place since 2015
- Haddock: Current HCR rolled over to 2018 and will be reviewed in 2019
- Greenland Halibut: New HCR to be reviewed in 2020

It was indicated that, if issues are identified between reviews, activities are undertaken to resolve these, including updating the HCR.

Regarding Ling, the 2017 review (ICES, 2017a; 2017b) considered the details of the stock assessment (Gadget model), reference points and the harvest control rule. The HCR review was undertaken as a Management Strategy Evaluation (MSE) in which the operating model (flexible stock simulator within Gadget) generates “true” future populations in the simulations which are the same as the one used in the annual stock assessment. Uncertainties in parameters estimated in the historical assessment (exploitation pattern, population numbers, growth, and maturity) were included in the simulations through 300-year stock projections based on 10 bootstrap samples of each relevant assessment parameter. Recruitment was projected using a time-series block bootstrap (blocks of six consecutive years with a randomly drawn starting year) of the assessed recruitment during 1982–2016. These

simulations were used to characterize the uncertainties in the biomass and fishing mortality reference points used in the HCR. Assessment error in the reference biomass (used to estimate the TAC) was assigned a $CV = 0.2$, based on the estimated error in the stock assessments. Catch was assumed to be known without error.

The review resulted in $B_{PA} = 9.93$ kt, based on B_{LOSS} , the lowest observed biomass (SSB in 1992 as estimated in the benchmark assessment), and $B_{LIM} = B_{PA}/1.4 = 7.09$ kt. B_{LOSS} was chosen as B_{PA} as there was no indication of impaired recruitment at that level. The proposed harvest control rule (HCR) is not based on F but on a harvest rate (HR) relative to stock biomass of ling longer than 75 cm (75+ cm). The fishing pressure reference points were estimated for harvest rate rather than for fishing mortality, resulting in $HR_{LIM} = 0.56$ and $HR_{PA} = 0.35$. MSY reference points were also calculated and resulted in $HR_{MSY} = 0.24$ and $B_{trigger} = 9.93$ kt.

The proposed HCR for the Icelandic ling fishery sets a TAC for the fishing year September to August of the following year ($y/y+1$), based on a harvest rate of 0.18 on the 75+ cm biomass in the assessment year y ($B_{ref,y}$), modified by the ratio $SSB_y/B_{trigger}$ when $SSB_y < B_{trigger}$. The proposed HCR is considered to be precautionary as it results in less than 5% probability of $SSB < B_{LIM}$ in all years (short, medium, and long term). In the long term, and under equilibrium conditions, a harvest rate of 0.24 maximizes average yield. However, as the equilibrium catch curve is quite flat for a broad range of harvest rates, the difference in equilibrium yield between $HR = 0.18$ and $HR = 0.24$ is only around 2%. The proposed HCR is considered to be in conformity with the ICES MSY approach. The new HCR was used to inform the 2017/18 TAC and will be used to inform TACs until the next 5-year review.

2.4.4 Information and monitoring

During the site visit, MFRI provided an update of information and monitoring activities conducted since the last surveillance audit. Also, MFRI clarified the use of at-sea sampling data collected by MII inspectors. These data are treated in a similar manner to those of observers and combined with MRI's sampling data when undertaking the assessments, which represent about 1% coverage of the fishery. Discard rates are based on these data. It was noted that there has been preliminary discussion on the use of cameras to monitor at-sea fishing.

The survey (spring and fall) program is largely unchanged although it was indicated that vessels to undertake these surveys are increasingly difficult to hire due to competition with the fishery. The new flatfish survey underway for the past two years is expected to be used in assessments within five years.

There have been no significant new research initiatives on stock structure and productivity.

2.4.5 Bycatch of out of scope species

Bycatch data for 2017 are not yet available from MFRI (these are expected by the end of 2018 and can be included in the re-assessment of this fishery). In last year's surveillance audit, bycatch data were provided for 2014-16 (3-year averages) for birds, and 2014-15 (2-year averages) for marine mammals. The mammals data have now been updated to present 2014-16 averages for both taxa. Averages rather than annual data are presented here on the advice of MFRI, who note that annual estimates are very variable from year to year (Table 2).

The data are estimated and scaled up to fleet level as reported in the surveillance audit report from last year (Year 3 audit, 2017). Last year it was reported that MFRI were experimenting with more statistically sophisticated methods of scaling up the data, but this has not progressed to date.

Table 2. Estimates of gear interaction with marine mammal and seabird species, raised to levels for the entire fleet and averaged across years; blank = no bycatch observed.

Species	Gillnets	Longline	Otter trawl
	Average 2014-16		
Harbour porpoise	1241		
Harp seal	149		
Grey seal			20.7
Harbour seal	15.3	86	
Ringed seal	12.7		
Hooded seal	15.3		
Common guillemot	466		
Common eider	106		
Common loon	61.7		
Northern fulmar	1854	1472	
Northern gannet	148	160	
Razorbill	27.7		
Atlantic puffin	14		
Black guillemot		104	
Cormorant		72	
Great black-backed gull		69	

The only significant difference from last year in these data is that the estimated bycatch of harbour porpoise has substantially increased with the additional year's data (to more than double the previous estimate). These figures, however, have to be treated with caution, since i) as noted above, the annual estimates are extremely variable; ii) the time series is very short; and iii) the main source for these data is the annual MFRI cod gillnet survey, and not from the commercial fishery (requirements for submission of logbooks is discussed under the conditions below). According to ICES WGBYC (ICES, 2018b) the 2016 bycatch estimate for harbour porpoise from the cod gillnet fishery in Iceland is based on an observed bycatch of 35 individuals. MFRI indicated to the assessment team that mammal bycatch is frequently in groups; i.e. a smaller number of bycatch events (and a higher variance in the data) than the figures suggest if individual incidents of bycatch were statistically independent.

There have not been any new estimates of harbour porpoise population size since the last audit. The existing estimate of 32-162,000 (see last year's audit report) is now quite old, as well as approximate. Taking the bycatch figures at face value, the increase seen by incorporating 2016 data would put the impact of the fishery above the ASCOBANS limit of 1.7% of the population for maximum sustainable additional mortality (although this was proposed specifically for the North Sea harbour porpoise population). Work is ongoing on harbour porpoise; Iceland recently participated in a NAMMCO workshop on harbour porpoise (2 October 2018) although the report is not yet available. Research is underway using genetics (close kin analysis) to estimate effective population size. A report on this work is due to be published after discussion with the NAMMCO Scientific Committee in November.

MFRI tested pingers on gillnets during 2017 and 2018, but the results were discouraging; there was more porpoise bycatch in the pinger nets than the control nets (11 vs 9 in 2017 and 13 vs 8 in 2018¹).

In relation to the seals, a new grey seal survey was conducted in 2017 (ongoing at the time of the last audit); however, results are not yet available (due by the end of the year). A follow-up of the 2016 harbour seal survey is being conducted in 2018, with results due to be available next year.

A wide range of new information (bycatch estimates, population estimates and other research) is due to become available in the next few months, but after the deadline for this surveillance audit. As the re-assessment of this fishery is underway and will use this new information, the audit team decided that it was not appropriate to re-score the secondary species PIs for this audit at this point. Progress against the conditions is evaluated below.

2.4.6 ETP Species

The various out-of-scope bycatch species in this fishery do not meet the MSC definition of ETP species (formal protection) and hence are considered under secondary species. Iceland has developed a new national Red List of vulnerable and threatened species, which includes some species taken as bycatch in this fishery, allowing them to qualify as ETP (if classified as 'vulnerable' or above). However, this Red List has not been formally adopted – this will happen once it is approved by Parliament (due in December). Assuming this takes place as timetabled, it will be used to inform the re-assessment.

2.4.7 Habitat

As part of the conditions on PI 2.4.1 and PI 2.4.2 an update on relevant habitat issues has been provided within the progress on conditions, in Section 4 (Results) below.

2.4.8 Ecosystem

The Icelandic Waters Ecosystem update (ICES 2017)² remains the most recent document summarising changes in the waters around Iceland. Of particular note is that 'increased temperature in the lower water column on the western and northern part of the Icelandic shelf has resulted in changes in spatial distribution for a number of demersal species', including haddock, ling, tusk, and dab. These species 'are now showing a northward clockwise trend in their distribution along the shelf, and in some cases a distributional shift'. The report also noted that 'Improved management measures for most of the major stocks (cod *Gadus morhua*, haddock *Melanogrammus aeglefinus*, saithe *Pollachius virens*, redfish *Sebastes* sp., herring *Clupea harengus*) have resulted in decreased fishing mortality, close to or at FMSY, and increased SSBs. This has furthermore resulted in a decrease in effort and less pressure on the benthic habitats'.

Since the surveillance audit in 2017, there has been no new peer reviewed information which would change the perception of the impact of the fishery on ecosystem structure and function.

2.5 Enhanced fisheries changes

N/A

¹ In 2018, MFRI tested a system which played female porpoise warning calls – which has worked well in the Baltic. However, in Iceland, it appeared to attract large male porpoises, which reportedly constituted most of the victims in the test net.

² ICES. 2017. Icelandic Waters ecoregion – Ecosystem overview. ICES Advice 2017, section 2.1.

2.6 Traceability

Traceability aspects were explored in discussions with the Directorate of Fisheries, Coastguard, skippers and the client. No issues or changes were identified within the fishery which may impact traceability negatively.

The scope of certification is up to the point of landing. Chain of custody commences from the point of landing. Catches of registered fishing vessels licenced to fish within the Icelandic EEZ, landed whole or processed and sold directly or through auction houses, are eligible to carry the MSC logo, if and once the fish has passed through ownership of some member of the ISF (the client group) or other entity that has entered into certificate sharing mechanism with the ISF.

Entities that take ownership of the fish and/or are involved in any handling of the fish after landing with the view of marketing the fish as MSC-certified must enquire with an accredited conformity assessment body if they are required to be certified against MSC Chain of Custody standards.

Updated list of certificate sharers and other documents can be accessed at <https://fisheries.msc.org/en/fisheries/isf-iceland-saithe-ling-atlantic-wolffish-and-plaice/@@view>.

2.7 TAC and Catch Data

Table 3: TAC issued for the saithe, ling, Atlantic wolffish, and plaice in the *ISF Iceland Saithe, Ling, Atlantic Wolffish and Plaice* fishery. Source: <https://www.hafogvatn.is/en/harvesting-advice>. TAC are reported by quota year, which is 1st of September to 31st of August.

Species/gear	TAC (2017/18)	UoA share of TAC (2017/18)	UoC share of TAC (2017/18)
Saithe	60237	60237	60237
Ling	7598	7598	7598
Atlantic Wolffish	8540	8540	8540
Plaice	7103	7103	7103

Table 4: Catch data of saithe, ling, Atlantic wolffish, and plaice in the ISF Iceland Saithe, Ling, Atlantic Wolffish and Plaice fishery. Source: Landings from www.fiskistofa.is³. Landings are reported by quota year, which is 1st of September to 31st of August.

Species/gear	Total green weight catch by UoC (2017/18)	Total green weight catch by UoC (2016/17)	Species/gear	Total green weight catch by UoC (2017/18)	Total green weight catch by UoC (2016/17)
Saithe			Ling		
Demersal otter trawl	54330	40700	Demersal otter trawl	1538	1674
Gillnet	1318	1447	Gillnet	370	567
Handline	1059	1062	Handline	7	19
Danish seine	1047	807	Danish seine	172	175
Longline	653	693	Longline	4384	4330
<i>Nephrops</i> trawl	413	416	<i>Nephrops</i> trawl	537	532
Atlantic Wolffish			Plaice		
Demersal otter trawl	1662	1582	Demersal otter trawl	2247	1886
Gillnet	5	6	Gillnet	182	143
Handline	16	6	Handline	7	0
Danish seine	2145	1273	Danish seine	5602	4142
Longline	5588	4550	Longline	136	146
<i>Nephrops</i> trawl	85	75	<i>Nephrops</i> trawl	3	2

2.8 Harmonisation

The scoring and conditions were harmonised with the ISF cod and haddock fisheries during last year's surveillance audit.

³ <http://www.fiskistofa.is/veidar/aflaupplysingar/bradabirgdatolur/>

2.9 Summary of conditions

Table 5: Summary of Assessment Conditions of the ISF Iceland saithe, ling, wolffish and plaice Fishery*

		Condition set:		Scores & condition timing							
UoC	Gear type	P.I. no	Year set	2014	2015	2016	2017	2018	2019	2020	2021
<i>Ling</i>	All	112	2015		75	75		90	Due		
<i>Atlantic wolffish</i>	All	112	2017				75				Due
<i>Ling</i>	All	122	2015		75	75	75	80	Due		
<i>Atlantic wolffish</i>	All	122	2017				75				Due
<i>Plaice</i>	All	122	2017				75				Due
<i>saithe et al</i>	TB,DS,LL	211	2014	75		80		Due			
<i>saithe et al</i>	TB,DS,LL	212	2014	75		80		Due			
<i>saithe et al</i>	GN	221	2017				75				Due
<i>saithe et al</i>	GN	222	2017				75				Due
<i>saithe et al</i>	GN, LL	223	2017				75		Due		
<i>saithe et al</i>	TB	241	2014	75	75	75	75	85			
<i>saithe et al</i>	TB	242	2015		75	75	75	90			

*Scores resulting from rescoring following this year's audit are in **bold**. Closed conditions are greyed out for subsequent years.

3. Assessment Process

3.1 Audit Process

The announcement for the surveillance was published on the MSC website on 30th August 2018 and stakeholders were informed of the surveillance audit activities.

This surveillance audit was carried out by Rod Cappell (Team Leader, traceability and P3), Jo Gascoigne (Expert, P2), Gudrun Gaudian (Expert, P2), Paul Medley (Expert, P1), Robert O'Boyle (Expert, P1), and Louise le Roux (Assessment Secretary). Vottunarstofan Tún advised all known stakeholders that the surveillance audit would be on-site 7th-12th October 2018. Tún maintains an active list of stakeholders who were contacted and notified of the surveillance audit. All stakeholders were given the opportunity to comment on the surveillance announcement. A request was issued to key stakeholders for a meeting with members of the assessment team during the site visit. No requests were received, however several stakeholder meetings were held to discuss this surveillance, as well as the re-assessment of the fishery.

This surveillance audit was combined with that of ISF Iceland Golden redfish, blue ling and tusk and with the re-assessment of these fisheries under a single certificate, with a name changed to the 'ISF Iceland multi-species demersal fishery'.

3.2 Scope and history of assessments

The first unit of assessment and certification covers the fishing of saithe by means of six different fishing methods (demersal otter trawl, Danish seine, longline, handline, gillnet, *Nephrops* trawl) within the Icelandic EEZ. A full assessment of the fishery was launched in April 2013 and it was certified in September 2014.

The second set of UoCs covers the fishing of ling by means of the same six fishing methods (demersal otter trawl, Danish seine, longline, handline, gillnet, *Nephrops* trawl) within the Icelandic EEZ. These were added to the saithe certificate by means of an expedited assessment launched in April 2015 and completed in November the same year.

Two sets of UoCs were later added to the same certificate, i.e. Atlantic wolffish and plaice, using the same fishing gears, also by means of expedited assessment, launched in 2016 but not completed until the 20th of July 2017 (publication date of the PCR for this scope extension) . It has therefore been decided, following consultation with the MSC, that this 2018 audit for this fishery will serve as the first surveillance audit for these two species.

At the initial assessment, the fishery (saithe only) attained a score of 80 or more against each of the three MSC Principles and did not score less than 60 against any of the individual MSC Criteria. Six Performance Indicators (PI 1.1.2 (ling), PI 1.2.2 (ling), PI 2.1.1, PI 2.1.2, PI 2.4.1 and PI 2.4.2) scored less than 80, so six conditions were set for this fishery. One recommendation was made.

At the 2nd surveillance audit (in 2016, covering saithe and ling) two of the conditions (2.1.1 and 2.1.2) were closed, since a score of 80 was attained. However, new conditions on PIs 2.2.1, 2.2.2 and 2.2.3 were added during the 3rd surveillance (in 2017, also covering saithe and ling), based on – and harmonizing with – the analysis in the expedited Atlantic wolffish and plaice assessment (see PCR for Atlantic wolffish and plaice on MSC’s website).

3.3 Surveillance activities

The entire assessment team met with the client organization Iceland Sustainable Fisheries (ISF) and several stakeholders in Reykjavik, Iceland, for the fourth surveillance and to gather information for the re-assessment.

The assessment processes and the certifications were discussed in detail and the meetings provided an opportunity to discuss any changes to the fishery and specifically the progress against conditions and recommendations that exist for this fishery.

The assessment team had meetings with the following stakeholders:

- Ministry of Industries and Innovation (MII)
- Directorate of Fisheries (DF)
- Marine and Freshwater Research Institute (MFRI)
- The Icelandic Seal Centre
- Icelandic Coast Guard
- Icelandic Institute of Natural History
- Fuglavernd – BirdLife Iceland
- Norway, Faroe Islands and Greenland management and enforcement authorities

3.4 MSC standards

This surveillance audit was carried out according to the process requirements of „MSC Fisheries Certification Requirements and Guidance v2.0”, using the “MSC Surveillance Reporting Template v1.0”. However, the original full assessment applied “MSC Certification Requirements v1.3”, which remains as the standard for the fishery until re-assessment.

4. Results

The results of the surveillance relating to the remaining open conditions are presented below in PI order in line with the summary table above.

Table 6: Condition on 1.1.2 (ling)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	PI 1.1.2 – Reference points	<u>Scoring Issue b</u> “The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.”	75
Condition	A limit reference point needs to be defined such that it is above the point where there is significant risk of impairing reproductive capacity. This might be achieved by providing scientific evidence within 4 years that the B_{loss} , or an alternative higher biomass, being used as the limit reference point is sufficiently precautionary consistent with MSC requirements.		
Milestones	<p>It is recognized that re-evaluation of the reference point may require another benchmark assessment. Therefore, timing for setting a new reference point, or justifying the current reference point, may need to fit into the ICES stock assessment cycle.</p> <p>At the End of Year 3 (third surveillance audit): Evidence is available indicating reassessment of the current limit reference point. Score 75.</p> <p>At the End of Year 4 (fourth surveillance audit): Justification is provided for the current or new point that it is precautionary, so that if the stock is at or above this point, there is a low risk of recruitment impairment. Score 80.</p>		
Client Action Plan	<p>Year 1 and 2: Engage with the MRI in improving sustainable fisheries of Iceland. The client group shall engage with the MRI and outline an approach to meeting the conditions imposed by the MSC Certification Requirements. Specifically, evaluating the rationale for the current limit reference point for ling fisheries, and subsequently re-evaluate the reference point, as needed. And, if needed, consider internal options to evaluate scientific evidence that the current B_{loss} is sufficiently precautionary and consistent with the MSC requirements. Internal options can include client initiated a co-operation between the fishing industry and the MRI (e.g. hire an outside consultant, cooperate with the University of Iceland, and/or implement new practices among ISF members). Further, the client group aims to establish a basis for developing improved strategies for the management of resources utilized by ISF vessels. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>Year 3 (year 4 of saithe): ISF shall ensure that options developed in year 2 are evaluated in year three as possible changes to the limit reference point have been modified or proven as precautionary. Consult with all members of the client group and MRI if needed on proposed options. Among the options considered are to hire an outside consultant, cooperate with the University of Iceland, and implement new practices among ISF members. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p>		

	<p>Year 4 (year 5 of saithe): Follow up on implementation of a new reference point if needed, developed in year 3 and continue engagement with the MII and the MRI to follow up on strategies and plans developed as a result of outcomes in year 1 and options evaluated in year 3. Implementation may need to fit with ICES stock assessment cycle. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p><u>CAB assessment of progress:</u> The CAB will assess progress of the condition by reviewing evidence supplied by the client and interviews with all parties involved as needed.</p>
Progress on Condition: Year 2 of saithe / Year 1 of ling	<p>Since the original rationale for this condition was written, it was found that B_{lim} was set at 8,600, not 8,100 t. The value of 8,600 t is based on the median of the lowest SBB (ICES 2016a). A change from 8,100 t to 8,600 t in B_{lim} does not materially affect the condition. As per the CAP, ISF has provided a log, documenting interactions regarding this condition in the past year (see Attachment x). As noted in the milestone section (above) it is recognized that re-evaluation of the reference point may require another benchmark assessment, and this would likely require scheduling according to the ICES stock assessment schedule. A new benchmark assessment for ling has not yet been scheduled.</p>
Progress on Condition: Year 3 of saithe / Year 2 of ling (2017)	<p>A new benchmark assessment was completed (ICES 2017b), and both limit and reference points were established for the stock.</p>
Progress on Condition: Year 4 of saithe / Year 3 of ling (2018)	<p>The 2017 HCR was considered to be in conformity with the ICES MSY approach and was used to inform the 2017/18 TAC and will be used to inform TACs until the next 5-year review. This provides evidence that the limit and target reference points are being implemented in management. Therefore, the performance indicator has been rescored.</p>
Status of condition	<p>Condition closed.</p>

Table 7: Condition on 1.1.2 (Wolffish)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	PI 1.1.2 – Reference points	<u>Scoring Issue b</u> “The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.”	75
Condition	A limit reference point needs to be defined for Atlantic wolffish such that it is above the point where there is significant risk of impairing reproductive capacity. This might be achieved by providing scientific evidence that fishing at F_{MAX} , or an alternative reference point such as $F_{0.1}$, would not impair reproductive capacity and is sufficiently precautionary consistent with MSC requirements.		
Rationale	The reference point utilized is F_{MAX} coming from Yield per Recruit analysis. Although it could be argued that the use of F_{MAX} is a reasonable practice as generic reference point for many species as well as in ICES advisory framework (before F_{MSY} became the target), the MSC standards states that a particular caution should be given regarding ‘per-recruit’ stock assessment approaches that do not include any form of stock-recruit relationship. Levels of $F_{0.1}$ or $F_{40\%SPR}$ provide usually more reliable proxies of F_{MSY} than F_{MAX} when a per-recruit approach is used. In particular, taking into account the biology		

	<p>of Atlantic wolffish and its exploitation pattern the Y/R curve shows a flat shape and the use of a more precautionary $F_{0.1}$ it is recommended.</p>
Milestones	<p>It is recognized that re-evaluation of the reference point may require another benchmark assessment. Therefore, timing for setting a new reference point, or justifying the current reference point, may need to fit into the MFRI stock assessment cycle.</p> <p>Year 1: Evidence is available indicating reassessment of the current limit reference point. Score 75.</p> <p>Year 2: Evidence is available indicating reassessment of the current limit reference point. Score 75.</p> <p>Year 3: Evidence is available indicating reassessment of the current limit reference point. Score 75.</p> <p>Year 4: Justification is provided for the current or new point that it is precautionary, so that if the stock is at or above this point, there is a low risk of recruitment impairment. Score 80.</p>
Client Action Plan	<p>Year 1 and 2:</p> <p>Engage with the MFRI in improving sustainable fisheries of Iceland. The client group shall engage with the MFRI and outline an approach to meeting the conditions imposed by the MSC Certification Requirements. Specifically, evaluating the rationale for the current reference point for Atlantic wolffish fisheries, and subsequently re-evaluate the reference point, as needed. And, if needed, consider internal options to evaluate scientific evidence that the current reference point is sufficiently precautionary and consistent with the MSC requirements. Internal options can include client initiated a cooperation between the fishing industry and the MFRI (e.g. hire an outside consultant, cooperate with the University of Iceland, and/or implement new practices among ISF members). Further, the client group aims to establish a basis for developing improved strategies for the management of resources utilized by ISF vessels. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>Year 3:</p> <p>ISF shall ensure that options developed in year 2 are evaluated in year three as possible changes to the limit reference point have been modified or proven as precautionary. Consult with all members of the client group and MFRI if needed on proposed options. Among the options considered are to hire an outside consultant, cooperate with the University of Iceland, and implement new practices among ISF members. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>Year 4:</p> <p>Follow up on implementation of a new reference point if needed, developed in year 3 and continue engagement with the MII and the MFRI to follow up on strategies and plans developed as a result of outcomes in year 1 and options evaluated in year 3. Implementation may need to fit with MFRI stock assessment cycle. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>CAB assessment of progress: The CAB will assess progress of the condition by reviewing evidence supplied by the client and interviews with all parties involved as needed.</p>
Progress on Condition: Year 1 of Wolffish (2018)	<p>The client briefed the Directorate and MFRI on requirements of the MSC conditions. MFRI has initiated work on the wolffish HCR which will include consideration of the limit and target biomass and fishing mortality reference points. An MOU is being prepared in which all future assessment and HCR reviews, including wolffish, will be undertaken within ICES. HCR reviews will be conducted at assessment benchmark</p>

	meetings. Preparation of the HCR could take a year or so and thus review within ICES would occur post – 2019
Status of condition	On Target

Table 8: Condition on 1.2.2 (Ling)

Performance Indicator(s) & Score(s)	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
	PI 1.2.2 – Harvest control rules and tools	<u>Scoring Issue (a)</u> “Harvest control rules design and application.”	75
Condition	<p>A well-defined harvest control rule should be put in place that is consistent with the harvest strategy and defines how the exploitation rate will be reduced as the stock approaches the limit reference point. Evidence should be provided that the HCR is precautionary within 4 years.</p> <p>It should be noted that this condition is strongly linked to condition 1.</p>		
Milestones	<p>It is recognised that changes to the harvest control rule may require another benchmark assessment. Therefore, timing may need to fit into the ICES stock assessment cycle.</p> <p>At the End of Year 3 (third surveillance audit): Evidence is available indicating reassessment of the harvest control rule. Score 75.</p> <p>At the End of Year 4 (fourth surveillance audit): A new harvest control rule is adopted that reduces exploitation as the limit reference point (see condition 1) is approached. Score 80.</p>		
Client Action Plan	<p>Years 1 and 2: Engage with MRI and MII for establishing a harvest control rule (HCR) including how the exploitation rate will be reduced as the stock approaches the limit reference point. The client group shall engage with the MRI and outline an approach to meeting the conditions imposed by the MSC Certification Requirements. Specifically, evaluating a possible HCR, including evaluation of a limit reference point as set out in Condition 1 above. The client group aims to establish a basis for developing improved strategies for the sustainable management of resources utilized by ISF vessels. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>Year 3 (year 4 of saithe): Follow up on results of engagement in year 1 and 2 regarding a harvest control rule. The client group promotes the necessity for a harvest control rule, ensuring reduced exploitation rates as the stock approaches a limit reference point. The client will conduct an evaluation of a harvest control rule, either through MRI or internal options as set out above. The actions in year 3 are dependent on outcomes in previous years. If a clear and precautionary HCR is implemented by the MII in previous years, there is no need for further actions. If not, ISF will seek support within the client group to further look for alternatives to develop and adopt a precautionary HCR. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>Year 4 (year 5 of saithe): Implement measures developed and evaluated in year 3. This may need to fit into ICES assessment cycle. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and</p>		

	<p>carried out in cooperation with all parties, e.g. MRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p><u>CAB assessment of progress:</u> The CAB will assess progress of the condition by reviewing evidence supplied by the client and interviews with all parties involved as needed.</p>
Progress on Condition: Year 2 of saithe / Year 1 of ling	As per the CAP, ISF has provided a log, documenting interactions regarding this condition in the past year. As noted in the milestone section (above) it is recognized that re-evaluation of the reference point may require another benchmark assessment, and this would likely require scheduling according to the ICES stock assessment schedule. A new benchmark assessment for ling has not yet been scheduled.
Status on Condition: Year 3 of saithe / Year 2 of ling	On target
Progress on Condition: Year 4 of saithe/Year 3 of ling (2018)	The 2017 HCR was considered to be in conformity with the ICES MSY approach and was used to inform the 2017/18 TAC and will be used to inform TACs until the next 5-year review. This provides evidence that the HCR is being implemented in management. Therefore, the performance indicator has been rescored.
Status on Condition	Condition closed.

Table 9: Condition on 1.2.2 (Wolffish)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	PI 1.2.2 – Harvest control rules and tools	<u>Scoring Issue (a)</u> “Harvest control rules design and application.”	75
Condition	A well-defined harvest control rule should be put in place that is consistent with the harvest strategy and defines how the exploitation rate will be reduced as the stock approaches the limit reference point. Evidence should be provided that the HCR is precautionary within 4 years.		
Rationale	The harvest control rule is based on calculating the TAC corresponding to a proxy of F_{MSY} in the latest stock assessment model. At least this part of the harvest control rule is well defined and is clearly consistent with the overall MSY-based harvest strategy. However, to what extent exploitation might be reduced as the limit reference point is approached is not clear. The clear target exploitation levels required and delivered by the harvest control rules, together with the intention to reduce exploitation below the trigger point, meet the SG60. However, the lack of a well-defined response should the stock fall below the trigger reference point prevents the SG80 being met.		
Milestones	<p>It is recognised that changes to the harvest control rule may require another benchmark assessment. Therefore, timing may need to fit into the MFRI stock assessment cycle.</p> <p>Year 1: Evidence is available indicating reassessment of the harvest control rule. Score 75.</p> <p>Year 2: Evidence is available indicating reassessment of the harvest control rule. Score 75.</p> <p>Year 3: Evidence is available indicating reassessment of the harvest control rule. Score 75.</p> <p>Year 4: A new harvest control rule is adopted that reduces exploitation as the limit reference point is approached. Score 80.</p>		

Client Action Plan	<p>Years 1 and 2: Engage with MFRI and MII for establishing a harvest control rule (HCR) including how the exploitation rate will be reduced as the stock approaches the limit reference point. The client group shall engage with the MFRI and outline an approach to meeting the conditions imposed by the MSC Certification Requirements. The client group aims to establish a basis for developing improved strategies for the sustainable management of resources utilized by ISF vessels. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>Year 3: Follow up on results of engagement in year 1 and 2 regarding a harvest control rule. The client group promotes the necessity for a harvest control rule, ensuring reduced exploitation rates as the stock approaches a limit reference point. The client will conduct an evaluation of a harvest control rule, either through MFRI or internal options as set out above. The actions in year 3 are dependent on outcomes in previous years. If a clear and precautionary HCR is implemented by the MII in previous years, there is no need for further actions. If not, ISF will seek support within the client group to further look for alternatives to develop and adopt a precautionary HCR. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>Year 4: Implement measures developed and evaluated in year 3. This may need to fit into MFRI assessment cycle. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members.</p> <p>CAB assessment of progress: The CAB will assess progress of the condition by reviewing evidence supplied by the client and interviews with all parties involved as needed.</p>
Progress on Condition: Year 1 of Wolffish (2018)	The client briefed the Directorate and MFRI on requirements of the MSC conditions. MFRI has initiated work on the Wolffish HCR which will include consideration of the limit and target biomass and fishing mortality reference points. An MOU is being prepared in which all future assessment and HCR reviews, including wolfish, will be undertaken within ICES. HCR reviews will be conducted at assessment benchmark meetings. Preparation of the HCR could take a year or so and thus review within ICES would occur post – 2019
Status on Condition	On target

Table 10: Condition on 1.2.2 (Plaice)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	PI 1.2.2 – Harvest control rules and tools	<u>Scoring Issue (a)</u> “Harvest control rules design and application.”	75
Condition	A well-defined harvest control rule should be put in place that is consistent with the harvest strategy and defines how the exploitation rate will be reduced as the stock approaches the limit reference point. Evidence should be provided that the HCR is precautionary within 4 years.		

Rationale	The harvest control rule is based on calculating the TAC corresponding to a proxy of F_{MSY} in the latest stock assessment model. At least this part of the harvest control rule is well defined and is clearly consistent with the overall MSY-based harvest strategy. However, to what extent exploitation might be reduced as the limit reference point is approached is not clear. The clear target exploitation levels required and delivered by the harvest control rules, together with the intention to reduce exploitation below the trigger point, meet the SG60. However, the lack of a well-defined response should the stock fall below the trigger reference point prevents the SG80 being met.
Milestones	It is recognised that changes to the harvest control rule may require another benchmark assessment. Therefore, timing may need to fit into the MFRI stock assessment cycle. Year 1: Evidence is available indicating reassessment of the harvest control rule. Score 75. Year 2: Evidence is available indicating reassessment of the harvest control rule. Score 75. Year 3: Evidence is available indicating reassessment of the harvest control rule. Score 75. Year 4: A new harvest control rule is adopted that reduces exploitation as the limit reference point is approached. Score 80.
Client Action Plan	Years 1 and 2: Engage with MFRI and MII for establishing a harvest control rule (HCR) including how the exploitation rate will be reduced as the stock approaches the limit reference point. The client group shall engage with the MFRI and outline an approach to meeting the conditions imposed by the MSC Certification Requirements. The client group aims to establish a basis for developing improved strategies for the sustainable management of resources utilized by ISF vessels. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members. Year 3: Follow up on results of engagement in year 1 and 2 regarding a harvest control rule. The client group promotes the necessity for a harvest control rule, ensuring reduced exploitation rates as the stock approaches a limit reference point. The client will conduct an evaluation of a harvest control rule, either through MFRI or internal options as set out above. The actions in year 3 are dependent on outcomes in previous years. If a clear and precautionary HCR is implemented by the MII in previous years, there is no need for further actions. If not, ISF will seek support within the client group to further look for alternatives to develop and adopt a precautionary HCR. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members. Year 4: Implement measures developed and evaluated in year 3. This may need to fit into MFRI assessment cycle. ISF will record the process and maintain a log of all interactions where the action plan is being discussed and carried out in cooperation with all parties, e.g. MFRI, MII, and Directorate of Fisheries, Universities, independent consultants and ISF members. CAB assessment of progress: The CAB will assess progress of the condition by reviewing evidence supplied by the client and interviews with all parties involved as needed.
Progress on Condition: Year 1 of Plaice (2018)	The client briefed the Directorate and MFRI on requirements of the MSC conditions. MFRI work on the Plaice HCR is well underway and will include consideration of the limit and target biomass and fishing mortality reference points. An MOU is being prepared in which all future assessment and HCR reviews, including Plaice, will be undertaken within ICES. HCR reviews will be conducted at assessment benchmark

	meetings. Preparation of the HCR could take a year or so and thus review within ICES would occur post – 2019
Status on Condition	On target

Table 11: Condition on 2.2.1 (Gillnet)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	2.2.1 – Gillnet	The UoA aims to maintain secondary species above a biologically-based limit and does not hinder recovery of secondary species if they are below a biological based limit.	75
Condition	All species of seabirds and marine mammals taken as bycatch must be shown to be ‘highly likely’ to be above biologically based limits or there is evidence of recovery or a demonstrably effective partial strategy must be put in place for gillnet such that the UoA does not hinder its recovery and rebuilding.		
Milestones	<p>At the End of Year 1 (fourth surveillance audit): Develop and propose a partial or full strategy that ensures that the (gillnet) UoA does not hinder any recovery and rebuilding of seabird and marine mammal bycatch species. Resulting score: 75</p> <p>At the End of Year 2 (re-assessment): Consult with industry and all stakeholders on the proposed strategy and amend accordingly. Resulting score: 75</p> <p>At the End of Year 3 (first surveillance audit): Formally commit to the new strategy and, with industry, commence its implementation. Resulting score: 75</p> <p>At the End of Year 4 (second surveillance audit): Demonstrate that the adopted strategy has been fully adopted and is being implemented in an effective manner. Resulting score: 80</p>		
Client Action Plan	<p>Year 1</p> <p>Improve on board logging: Engage with fishery operators in order to improve logbook recording of seabird and marine mammal interaction.</p> <p>Evaluate need for partial strategy: Consult with the Directorate of Fisheries and the Marine Research Institute and/or other parties with the objective to determine if recording and monitoring of seabird and marine mammal interaction is at a level that is sufficient to detect increased risk to the population.</p> <p>Evaluate impacts: Consult with the Directorate of Fisheries, the Marine Research Institute and/or other institutions with the objective of evaluating the risk to harbour seal interaction in the fishery or engage with independent parties to evaluate the risk to seabirds or marine mammals by the fishery. ISF will call for recommendations for methods from the fishermen to a prevent seabirds and marine mammals coming to the gillnets.</p> <p>ISF will form a stakeholder panel to mitigate information on progress and to channel tasks regarding the condition to representative stakeholders within or outside of ISF. The panel will convene twice a year during the lifetime of the certificate, or as needed, and be comprised of ISF representatives and from other stakeholders as fitting for each condition.</p>		

	<p>Improvements expected: Better information on interaction with seabirds and marine mammals is expected.</p> <p>Auditing: At the Year 1 audit; ISF will present i) Results from further research of seabird and marine mammal interaction; ii) an analysis of available data on the interaction in gill nets fishery and iii) any available data giving an indication of population trends in relevant bycatch species.</p> <p>Year 2</p> <p>Improve on board logging: Continue engagement with fishery operators to ensure adequate logbook recording interaction.</p> <p>Evaluate need for partial strategy: Continue engagement with the Directorate of Fisheries and the Marine Research Institute to promote monitoring seabird and marine mammal interaction in the fishery and to determine if logbook recording and monitoring is adequate.</p> <p>Evaluate need for partial strategy: Continue consultation with the Marine Research Institute (MRI) and/or other institutions with the objective to continue evaluating the risk to harbour seal in the fishery or continue engagement with independent parties to continue evaluation of the risk to seabirds or marine mammals in the fishery.</p> <p>Evaluate impacts: Present a preliminary assessment of measures that could be included in a partial strategy to prevent the fishery from posing a risk of serious or irreversible harm to seabird or marine mammal bycatch species, if necessary. In year 2 ISF will have a report from the industry what have been done and success of it.</p> <p>Improvements expected: Continued information on interaction with seabirds and marine mammals is expected.</p> <p>Auditing: At the Year 2 audit, ISF will present i) Suggestions on methods been to be done to prevent seabird and marine mammal interaction; ii) an initiative to work with authorities on a partial strategy.</p> <p>Year 3</p> <p>Improve on board logging: Prepare a written report (or commission such a report) during Year 3 on the reliability of logbook recordings and monitoring.</p> <p>Evaluate need for partial strategy: Present a draft plan for addressing impacts on seabirds and marine mammals, if necessary, depending on research results.</p> <p>Evaluate impacts: Present evidence of ongoing consultation with relevant parties to address problems and areas for further action, e.g. work with the Small boat association and net locations and with MRI on same matter.</p> <p>Improvements expected: An outline for a partial strategy addressing solutions to interaction.</p> <p>Auditing: At the Year 3 audit, ISF will present i) a completed report on logbook reliability; ii) a draft partial strategy to address interaction; iii) evidence of cooperation between ISF, NASBO (National Association of Small Boat Owners) and MRI on solutions.</p> <p>Year 4</p> <p>The strategies established in year 3 shall be in implementation by year four, if necessary. ISF will meet with MRI to evaluate the progress, meet with the MII to follow up on MRI findings and discuss progress and the commitment to the implemented strategies. In year 4, ISF is monitoring the effectiveness of plans, actions and strategies implemented in first 4 years, and base further actions on results from previous years, to fulfil the condition.</p> <p>Improvements expected: An outline for a partial strategy addressing solutions to</p>
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	<p>interaction.</p> <p>Auditing: At the Year 4 audit, ISF will present i) evidence of implementation of the strategy ii) a review of the effectiveness of plans, actions and strategies implemented in first 4 years with recommendations for further actions.</p>
<p>Progress on Condition in 2018 (Year 1 milestones)</p>	<p><u>Year 1 milestone:</u> Develop and propose a partial or full strategy that ensures that the (gillnet) UoA does not hinder any recovery and rebuilding of seabird and marine mammal bycatch species.</p> <p><u>Approach:</u> A strategy to reduce the impact of the fishery on bycatch has already been developed for the lumpfish fishery, and this strategy is being expanded to the cod gillnet fishery (this fishery). The strategy consists of a range of elements (summarised in the CAP); i.e. improve data on bycatch, consider potential impacts on bycatch populations (via improving data on bycatch populations if necessary) and if necessary, develop and test mitigation options. Progress with these components of the strategy (and the CAP Year 1 activities) are considered in turn below – noting that the Year 1 milestone does not require implementation of the strategy.</p> <p><u>Progress on strategy:</u></p> <ol style="list-style-type: none"> 1. Improve data on bycatch and populations as required <p>It is clear from Section 2.4.3 above that although data on bycatch in the gillnet fishery has improved enormously since the fishery was certified, bycatch estimates are still quite uncertain. MFRI and ISF are tackling this question in two ways: i) via an ongoing effort to encourage small-scale fishers to record bycatch in their logbooks (which is a legal requirement) and ii) by establishing a time series of bycatch estimates based on MFRI observers and the annual cod gillnet survey (which are the data given in table 3).</p> <p>The new bycatch data collected since last year is not yet available but is summarised in Section 2.4.3 above. The work to improve population data (grey and harbour seal surveys, porpoise close kin analysis) is also summarised above.</p> <p>The Directorate of Fisheries frequently reminds fishers of their obligations in terms of reporting; see Munið að skila afladagbókum (Remember to hand in logbooks) 02. November 2018; Munið að skila afladagbókum 04. December 2017; Munið að skila afladagbókum 04. September 2017; Munið að skila afladagbókum 01. August 2017.</p> <p>ISF has also worked with members to improve bycatch logging (e.g. meeting with HB Grandi hf (Iceland’s largest fishing company) on April 10th, 2018 on this topic).</p> <ol style="list-style-type: none"> 2. Develop strategy for bycatch mitigation <p>The Ministry of Fisheries established a ‘best practice’ committee (Samstarfsnefnd um bættu umgengni um auðlindir sjávar), appointing members from different stakeholders within fisheries (large and small boat fisheries, Ministry, MFRI, the Association of Icelandic Captains and Vessel Managers). A key task of the Committee is to develop recommendations for the Ministry on how to i) reduce and ii) monitor bycatch of seabird and marine mammals in gillnets. The Committee was scheduled to complete its recommendations by June 2018 but has asked the Ministry for an extension until November 2018.</p> <ol style="list-style-type: none"> 3. Test mitigation measures <p>As reported above, MFRI have tested two different bycatch mitigation measures in gillnets, but the results were not encouraging.</p> <ol style="list-style-type: none"> 4. ISF activities <p>ISF met the Ministry of Fisheries on 30 November 2017 to discuss all the P2 conditions and ask the Ministry to consider strategies on the various issues, as well as that ongoing work to develop recommendations be speeded up, and to offer their input as required. ISF wrote to the Ministry on 5 December 2017 providing meeting minutes</p>

	<p>and emphasising again the importance of research into bycatch. On 17 January 2018, this was followed up again by email, asking for progress in the development of strategies to address P2 conditions. The Ministry of Fisheries held a stakeholder meeting on 16 March 2018 to discuss possible mitigation options for seabird and mammal bycatch. ISF and the Ministry met on 27 March 2018 to discuss mammal bycatch.</p> <p>ISF met MFRI on 21 December 2017 to discuss progress on P2 conditions. Subsequently there have been several work sessions with MFRI on P2 conditions, including data analysis and preparation for meetings (6 Feb, 16 Feb, 1 March, 13 March, 5 April)</p> <p>ISF held several work sessions with Fisheries Iceland (SFS) to discuss MSC conditions and strategies to address them (16 Feb 2018, 26 Feb 2018, 3 April 2018).</p> <p><u>Conclusions:</u> Progress has been made on data (bycatch and population) and on working towards a mitigation strategy, although the initial tests of mitigation measures have not worked.</p>
Status of condition after 2018 audit (Year 1 milestones)	The condition is on target.
References	<p>Samstarfsnefnd um bættu umgengni um auðlindir sjávar</p> <p>Skip svipt veiðileyfi _ Tilkynningar _ Vefur Fiskistofu - A list of vessels forfeited of their fishing permits because of failure to provide logbooks (as of October 15th 2018).</p> <p>Table 2</p>

Table 12: Condition on 2.2.2 (Gillnet)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	2.2.2 – Gillnet	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.	75
Condition	<p>A demonstrably effective partial strategy should be put in place such that the (gillnet) UoA does not hinder recovery and rebuilding of any species of seabird or marine mammal.</p> <p>A demonstrably effective partial strategy should also be put in place for the gillnet and longlines fisheries to ensure that seabird or marine mammal populations are maintained at levels which are highly likely to be within biologically based limits.</p> <p>These strategies should include a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species (which includes all seabird or marine mammal bycatch species) and they are implemented as appropriate.</p>		
Milestones	<p>At the End of Year 1 (fourth surveillance audit): Develop and propose a partial or full strategy that ensures that the (gillnet) UoA does not hinder recovery and rebuilding of seabird or marine mammal bycatch stocks. Initiate a regular review process to identify and evaluate alternative measures that would reduce unwanted catch. Develop and</p>		

	<p>propose a partial or full strategy that ensures that the (gillnet and longline) UoAs do not hinder recovery and rebuilding of seabird or marine mammal bycatch populations. Initiate a regular review process to identify and evaluate alternative measures that would reduce unwanted catch. Resulting score for gillnet: 65 Resulting score for longline: 70</p> <p>At the End of Year 2 (re-assessment): Consult with industry and all stakeholders on the proposed strategies and amend accordingly. Resulting score: 70</p> <p>At the End of Year 3 (first surveillance audit): Formally commit to the new strategies and, with industry, commence their implementation. Resulting score: 70</p> <p>At the End of Year 4 (second surveillance audit): Demonstrate that the adopted strategies have been fully adopted and are being implemented in an effective manner. Demonstrate that at least one review (of a regular process) to reduce unwanted catch has taken place. Resulting score: 80</p>
<p>Client Action Plan</p>	<p>Year 1</p> <p>Improve on board logging: Engage with fishery operators in order to improve logbook recording of seabird or marine mammal bycatch.</p> <p>Evaluate need for partial strategy: Consult with the Directorate of Fisheries and the Marine Research Institute and/or other parties with the objective to determine if recording and monitoring of seabird or marine mammal bycatch is at a level that is sufficient to detect increased risk to the population.</p> <p>Evaluate impacts: Consult with the Directorate of Fisheries, the Marine Research Institute and/or other institutions with the objective of evaluating the risk to bird and mammal bycatch in the fishery or engage with independent parties to evaluate the risk to bird and mammal bycatch stocks by the fishery. ISF will call for recommendations for methods from the fishermen and the industry to a prevent birds and mammals coming to the gillnets and long line.</p> <p>ISF will form a stakeholder panel to mitigate information on progress and to channel tasks regarding the condition to representative stakeholders within or outside of ISF. The panel will convene twice a year during the lifetime of the certificate, or as needed, and be comprised of ISF representatives and from other stakeholders as fitting for each condition.</p> <p>Improvements expected: Better information on bycatch of birds and mammals is expected.</p> <p>Auditing: At the Year 1 audit; ISF will present i) Results from further research of bird and mammal bycatch; ii) an analysis of available data on the bycatch in gill nets and long line fishery and iii) any available data giving an indication of population trends in relevant bird and mammal species.</p> <p>Year 2</p> <p>Improve on board logging: Continue engagement with fishery operators to ensure adequate logbook recording interaction & bycatch.</p> <p>Evaluate need for partial strategy: Continue engagement with the Directorate of Fisheries and the Marine Research Institute to promote monitoring of bird and mammal bycatch in the fishery and to determine if logbook recording and monitoring is adequate.</p> <p>Evaluate need for partial strategy: Continue consultation with the Marine Research Institute (MRI) and/or other institutions with the objective to continue evaluating the risk to bird and mammal species in the fishery or continue engagement with independent parties to continue evaluation of the risk to bird and mammal species in the fishery.</p>

	<p>Evaluate impacts: Present a preliminary assessment of measures that could be included in a partial strategy to prevent the fishery from posing a risk of serious or irreversible harm to bird and mammal species, if necessary. In year 2 ISF will have a report from the industry what have been done and success of it.</p> <p>Improvements expected: Continued information on interaction with bird and mammal species is expected.</p> <p>Auditing: At the Year 2 audit, ISF will present i) Suggestions on methods been to be done to prevent bird and mammal as bycatch; ii) an initiative to work with authorities on a partial strategy.</p> <p>Year 3</p> <p>Improve on board logging: Prepare a written report (or commission such a report) during Year 3 on the reliability of logbook recordings and monitoring.</p> <p>Evaluate need for partial strategy: Present a draft plan for addressing impacts on seabird or marine mammal species as bycatch, if necessary, depending on research results.</p> <p>Evaluate impacts: Present evidence of ongoing consultation with relevant parties to address problems and areas for further action, e.g. work with the Small boat association and net locations and with MRI on same matter.</p> <p>Improvements expected: An outline for a partial strategy addressing solutions to bycatch.</p> <p>Auditing: At the Year 3 audit, ISF will present i) a completed report on logbook reliability; ii) a draft partial strategy to address bycatch; iii) evidence of cooperation between ISF, NASBO (National Association of Small Boat Owners) and MRI on solutions.</p> <p>Year 4</p> <p>The strategies established in year 3 shall be in implementation by year four, if necessary. ISF will meet with MRI to evaluate the progress, meet with the MII to follow up on MRI findings and discuss progress and the commitment to the implemented strategies. In year 4, ISF is monitoring the effectiveness of plans, actions and strategies implemented in first 4 years, and base further actions on results from previous years, to fulfil the condition.</p> <p>Improvements expected: An outline for a partial strategy addressing solutions to bycatch.</p> <p>Auditing: At the Year 4 audit, ISF will present i) evidence of implementation of the strategy ii) a review of the effectiveness of plans, actions and strategies implemented in first 4 years with recommendations for further actions.</p>
<p>Progress on Condition 2018 (Year 1 milestones)</p>	<p>See Condition for 2.2.1 (Gillnet)</p>
<p>Status of condition after 2018 audit (Year 1 milestones)</p>	<p>The condition is on target</p>

Table 13: Condition on 2.2.3 (Gillnet and Longline)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	2.2.3 – Gillnet and Longline	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	75
Condition	By the second surveillance audit electronic logbook reporting provides some quantitative information on of seabird or marine mammal bycatch that is both available and adequate to assess the impact of the UoA on main secondary species with respect to their status.		
Milestones	<p>At the End of Year 1 (fourth surveillance audit): There shall be evidence of the Client’s plan to encourage and enable fishing vessels to record all seabird or marine mammal bycatch in electronic logbook systems. Score 70</p> <p>At the End of Year 2 (re-assessment): By the end of Year 2 there shall be evidence that some quantitative information on of seabird or marine mammal bycatch is both available and adequate to assess the impact of the UoA on main secondary species with respect to their status. Score 80</p>		
Client Action Plan	<p>Year 1</p> <p>Data recording: Consult with the Directorate of Fisheries, the Marine Research Institute and/or other institutions to improve reporting in to the e-logbooks on both seabird bycatch and marine mammal interaction.</p> <p>Improvements: ISF will present an introduction of data and information being collected for the first year.</p> <p>Auditing: At the audit, ISF will present progress on logbook reporting of seabird bycatch and its adequacy to assess the impact of the UoA with respect to their status.</p> <p>Year 2</p> <p>Data collection: Continue engagement with the Directorate of Fisheries and the Marine Research Institute to promote monitoring of seabird bycatch and mammal interaction in the fishery and to determine if logbook recording and monitoring is adequate.</p> <p>Improvements: ISF will present an introduction of data and information being collected for the first 2 years.</p> <p>Auditing: At the audit, ISF will present progress on logbook reporting of seabird bycatch and its adequacy to assess the impact of the UoA with respect to their status.</p> <p>Year 3</p> <p>Data collection: Prepare a written report (or commission such a report) during Year 3 on the reliability of logbook recordings and monitoring.</p> <p>Improvements: ISF will present a report addressing the accuracy of logbooks with respect to to their adequacy to assess the impact of the UoA with respect to the status of seabird and mammal species.</p> <p>Auditing: At the Year 3 audit, ISF will present a written report on logbooks, addressing possible solutions and actions.</p>		
Progress on Condition 2018	See information on bycatch logging and logbooks under Condition for 2.2.1 (gillnet)		

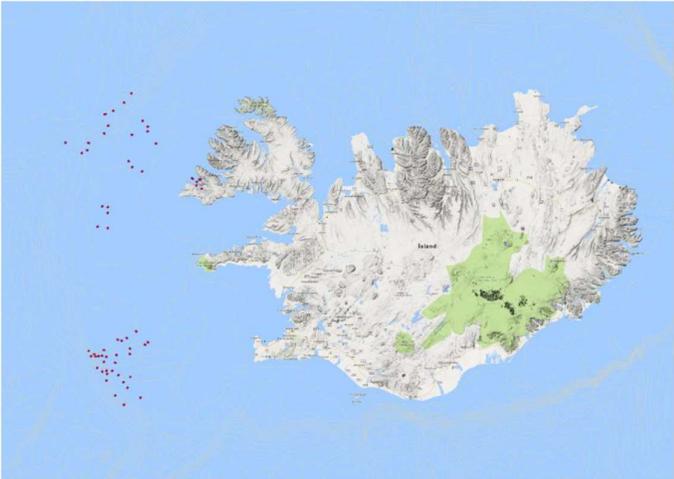
(Year 1 milestones)	
Status of condition after 2018 audit (Year 1 milestones)	The condition is on target

Table 14: Condition on 2.4.1 (Demersal trawl)

Note: for details on condition status at each surveillance audit, see relevant surveillance audit reports.

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	PI 2.4.1 – Demersal otter trawl	<u>Scoring Issue (a)</u> “The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.”	75 At start of 4 th SA
Condition	By the fourth surveillance audit necessary conservation and management measures for all vulnerable marine habitats shall be in place and implemented, such that the trawl fishery does not cause serious or irreversible harm to habitat structure, on a regional or bioregional basis, and function.		
Milestones (updated at Year 2 audit)	<p>At the End of Year 1 (first surveillance audit): There shall be evidence of the Client’s plan to evaluate potential damage to deep-sea sponge aggregations and corals. There shall be evidence of engagement with the Marine Research Institute (MRI) with the goal of evaluating potential damage to all vulnerable habitats by fishing activities. If MRI is unable to provide support for the implementation of the plan, the fishery shall prepare the plan on the basis of other means (e.g. independent consultants or scientists or other means as appropriate). The plan may include an Environmental Impact Assessment or other similar analysis. Score 75</p> <p>At the End of Year 2 (second surveillance audit): By the end of Year 2 there shall be evidence of ongoing work towards the implementation of the plan; i.e. collecting data and developing options as required for conservation and management measures to all vulnerable habitats, such that the fishery does not cause serious or irreversible harm to habitat structure, on a regional or bioregional basis, and function. Score 75</p> <p>At the End of Year 3 (third surveillance audit): Continue to collect data, and evaluate the data and options developed in year 2. These options may be developed with the support of MRI, or may be developed within the client group, as appropriate. Options may include closed areas, move on thresholds or other actions as appropriate, but should be sufficient to ensure that there serious and irreversible harm to sponges and coral gardens is highly unlikely. Score 75</p> <p>At the End of Year 4 (fourth surveillance audit): Evaluate management options and finalise and agree on conservation and management measures as required. By the end of the year a partial strategy for the protection of deep-sea sponge aggregations and coral gardens from trawling shall be agreed upon and implemented, either at client group level or at a higher level. Score 80.</p> <p>A formal commitment to the agreed upon conservation and management measures shall remain in place for the duration of the certification period.</p>		
Client Action Plan (updated at Year 2 audit)	<p>Year 1</p> <p>ISF will engage MRI for data and information on potential damages caused by bottom trawling on all vulnerable habitats. In the event that MRI cannot provide the information and data, ISF will commit to work with an outside researcher. ISF will</p>		

	<p>engage their members to agree upon and implement methods of benthic bycatch monitoring by ISF member vessels, as agreed with WWF during the objections process.</p> <p>Improvements: All available information on coral gardens and deep-sea sponge habitats' interaction with this fishery will be brought together. Data gaps will be clearly identified. Direct monitoring of the impacts of this fishery will be in preparation.</p> <p>Auditing: At the Year 1 audit, ISF will present i) evidence of engagement with MRI on habitat mapping and trawl impacts (e.g. meeting agendas and summaries or similar); ii) the data available from previous mapping (e.g. MRI reports or similar); iii) information on mapping projects underway or planned by MRI; iv) evidence of engagement with ISF members on benthic bycatch monitoring (e.g. meeting agendas etc.).</p> <p>Year 2</p> <p>Based on findings in year 1, ISF will meet with MRI and request an engagement by MRI to conserve vulnerable habitats and ask for options and plans to prevent serious or irreversible harm to habitat structures, if necessary. ISF will engage their members to agree upon and implement methods of benthic bycatch monitoring by ISF member vessels, as agreed with WWF during the objections process.</p> <p>Improvements: Implementation of a monitoring plan will have begun to monitor impacts on coral gardens and sponges and reduce them to acceptable levels as required.</p> <p>Auditing: At the Year 2 audit, ISF will present evidence from the monitoring efforts.</p> <p>Year 3</p> <p>ISF will meet with MRI to discuss findings from annual research on sponge and coral incidents. The meeting is intended to review statistics and discuss alternative actions, if needed. ISF will meet with members of the client group to discuss the condition and ask for feedback on actions made by each member to address the condition. The actions will be formalized into a plan, intended for engagement by members of the client group to meet the condition. To purpose is to ensure that serious or irreversible harm to sponges and coral gardens becomes a highly unlikely causes of bottom trawling.</p> <p>Improvements: The plan, if required, is updated according to the results of ongoing monitoring, and agreed by ISF and all relevant parties.</p> <p>Auditing: At the Year 3 audit, ISF will present an action plan, with evidence that it has been agreed by all participating parties (e.g. a signed agreement, meeting minutes, letters of support etc.)</p> <p>Year 4</p> <p>ISF will meet with members from the client group to discuss effects of actions taken in year 3 and adjust for improved efficiency, as needed. The goal is to protect deep sea sponge aggregations and coral gardens from impacts of trawling and seek an agreement among the members of the client group to this type of conservation. The actions of Year 4 are contingent on the outcome of findings showing whether and how conservation actions are required. If a plan has been proven necessary and agreed upon in year three, ISF will monitor the implementation of the plan in year 4 in cooperation with the members of the client group.</p> <p>Improvements: If required, the plan is implemented; it is updated as new information is available.</p> <p>Auditing: At the Year 4 audit, ISF will present the updated plan if necessary, with evidence of implementation (e.g. benthic logbook data, MRI report or other similar).</p>
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Status of condition after Year 1 audit	Behind target
Status of condition after Year 2 audit	On target
Status of condition after Year 3 audit (2017)	On target
Progress on Condition Year 4 (2018)	<p>The requirement for this condition at the Fourth Surveillance Audit is to agree upon and implement a partial strategy for the protection of deep-sea sponge aggregations and coral gardens from trawling, either at client group level or higher.</p> <p>ISF presented the following evidence:</p> <p>A Status Report by Steinunn Hilma Olafsdottir (Oct 2017) compiled and presented a first analysis of the bycatch recordings from commercial trawlers, with particular reference to corals and sponges. This Status Report presents the first results of the logging project of coral and sponges, a joint project of ISF, ISF members and MFRI. The report includes new locations of video data (Fig. 1) from the habitat mapping programme. According to this report, ‘this is the first time that commercial trawlers record corals and sponges on board with the guidance of a picture classification sheet of various corals and sponges. These sheets were prepared in collaboration with the MFRI’. The data in this report is based on 12 fishing trips between March and September, from one trawler. This is to demonstrate that such recording works and is useful and can be rolled out across the relevant vessels in the fleet (as detailed in Botnlæg umhverfisnefnd – a draft for a continued and expanded joint project between ISF members and MFRI to log coral and sponge incidents).</p>  <p><i>Fig 1 The red dots show the the video transects taken in June/July 2017 as a part of data sampling for the Habitat mapping project, carried out by the Marine and Freshwater Institute (Source: Olafsdottir 2017)</i></p> <p>The client also presented a draft of ‘Botnlæg þekking skipstjórnarmanna_örög’ – which outlines a new joint project between ISF member fisheries and MFRI. The project is interview based, conducting qualitative research by working with captains in order to map their knowledge and understanding of the different types of benthos they encounter in fishing areas, as well as interaction with the ecosystem on different fishing grounds. The presentation of this project has begun among the fisheries and has received positive feedback.</p> <p>The progress of both these projects will be followed through as part of the re-assessment of the fisheries.</p>

	<p><i>Samstarfsnefnd um bættu umgengni um auðlindir sjávar</i> – the Ministry of Fisheries has established a Code of Conduct Committee to explore ways to minimize the effects of fisheries on the ecosystem. It has appointed as members different stakeholders within fisheries, such as general fisheries, from small boat fisheries, the Ministry, MFRI and from the Association of Icelandic Captains and Vessel Manager. One of the committee’s main tasks is to formulate Recommendations to the Ministry on how to reduce and monitor catch of seabird and marine mammals in gillnets, for example. The committee was scheduled to complete its recommendations by June 2018 but asked the Ministry for an extension until November 2018.</p> <p>The progress of this Joint Committee for the improved handling of Marine Resources (an approximate translation from the Icelandic) will be monitored as part of the re-assessment of the fisheries.</p> <p>The actions outlined above provide evidence to show that a partial strategy is being implemented to protect deep sea sponge aggregations and coral gardens from trawling – as outlined in the client action plan and milestone for yr4.</p> <p>SG80 is met</p>
Status of condition after Year 4 audit	The condition is closed. (See scoring table in appendix)

Table 15: Condition on 2.4.2 (Demersal trawl)

	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	PI 2.4.2 – Demersal otter trawl	<i>Scoring Issue b “There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.”</i>	75 At start of 4 th SA
Condition	<p>By the fourth surveillance audit necessary conservation and management measures for deep-sea sponge aggregation and coral gardens shall be in place and implemented, such that there is a partial strategy in place and implemented for these habitat types specifically, ensuring that the trawl fishery does not cause serious or irreversible harm to habitat structure and function in Icelandic waters.</p> <p>This condition may be implemented together with Condition 3.</p>		
Milestones (Updated at Year 2 audit)	<p>At the End of Year 1 (first surveillance audit): There shall be evidence of the Client’s plan to evaluate potential damage to deep-sea sponge aggregations and corals. There shall be evidence of engagement with the Marine Research Institute (MRI) with the goal of evaluating potential damage to all vulnerable habitats by fishing activities. If MRI is unable to provide support for the implementation of the plan, the fishery shall prepare the plan on the basis of other means (e.g. independent consultants or scientists or other means as appropriate). The plan may include an Environmental Impact Assessment or other similar analysis. Score 75</p> <p>At the End of Year 2 (second surveillance audit): By the end of Year 2 there shall be evidence of ongoing work towards the implementation of the plan; i.e. collecting data and developing options as required for conservation and management measures to all vulnerable habitats, such that the fishery does not cause serious or irreversible harm to habitat structure, on a regional or bioregional basis, and function. Score 75</p> <p>At the End of Year 3 (third surveillance audit): Continue to collect data, and evaluate the data and options developed in year 2. These options may be developed with the</p>		

	<p>support of MRI, or may be developed within the client group, as appropriate. Options may include closed areas, move on thresholds or other actions as appropriate, but should be sufficient to ensure that there serious and irreversible harm to sponges and coral gardens is highly unlikely. Score 75</p> <p>At the End of Year 4 (fourth surveillance audit): Evaluate management options and finalise and agree on conservation and management measures as required. By the end of the year a partial strategy for the protection of deep-sea sponge aggregations and coral gardens from trawling shall be agreed upon and implemented, either at client group level or at a higher level. Score 80.</p> <p>A formal commitment to the agreed upon conservation and management measures shall remain in place for the duration of the certification period.</p>
<p>Client Action Plan (Updated at Year 2 audit)</p>	<p>Year 1</p> <p>ISF will engage MRI for data and information on potential damages caused by bottom trawling on all vulnerable habitats. In the event that MRI cannot provide the information and data, ISF will commit to work with an outside researcher. ISF will engage their members to agree upon and implement methods of benthic bycatch monitoring by ISF member vessels, as agreed with WWF during the objections process.</p> <p>Improvements: All available information on coral gardens and deep-sea sponge habitats’ interaction with this fishery will be brought together. Data gaps will be clearly identified. Direct monitoring of the impacts of this fishery will be in preparation.</p> <p>Auditing: At the Year 1 audit, ISF will present i) evidence of engagement with MRI on habitat mapping and trawl impacts (e.g. meeting agendas and summaries or similar); ii) the data available from previous mapping (e.g. MRI reports or similar); iii) information on mapping projects underway or planned by MRI; iv) evidence of engagement with ISF members on benthic bycatch monitoring (e.g. meeting agendas etc.).</p> <p>Year 2</p> <p>Based on findings in year 1, ISF will meet with MRI and request an engagement by MRI to conserve vulnerable habitats and ask for options and plans to prevent serious or irreversible harm to habitat structures, if necessary. ISF will engage their members to agree upon and implement methods of benthic bycatch monitoring by ISF member vessels, as agreed with WWF during the objections process</p> <p>Improvements: Implementation of a monitoring plan will have begun to monitor impacts on coral gardens and sponges and reduce them to acceptable levels as required.</p> <p>Auditing: At the Year 2 audit, ISF will present evidence from the monitoring efforts.</p> <p>Year 3</p> <p>ISF will meet with MRI to discuss findings from annual research on sponge and coral incidents. The meeting is intended to review statistics and discuss alternative actions, if needed. ISF will meet with members of the client group to discuss the condition and ask for feedback on actions made by each member to address the condition. The actions will be formalized into a plan, intended for engagement by members of the client group to meet the condition. To purpose is to ensure that serious or irreversible harm to sponges and coral gardens becomes a highly unlikely causes of bottom trawling.</p> <p>Improvements: The plan, if required, is updated according to the results of ongoing monitoring, and agreed by ISF and all relevant parties.</p> <p>Auditing: At the Year 3 audit, ISF will present an action plan, with evidence that it has been agreed by all participating parties (e.g. a signed agreement, meeting minutes,</p>

	<p>letters of support etc.)</p> <p>Year 4</p> <p>ISF will meet with members from the client group to discuss effects of actions taken in year 3 and adjust for improved efficiency, as needed. The goal is to protect deep sea sponge aggregations and coral gardens from impacts of trawling and seek an agreement among the members of the client group to this type of conservation. The actions of Year 4 are contingent on the outcome of findings showing whether and how conservation actions are required. If a plan has been proven necessary and agreed upon in year three, ISF will monitor the implementation of the plan in year 4 in cooperation with the members of the client group.</p> <p>Improvements: If required, the plan is implemented; it is updated as new information is available.</p> <p>Auditing: At the Year 4 audit, ISF will present the updated plan if necessary, with evidence of implementation (e.g. benthic logbook data, MRI report or other similar).</p>
Status of condition after Year 1 audit	Behind target
Status of condition after Year 2 audit	On target
Status of condition after Year 3 audit	On target
Progress on Condition Year 4 (2018)	<p>As for Condition 3</p> <p>In addition:</p> <p>17th Sept. 2018 Skýrsla starfshóps um endurskoðun á veiðarfærum, veiði- og verndunarsvæðum – a holistic audit of fishing gear, fishing ground and conservation areas was published. This is a report by a committee established and appointed by the Ministry of Fisheries in 2015. The aim was to assess the effectiveness and current status of regulations regarding fishing gear, fishing grounds and conservation areas as knowledge has improved through increased research and surveys, and international agreements have been made. This up-to-date report recommends a number of changes to laws and regulations which are the execution part of the strategies in Icelandic fisheries management. This includes changes to regulations regarding closed areas for conservation purposes, changes to regulations on fishing gear and fishing grounds. The committee called for input, suggestions, statements from stakeholders within fisheries. The report is the basis for the Ministry's changes to regulations which are implementing strategies for gear, grounds and conservation in relation to all gear used by Icelandic fisheries.</p> <p>As this is a very recent report, the implementation of the recommendations given in this report will be followed and assessed in detail as part of the re-assessment of these fisheries.</p>
Status of condition after Year 4 audit	The condition is closed. (see scoring table in appendix)

Recommendation:

This recommendation has now been subsumed into the new condition for gillnet and longline, but still applies to the other gear types.

Table 16: Recommendation on 2.3.1

Performance Indicator(s) & Score(s)	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
	PI 2.3.1		N/A
Recommendation	Skippers of all vessels in the client fleet should be required to record all bycatch and ETP species (i.e. birds, marine mammals, elasmobranchs) caught, irrespective of whether they are landed, or viable individuals returned back to sea.		
Milestones	n/a		
Client action plan	Iceland Sustainable Fisheries will raise the issue through dialogue with the MRI, MII and other stakeholders. Board members of ISF as well as members of the companies that own ISF have seat in number of boards and committees in the seafood industry in Iceland and will use that platform to get the message out.		
Progress on Recommendation	MFRI did not provide data on bycatch from logbooks, but it is clear overall that the data on bycatch has improved considerably since the start of the assessment.		

5. Conclusion

This 4th surveillance audit was conducted in conjunction with a re-assessment site visit. The complexities of the assessment history caused difficulties in the sequential numbering of conditions. For clarity the assessment team has re-configured the conditions to label and report on these based on the PIs concerned (see summary of conditions Table 5).

Version 2.0 of the Fishery Certification Requirements (7.24.2.2) states that:

Unless exceptional circumstances apply (7.11.1.3) or paragraph (b) applies, the fishery shall have met all conditions and milestones.

7.11.1.3 The CAB shall draft conditions to result in improved performance to at least the 80 level within a period set by the CAB but no longer than the term of the certification unless:

a. There are exceptional circumstances, and the CAB determines that achieving a performance level of 80 may take longer than the period of certification.

i. The CAB shall interpret exceptional circumstances in 7.11.1.3.a to refer to situations in which, even with perfect implementation, achieving the 80 level of performance may take longer than the certification period.

As described in section 3.2 on the 'scope and history of assessments', two species were added to the certificate in 2017 with new P1 conditions and new P2 conditions on gillnet and longline were also introduced in 2017. It is therefore appreciated that the fishery will take longer to achieve these conditions than the milestones set in the original assessment. These exceptional circumstances have been discussed and agreed with the MSC to enable the new conditions to be considered under the re-assessment.

Nevertheless, the milestones for the original conditions set in 2014 and tracked in subsequent surveillance reports require that those conditions should be closed by this 4th surveillance audit.

The P2 conditions for saithe were closed in 2016 ahead of target.

Progress against the P1 conditions for Tusk (1.1.2 and 1.2.2) are assessed as sufficient to close the conditions at this surveillance audit.

Progress against the P2 conditions relating to habitat outcome (2.4.1) and management (2.4.2) are assessed as sufficient to close these conditions at this surveillance audit.

The fishery **should** remain certified under the MSC standard and the re-assessment can progress.

The conditions that remain open are those set in 2017 and will be carried forward into the re-assessment of the fishery.

The re-assessment will determine future surveillance levels.

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Appendices

Appendix 1: Re-Scoring Evaluation Tables

Following close of condition on 1.1.2: (Ling)

PI 1.1.2		Limit and target reference points are appropriate for the stock		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide-post	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.	Reference points are appropriate for the stock and can be estimated.	
	Met?	Y	Y	
	Justification	The fishery is managed under the “MSY approach” policy, which is used to provide scientific advice. Appropriate MSY based reference points have been developed estimated from the available information for this stock. F_{MSY} is based upon stock simulations incorporating both recruitment and yield per recruit dynamics. B_{LIM} is set at point above which no effect on recruitment has been observed. This meets SG80.		
b	Guide-post		The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of precautionary issues.
	Met?		Y	N
	Justification	<p>The 2017 review calculated biomass and fishing mortality reference points in line with ICES precautionary guidelines and took account of stock and fishery uncertainties estimated in the stock assessment. The stock assessment results showed a relatively narrow dynamic range of SSB and an absence of any reduced recruitment signals at the low SSB end of historical values. Based on this, in combination with historical harvest rates which are not considered to have been overly high, B_{PA} was set at 9.93 kt based on B_{LOSS}, the lowest observed biomass (SSB in 1992 as estimated in the benchmark assessment) and B_{LIM} based upon $B_{PA}/1.4 = 7.09$ kt. The proposed HCR is considered to be precautionary as it results in less than 5% probability of $SSB < B_{LIM}$ in all years (short, medium, and long term). These simulations supported the choice of $B_{LIM} = 7.09$ kt as being above the level of appreciable risk of recruitment impairment. The new HCR was used to inform the 2017/18 TAC and will be used to inform TACs until the next 5-year review. The fishery therefore meets SG80, because the limit reference point has been set based on observations and simulations so that there is only a low risk that recruitment would be impaired above this point.</p> <p>The 2017 review explicitly incorporated precaution into the biomass and fishing mortality reference points and the new HCR is considered to be precautionary as it results in less than 5% probability of $SSB < B_{LIM}$ in all years (short, medium, and long term). It is arguable</p>		

PI 1.1.2		Limit and target reference points are appropriate for the stock	
		that precautionary issues have been considered. However, very little is known about recruitment below B_{Loss} (by definition) and the stock-recruit relationship is uncertain. While the limit reference point is precautionary in relation to known uncertainties, there has been no explicit attempt to incorporate additional precaution into the limit reference point, so the fishery does not meet SG100.	
c	Guide-post	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.
	Met?	Y	Y
	Justification	The target HR is set at 0.18 while the simulations from the 2017 review estimated the MSY HR as 0.24. The lower value was chosen as it was more precautionary compared to HR_{MSY} while not producing significantly less long-term yield (2% difference). Therefore, harvesting at HR_{MGT} will produce biomass consistent with harvest at F_{MSY} and includes a precautionary buffer to achieve these conditions. Because the management target harvest rate is more precautionary than that required for MSY, the fishery meets SG100.	
d	Guide-post	For key low trophic level stocks, the target reference point takes into account the ecological role of the stock.	
	Met?	Not relevant	
	Justification	Ling is not a key low trophic species.	
References		<p>ICES. 2014a. Advice basis. <i>In</i> Report of the ICES Advisory Committee, 2014. ICES Advice 2014, Book 1, Section 1.2.</p> <p>ICES. 2014b. Report of the Benchmark Workshop on Deep-sea Stocks (WKDEEP), 3–7 February 2014, Copenhagen, Denmark. ICES CM 2014/ACOM: 44.</p> <p>ICES. 2014c. Report of the Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP), 4–11 April 2014, ICES Headquarters, Copenhagen, Denmark. ICES CM 2014/ACOM: 17.</p> <p>Elvarsson, B. Þ., Thordarson, G. 2014. Defining reference points for the Gadget assessment of Ling in Va. February 3, 2014. Working Document 02 for ICES 2014b.</p> <p>ICES (2017a; 2017b)</p>	

PI 1.1.2	Limit and target reference points are appropriate for the stock	
OVERALL PERFORMANCE INDICATOR SCORE:		90
CONDITION NUMBER (if relevant):		

Following close of condition on 1.2.2 (Ling)

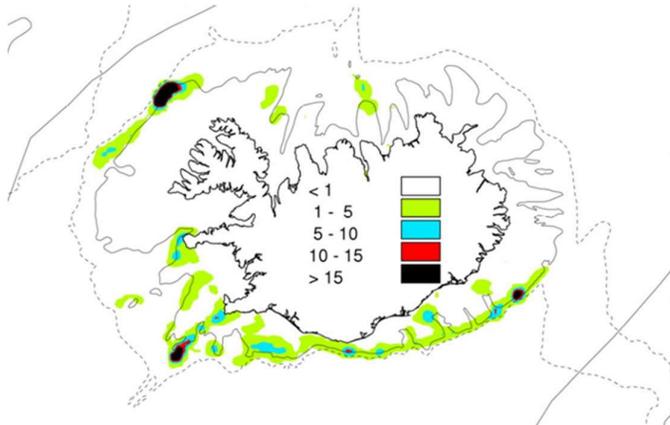
PI 1.2.2		There are well defined and effective harvest control rules in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide-post	Generally understood harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.	Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.	
	Met?	Y	Y	
	Justification	The new HCR that was adopted as a consequence of the 2017 review will be used to set TACs until the next scheduled 5-year review in 2023. It includes biomass and harvest rate limit, trigger and target reference points which ensure that as biomass declines below $B_{trigger}$, fishing mortality is proportionally reduced as B_{LIM} is approached. The proposed HCR is considered to be precautionary as it results in less than 5% probability of $SSB < B_{LIM}$ in all years (short, medium, and long term). The proposed HCR is considered by ICES to be in conformity with the ICES MSY approach. Because the HCR is well-defined and will decrease the exploitation rate as B_{LIM} is approached, the fishery meets SG80.		
b	Guide-post		The selection of the harvest control rules takes into account the main uncertainties.	The design of the harvest control rules takes into account a wide range of uncertainties.
	Met?		Y	N
	Justification	An MSE was conducted during 2017 in which the uncertainties in key stock and fishery dynamics (recruitment, exploitation pattern, population numbers, growth, maturity and assessment) identified in the assessment process were assessed through long-term simulation, to characterize the uncertainty in the HCR's reference points and thus the robustness of the HCR to these uncertainties. The target harvest rate ($HR_{MGT} = 0.18$) is lower than that at F_{MSY} ($HR_{MSY} = 0.24$) and was defined along with reference biomass ($B_{REF} > 75$ cm biomass) as well as trigger and MSY approach biomass and fishing mortality limit and target reference points. Because the main uncertainties have been assessed with respect to the HCR, the fishery meets SG80. The operating model of the MSE employed Gadget which allows an exploration of a wide range of uncertainties in stock and fishery dynamics. The current application took the most recent assessment as given and used its dynamics to explore uncertainty in the HCR. There		

PI 1.2.2		There are well defined and effective harvest control rules in place		
		was no exploration of errors beyond those in the stock assessment. A concern on the influence of the catch overage rules on the HCR remains. While the HCR appears robust, it is not clear how effective these rules are for single species management in a multi-species fishery context. These issues have not been formally explored. Because there are significant uncertainties which have not been evaluated, the fishery does not meet SG100.		
c	Guide-post	There is some evidence that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
	Met?	Y	Y	N
	Justification	<p>It is clear that TACs have managed landings towards the management plan targets since 2010/11, this in the context of multispecies fisheries. This has been the case in other Icelandic fisheries, so there is available evidence for the effectiveness of TACs. All fish landed (both from Icelandic and non-Icelandic vessels) are weighed on authorized scales, at harbours and inside the fish processing factory and the information on each landing of each vessel and the purchaser(s) of the catch is stored in a centralized database maintained by the Directorate and is available in real time on the Internet (www.fiskistofa.is). Based upon at-sea sampling, discards and other incidental mortality are considered to be low, and the accuracy of the landings statistics is generally considered acceptable. As observed in other Icelandic fisheries, TACs have been successful in managing landings sufficient to achieve management objectives. Therefore, the available evidence indicates that the TACs are effective in controlling exploitation for ling as required by the HCR, so meeting SG80.</p> <p>TAC overages to address foreign catch and inter-species trades are recognized and addressed by the management system. For instance, small amounts of catch in some areas may not be counted against quotas, as is also catch from special research fishing. A fisher is allowed to catch in excess of their quota in the present fishing year, which is subtracted from the next year's quota, to an upper limit of 5%. Fishers are also allowed to catch in excess of quotas in one groundfish species through changing or transferring their quota for some other groundfish species. Species exchange ratios are used in these trades. There is an upper limit of 5% of the total value of the groundfish quotas for the fishing year for all transfers and an upper limit of 1.5% of the total value of the groundfish quotas for transfers into quotas for one species. While the efficacy of this system appears good, during 2014/15-2016/17, quota transfers were the main explanation for the catches in excess of allocated quotas of golden redfish; it is not clear how effective this mechanism if it were to allow catch in excess of quota during several consecutive years. TACs are set at precautionary levels to account for small overages, among other things. Because further evidence does not exist that TAC control will always be effective in some scenarios, the fishery does not meet SG100.</p>		
References		<p>ICES. 2014a. Advice basis. <i>In</i> Report of the ICES Advisory Committee, 2014. ICES Advice 2014, Book 1, Section 1.2.</p> <p>ICES. 2014b. Report of the Benchmark Workshop on Deep-sea Stocks (WKDEEP), 3–7 February 2014, Copenhagen, Denmark. ICES CM 2014/ACOM: 44.</p> <p>ICES. 2014c. Report of the Working Group on the Biology and Assessment of Deep-Sea</p>		

PI 1.2.2	There are well defined and effective harvest control rules in place
	Fisheries Resources (WGDEEP), 4–11 April 2014, ICES Headquarters, Copenhagen, Denmark. ICES CM 2014/ACOM: 17. ICES (2017a; 2017b)
OVERALL PERFORMANCE INDICATOR SCORE:	80
CONDITION NUMBER (if relevant):	

Following close of condition 2.4.1 on habitat outcome

PI 2.4.1 Habitat Outcome Evaluation Table (Note: only those elements which scored below SG80 in the original assessment, triggering this Condition 3 (deep sea sponges, coral gardens) are herewith re-scored and new justification text presented)

PI 2.4.1	The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function		
Scoring Issue	SG 60	SG 80	SG 100
a	Guide-post	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
		The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
Met?	Yes	Yes	No
Justification	<p><u>1. Fishing area</u></p> <p>The highest catches of saithe are taken along the continental shelf and off the south and west coast of Iceland. Figure 3.2 of the main report – distribution of saithe fishing effort - is pasted below for reference (Figure 1).</p>  <p><i>Figure 1. (Figure 3.2 of main report). Distribution of saithe catch around Iceland (all gears, dark areas indicate highest catch (tonnes/nmi²))</i></p> <p><u>2. Habitat structure vs function:</u></p>		

The scoring guideposts refer to 'habitat structure and function'. In relation to *Lophelia* reefs as well as other complex habitats, the key habitat function arises from the habitats' structural complexity – i.e. function arises directly from structure. Impacts of fishing as concerns these habitats have been typically considered in relation to habitat structure (damage to structural complexity), rather than habitat function. Since function flows from structure, however, the team considered that habitat structure is a direct proxy for habitat function – loss of structure results in loss of function in similar measure.

3. Distribution of sensitive habitats in relation to fishing activity

Figure 2 gives the MESH (OSPAR/JNCC) habitat map for OSPAR threatened and/or declining habitats for Iceland and around. Information on sensitive habitats in the Northeast Atlantic is available from OSPAR (2008a) and habitat related maps for Icelandic waters are provided in variety of published reports (e.g. Steingrímsson & Einarsson 2004, Garcia et al. 2006, Ólafsdóttir & Burgos 2012). OSPAR lists threatened and/or declining habitats in Icelandic waters is as follows:

a) Present in Iceland and considered threatened/declining everywhere they occur deep-sea sponge aggregations *Lophelia pertusa* reefs, maerl beds, intertidal *Mytilus beds*, coral gardens, *Zostera* beds intertidal mudflats

Modiolus reefs

b) Present or possibly present, but not considered threatened/declining in Icelandic waters hydrothermal vents seapens and burrowing megafauna

c) Unclear (probably not present) seamounts (no information provided by Iceland to OSPAR, no seamounts shown on the OSPAR interactive habitat map for Icelandic waters)

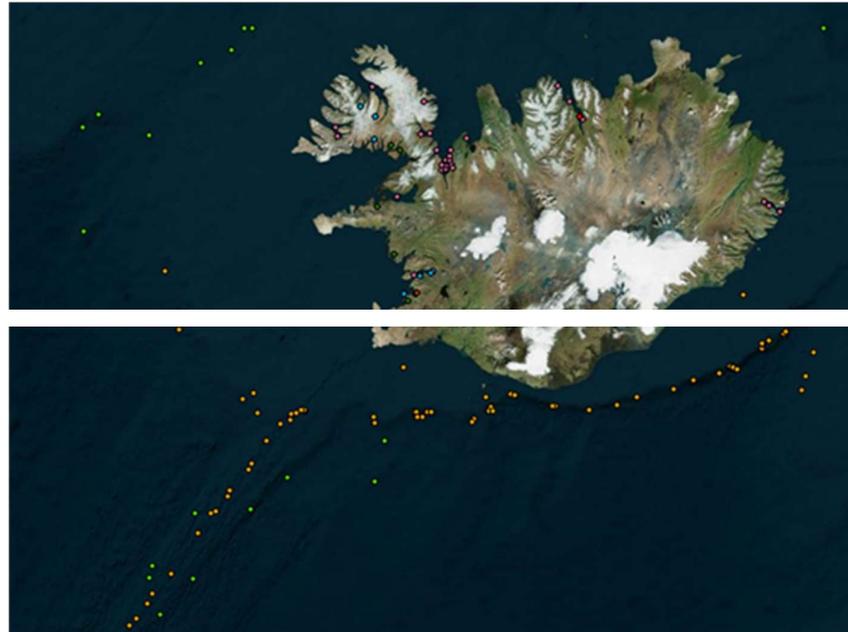


Figure 2: MESH (OSPAR/JNCC) habitat map for OSPAR threatened and/or declining habitats for Iceland. Yellow = *Lophelia*, green = Deep-sea sponge aggregation, pink = maerl beds, red = hydrothermal vents, dark green = *Zostera* beds, blue = intertidal *Mytilus edulis* beds. (see website⁴)

Modiolus modiolus beds occur at depths up to 70 m (OSPAR 2009). Seamounts occur along the

⁴ http://www.searchmesh.net/default.aspx?page=1974&&mapInstance=MESHAtlanticMap_&Layers=OSPARhabPoints

Mid-Atlantic ridge (OSPAR 2010a) and as far as the team can tell, seamounts do not occur in the area of the fishery.

Hydrothermal vents are found in volcanic active areas. In Icelandic waters such areas are the Mid Atlantic Ridge (i.e. the Reykjanes Ridge) and the Tjörnes Fracture Zone off Eyjafjörður, N Iceland (Figure 3). The assessed fishery is not operating in the Tjörnes Fracture Zone but is so on the Reykjanes Ridge. However, the hydrothermal vents at Steinahóll are situated inside a closed area for otter trawling which has been in operation since 1994 (Figure 4). Furthermore, where hydrothermal vents are considered to be threatened in the OSPAR area (around the Azores) it is from deep-sea mining and scientific prospecting, not fishing (OSPAR 2010a).

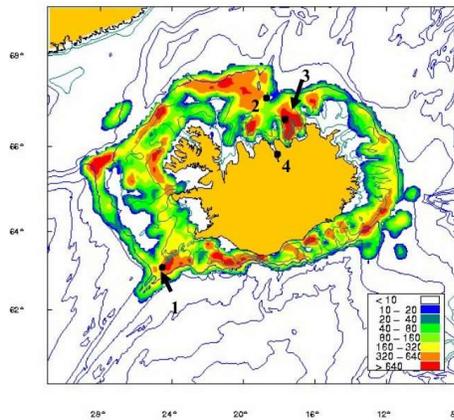


Figure 3. Location of areas of hydrothermal activity in Icelandic waters in relation to bottom trawling effort (total trawling hours 2003 [combined groundfish, shrimp and Nephrops fisheries]). (1) Steinahóll on the Reykjanes Ridge (see also Figure 5 above) (2-4) Hydrothermal vents in the the Tjörnes Fracture Zone; Kolbeinsey vent fields (2), Grímsey vent fields (3) and in Eyjafjörður (4). Source: Garcia et al. 2006.

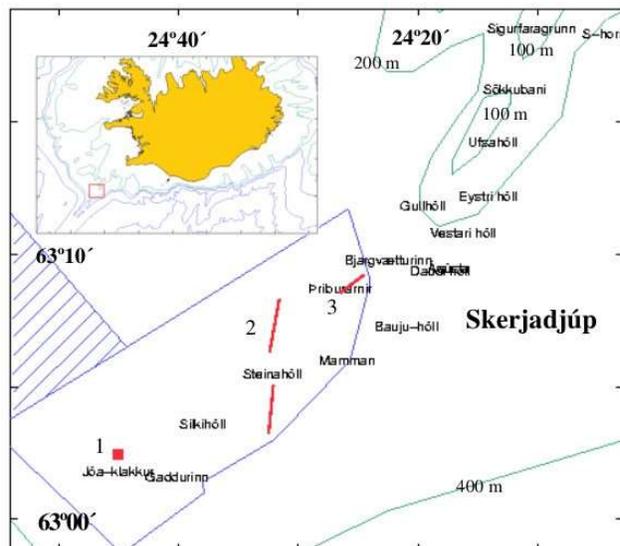


Figure 4. Position of the Steinahóll hydrothermal vent and occurrence of coral (indicated with red lines or square) on the Reykjanes Ridge. Area closed for otter trawling (since 1994) is outlined with a blue line (closed throughout the year) and blue hatched area (trawling allowed 1 st February – 15 th April). Source: Steingrímsson & Einarsson 2004

The fishery does not interact with maerl beds, intertidal *Mytilus edulis* beds, *Zostera* beds,

Modiolus modiolus beds and intertidal mudflats because these habitats occur only in shallower waters than the fishery operates (i.e. exclusively above 100m – Figure 2; OSPAR 2009). The fishery also does not interact with seamounts and hydrothermal vent habitats, because the former do not apparently occur in Icelandic waters and the latter are protected from trawling.

In addition, the fishery operates over habitats which are not considered threatened and/or declining, including subtidal sand, muddy sand and gravel. Those that overlap with this fishery are therefore the following:

- deep-sea sponge aggregations
- Lophelia* reefs coral gardens
- seapens and burrowing megafauna
- subtidal sedimentary habitats

4. Likely impacts of the fishery on habitats

4.1 Deep-sea sponge aggregations: By comparing Figure 1 with Figure 5 below it is clear that there is potential overlap between this fishery and deep-sea sponge habitats. In considering the probability of serious or irreversible harm to deep-sea sponge aggregations from this fishery, the team considered the following points:

There is no explicit protection for this habitat type in Icelandic waters

This habitat occurs in the depth range 300-750 m (Garcia et al. 2006), giving an overlap with this fishery in the shallowest ~100m of its depth range, although saithe is more common in slightly shallower (~250m) waters.

The mapping of the distribution of deepsea sponge aggregations is an ongoing project, part of the MFRI habitat mapping project (see Olafsdottir 2017). Information available (see Figures 1 and 5) suggest that it occurs at the limit of the depth range of bottom trawling in the Icelandic EEZ, and outside it. Beyond where bottom trawling takes place in the vicinity of this habitat type the slope of the shelf is steep (off NW Iceland) or bottom topography is mountainous and inaccessible for bottom trawling (Reykjanes ridge; Figure 6).

Bottom trawling would certainly cause damage to this habitat, and OSPAR note that recovery may take several decades, with information limited about indirect effects such as smothering.

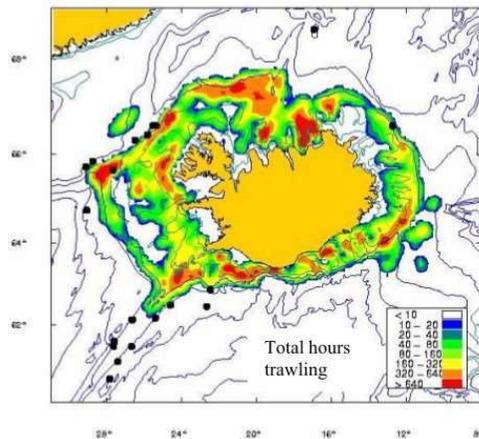


Figure 5. Geographic distribution of deep-sea sponge aggregation around Iceland in relation to bottom trawling effort (total trawling hours 2003 [combined groundfish, shrimp and *Nephrops* fisheries]). Source: Garcia et al. 2006.

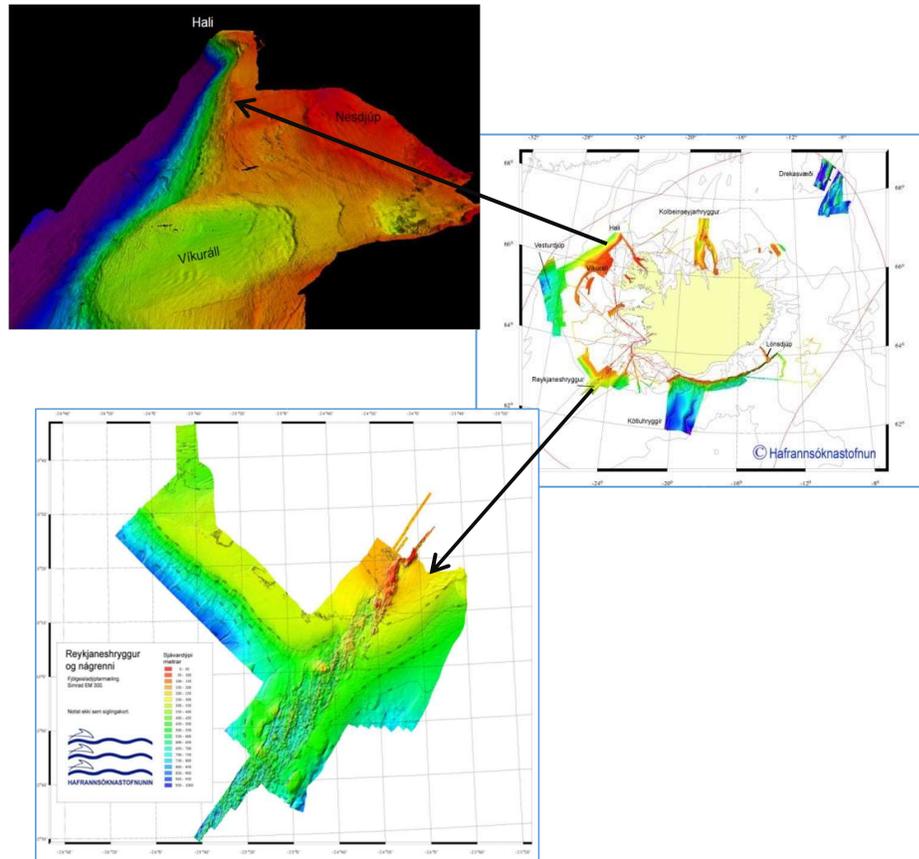


Figure 6. Multibeam maps showing the topography of the shelf break off NW Iceland (top left) and part of the Reykjanes ridge (lower left). Source: MRI (<http://www.hafro.is/undir.php?ID=10&REF=2>) and Helgadóttir et al. 2014 (<http://www.hafro.is/rad-hafsbotn14/glaerur/Gudrun%20Helgad.pdf>)

On the basis of i) the evidence of limited overlap between this habitat and bottom trawling for saithe, ii) the fact that there is a large closed area west of Iceland which may offer some protection to this habitat and iii) the habitat is likely to be mainly out of reach for bottom trawling due to unsuitable bottom topography; the team considered that SG60 is met (a probability of not greater than 40% of serious or irreversible harm to some areas of this habitat).

Habitat mapping is an ongoing project, (Olafsdóttir 2017, StatusReport) and together with qualitative information (captains' interviews) and quantitative data (bycatch logs on benthic organisms, including corals and sponges records as bycaught in fishing trips – see Table 1 in Olafsdóttir 2017)) there is sufficient evidence available to demonstrate that SG80 is met.

4.2 *Lophelia* reefs: In the past some relatively large areas of coral have vanished due to bottom trawling (Figure 7; Steingrímsson & Einarsson 2004, Garcia et al. 2006). The present occurrence of *Lophelia pertusa* around Iceland is confined to the south and southeast continental slope and on the Reykjanes ridge (Figures 7&8). *Lophelia* is found at 200-600 m depth (Ólafsdóttir & Burgos 2012). The bottom trawling effort along the shelf break off S Iceland is very patchy as 55% of the shelf area had <10 tows/nm² during 1991-2002 and 77% <20 tows/nm² but where effort was highest >50 tows/nm² occurred during the same period (Figure 9; Steingrímsson & Einarsson 2004). Coral habitats are currently being explored and mapped by MRI and based on this effort 10 coral areas have been closed for bottom contacting fisheries, in total 480 km² (Figure 10). Furthermore, coral areas on the Reykjanes ridge have been protected for bottom trawling since 1994 (Figure 4).

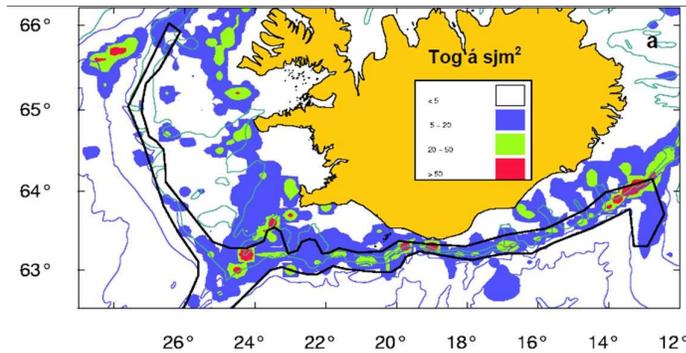


Figure 9. Spatial distribution of fishing effort off Iceland 1991-2002 (otter trawling for ground fish; number of fishing events per nm^2). The historic distribution area of coral grounds at the shelf break off S and W Iceland is enclosed with black line. Source: Steingrímsson & Einarsson 2004

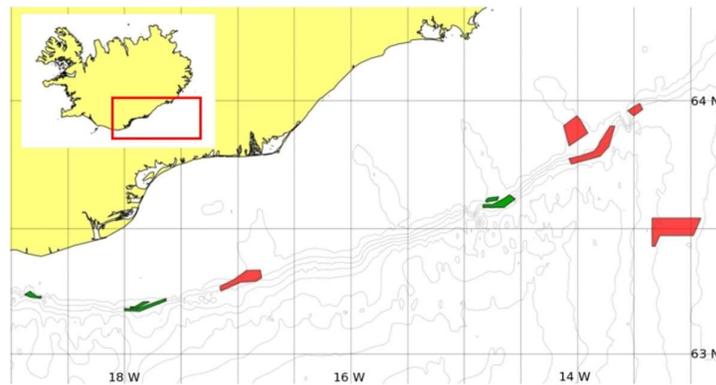


Figure 10. Coral areas (*Lophelia pertusa*) off SE Iceland where ban on using bottom contacting fishing gear has been in operation since 2005 (green) and 2011 (red). Source: Ólafsdóttir & Burgos 2012, Steingrímsson & Einarsson 2004)

In considering the probability of serious or irreversible harm to *Lophelia* reefs from this fishery, the team considered the following points:

Bottom trawling is known to have a serious and irreversible (or only reversible very slowly) impact on this habitat type. Some *Lophelia* areas are known to have been lost to trawling in the past in Icelandic waters.

There is explicit protection of 10 *Lophelia* areas where no fishing gear with bottom contact are allowed, including bottom trawling (Figure 10 above). Permanent area closure for bottom trawling is in operation along the shelf break off W Iceland including seabed on the shallow part of the Reykjanes Ridge where *Lophelia* reefs occur (Figures 4). These measures do in fact apply to more or less all known *Lophelia* reefs (compare Figure 8 with 4 and 10)

Other known *Lophelia* areas are reported to be out of the range of bottom trawling (see information and references in Table 3.6 of the main report)

Detailed habitat mapping has so far concentrated on the areas, most at risk from trawling or other threats. Ongoing habitat mapping may identify further areas and the intention is to protect these (see discussion under PI 2.4.3).

Overall, the team considered that the risk of serious or irreversible harm to known areas of *Lophelia* reef is low, because coral areas which were at high risk to bottom trawling have been

closed specifically for their protection (Figures 4 & 10) or have been free from bottom trawling due to ban on bottom trawling W of Iceland with the aim of protecting juvenile redfish (Figure 4). Remaining areas are either too deep for trawling or are unsuitable for trawling (slope too steep, mountainous, see Figure 6). The team felt on this basis that SG80 is met (risk of some damage 30% or less).

In relation to SG100 the mapping of *Lophelia* reefs by MRI up to now has focused on areas of high trawl activity, therefore the remaining unmapped areas are subject to less fishing pressure. However, the mapping is still ongoing, and some undiscovered areas may still be exposed to risk. The risk of impact in this regard is obviously difficult to quantify, but the team considered that although remaining undiscovered areas which are exposed to trawling but unimpacted are likely to be small and/or sparse, it could not be argued on this basis that SG100 is met (lack of evidence). The score for this element is therefore 80.

4.3 Coral gardens: Coral gardens are mainly deep-water habitats (OSPAR 2010b; Figure 11). Their main characteristic is a relatively dense aggregation of colonies or individuals of one or more coral species belonging to different taxonomic groups, such as leather corals (Alcyonacea), gorgonians (Gorgonacea), sea pens (Pennatulacea), black corals (Antipatharia) and hard corals (Scleractinia). They can occur on a wide range of soft and hard seabed substrata. Soft-bottom coral gardens may be dominated by solitary scleractinians, and/or sea pens, whereas hard-bottom coral gardens are often found to be dominated by groups like gorgonian corals (OSPAR 2010b).

Taxonomic groups that make up coral garden habitats in Icelandic waters are found primarily in the depth range of approx. 500-1700 m (Figure 11). Gorgonacea corals occur all around Iceland (Figure 12). They are relatively uncommon on the shelf (< 500m depth) but are generally found in relatively high numbers in deep waters (>500m) off the South, West and North Iceland. Similar patterns have been observed in the distribution of Pennatulaceans off Iceland. Pennatulaceans relatively rare in water shallower than 500m but more common in deep waters, especially off South Iceland (Figure 13).

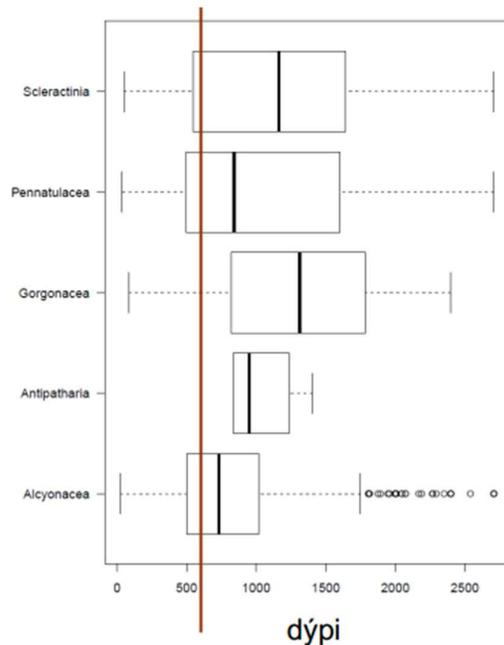


Figure 11. Boxplots showing the distribution of various groups of corals making up 'coral garden' habitat by depth (dýpi) around Iceland (see Table 3.6 of the main report). (The red line should be ignored for these purposes.) Source: Ólafsdóttir et al. 2014⁵

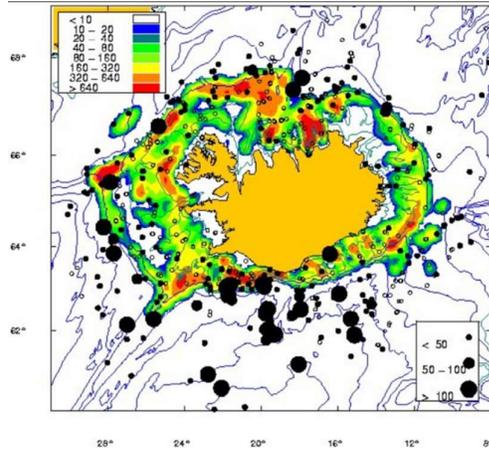


Figure 12. Distribution of Gorgonacea corals (number of colonies in a sample) off Iceland in relation to bottom trawling effort (total trawling hours 2003 [combined groundfish, shrimp and Nephrops fisheries]). Data from the BIOICE database. Source: Garcia et al. 2006

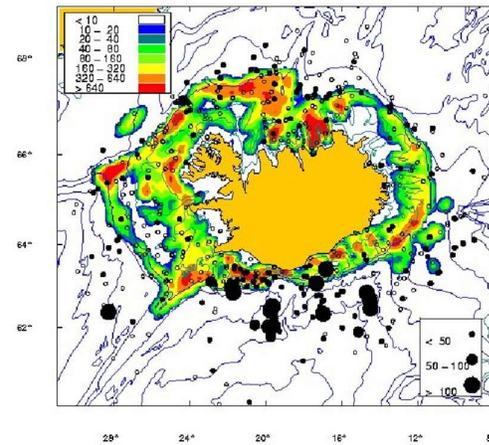


Figure 13. Distribution of Pennatulacea corals (seapens; number of colonies in a sample) off Iceland in relation to bottom trawling effort (total trawling hours 2003 [combined groundfish, shrimp and Nephrops fisheries]). Data from the BIOICE-database. Source: Garcia et al. 2006

In reviewing the likely habitat impact of trawling on this habitat, the team considered that the overlap with the fishery (down to ~400m) with the habitat is limited (Figure 11), although somewhere ~the shallowest ~10-20 percentile of the depth range is within range of the fishery for four out of the five taxa (and the overlap may be greater for some individual species). In addition, there is a large area west of Iceland where this type of habitat occurs, which is permanently closed for bottom trawling. As for sponge habitat, the team concluded that there is evidence for limited overlap, based on a review of Figures 11-13, in relation to the geographic and depth distribution of the fishery and a large area of this habitat is closed to bottom trawling.

⁵ <http://www.hafro.is/rad-hafsbotn14/glaerur/Steinunn%20Hilma%20glaerur.pdf>

	<p>On this basis, SG60 is met, following the same logic as for sponges.</p> <p>Habitat mapping is an ongoing project, (Olafsdottir 2017, StatusReport) and together with qualitative information (captains' interviews) and quantitative data (bycatch logs on benthic organisms, including corals and sponges records as bycaught in fishing trips – see Table 1 in Olafsdottir 2017) there is sufficient evidence available to demonstrate that SG80 is met.</p> <p><u>4.4 Seapens and burrowing megafauna:</u> 'Seapens and burrowing megafauna' habitat is found on plains of fine mud, at water depths ranging from 15–200m or more, which are heavily bioturbated by burrowing megafauna and this habitat occurs extensively in sheltered basins of fjords, sea lochs, voes and in deeper offshore waters (OSPAR 2010c). This habitat type is characteristic of Nephrops grounds, and this habitat type is therefore mainly relevant in relation to the gear type 'nephrops trawl'. However, since some whitefish trawling may occur in these areas, it is considered here as well.</p> <p>In reviewing the likely habitat impact of trawling on this habitat, the team considered the following issues:</p> <p>There is no explicit protection for this habitat type in Icelandic waters.</p> <p>OSPAR considers this habitat 'threatened and/or declining' in some areas (such as the North Sea) but not in Area I (which includes Iceland).</p> <p>Pennatulacea corals (seapens) are known to be relatively common in Icelandic waters (Figure 12, Garcia et al. 2006)</p> <p>Overall, the team considered that the evidence of i) limited scale of the fishery compared to the habitat, and ii) apparent continued abundance of this habitat type (and acceptance by OSPAR that this habitat type is not threatened and/or declining in Icelandic waters) meant that the risk of serious and/or irreversible damage from this fishery on this habitat type could be assessed to be 30% or less (i.e. SG80 is met). In relation to SG100, there is some direct evidence regarding the effect of trawls on the habitat (e.g. Ball et al. 2000) but the team considered that there is not sufficient quantitative information on trends in distribution and health of this habitat type over time to justify a score of 100. The score for this component is therefore 80.</p> <p><u>4.5 Other subtidal sedimentary habitats:</u> The fishery operates on subtidal sedimentary habitats - without the other features listed above - which are not considered threatened and/or declining. This includes subtidal sand, muddy sand and gravel.</p> <p>A study was designed to examine the short- and long-term effects of otter trawling on a macrobenthic infaunal community in an area that had never been trawled before (Ragnarsson & Lindegarh 2009). No significant treatment effects could be detected on total abundance or on multivariate structure, and tests for individual species revealed only a single case of short term effect. However, trawling caused significant short-term reduction in species richness and persistent effects on the Shannon-Wiener diversity index.</p> <p>On the basis of this research, the team considered that there is evidence that serious or irreversible harm is not being caused to these habitats by this fishery, and that the risk of harm is less than 20%, i.e. SG100 is met.</p>												
<p>Overall Score</p>	<table border="0"> <thead> <tr> <th>Scoring element:</th> <th>Score:</th> </tr> </thead> <tbody> <tr> <td>Deep-sea sponge aggregations</td> <td>80</td> </tr> <tr> <td><i>Lophelia</i> reefs</td> <td>80</td> </tr> <tr> <td>Coral gardens</td> <td>80</td> </tr> <tr> <td>Seapens and burrowing megafauna</td> <td>80</td> </tr> <tr> <td>Other subtidal sedimentary habitats</td> <td>100</td> </tr> </tbody> </table>	Scoring element:	Score:	Deep-sea sponge aggregations	80	<i>Lophelia</i> reefs	80	Coral gardens	80	Seapens and burrowing megafauna	80	Other subtidal sedimentary habitats	100
Scoring element:	Score:												
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Seapens and burrowing megafauna	80												
Other subtidal sedimentary habitats	100												

	In line with 7.10.7.5 Table 4: All elements meet SG80; a few achieve higher performance, but most do not meet SG100. Score = 85
Harmonisation	<p><u>Harmonisation</u>: ISF Iceland Cod and haddock fisheries: score = 90. The scoring for this PI for the ISF cod/haddock certifications centred on the general assumptions that habitat had been damaged a long time ago and that current fishing patterns are fairly well established, and thus resulting in a “new, but well established, baseline habitat”. This is not the approach that was taken by this assessment team. The current assessment team explicitly considered known vulnerable habitats such as corals and deep-sea sponge aggregations.</p> <p>ISF Iceland redfish: The scoring is harmonised with the ISF Iceland golden redfish fishery.</p>
References	<p>Anon. 2004; Ball et al. 2000; Garcia et.al. 2006; Jennings et al. 2001; Ragnarsson & Lindegarth 2009; Ministry of the Environment 2010; Ministry of Fisheries 2004; OSPAR Commission 2008a&b; OSPAR 2008; OSPAR 2010 a, b & c; Ólafsdóttir & Burgos 2012; Thórarinsdóttir et al. 2010; Steingrímsson & Einarsson 2004;</p> <p>http://www.ospar.org/content/content.asp?menu=00180302000132_000000_000000;</p> <p>http://www.searchmesh.net/default.aspx?page=1974&&mapInstance=MESHAtlanticMap_&Layers=OSPARhabPoints</p> <p>Ólafsdóttir 2017, MFRI Internal report on benthos bycatch research in trawl fisheries</p>
OVERALL PERFORMANCE INDICATOR SCORE:	85
CONDITION NUMBER (if relevant):	-

Following close of Condition 2.4.2 on habitat management

PI 2.4.2 Habitat Management Evaluation Table (Note: only those elements which scored below SG80 in the original assessment, triggering this Condition 3 are herewith re-scored and new justification text presented)

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of the fishery on habitat types.
	Met?	Yes	Yes	Yes
	Justification	<p>Scoring elements:</p> <ul style="list-style-type: none"> • deep-sea sponge aggregations (ostur) 		

		<ul style="list-style-type: none"> • <i>Lophelia</i> reefs • coral gardens • seapens and burrowing megafauna • subtidal sedimentary habitats <p><u>Note:</u> In relation to this scoring issue, the team felt it made sense to score in relation to the measures/partial strategy/strategy for habitats in general – confidence in, and implementation of the strategy is considered in relation to each component.</p> <p>The Ministry of the Environment has developed a National Strategy Plan for the preservation of biological diversity (Ministry of Environment 2010). Two of the key elements of this strategy are (a) develop fishing methods with less impact on marine ecosystems, and (b) protect vulnerable benthic ecosystems. Act 97/1997 (“um veiðar í fiskveiðilandhelgi Íslands”) also provides a framework which allows managers to close vulnerable habitats to fishing as and when the need arises. The Nature Conservation Act no. 44/1999 also provides measures to protect marine habitats. Iceland has ratified a number of conventions on the protection and management of marine species, such as the Convention on Biological Diversity, the OSPAR Convention and the CITES Convention. These conventions have established objectives for conserving endangered, threatened or protected species and habitats and within them a number of mechanisms have been developed to detect and reduce impacts. For example, the OSPAR Strategy on the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area has identified a number of key species and habitats which are considered threatened or declining (OSPAR Commission 2008 a&b). Iceland has nominated 14 areas to the OSPAR Network of Marine Protected Areas (OSPAR 2013; Umhverfissráðuneytið 2014⁶). The team considered that this framework constituted a 'strategy' to protect marine habitats from fisheries impacts. SG100 is met.</p>		
b	Guide-post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.
	Met?	Yes	Yes	Partial
	Justification	<p>Scoring elements: deep-sea sponge aggregations (ostur); <i>Lophelia</i> reefs; coral gardens, seapens; and burrowing megafauna subtidal sedimentary habitats</p> <p><u>Deep-sea sponge aggregation:</u> There are no explicit protection measures for deep-sea sponge habitats in Icelandic waters, although there is a legal and regulatory framework which would allow such areas to be designated (i.e. there is a strategy in general, but implementation has not focused on this habitat type). In the rationale for PI 2.4.1 above, we identify the following aspects which provide a measure of protection to this habitat: there is limited overlap with bottom trawl fisheries (in general) there is a large area west of Iceland closed to bottom trawling the habitat is likely to be out of reach for bottom trawling due to</p>		

⁶ <http://www.umhverfissraduneyti.is/frettir/nr/2577>

		<p>unsuitable bottom topography (Figure 6)</p> <p>The team considered, therefore that it was plausible to suggest that the habitat is not strongly at risk from this fishery, SG60 is met (see rationale for PI 2.4.1). There is continuing mapping of the habitat (Olafsdottir, 2017) and interactions of the fishery with the benthos are recorded quantitatively (logging of benthos in trawls) and qualitatively (interviews of captains as to fishing grounds) in order to inform management of the fishery with regards to habitat. SG80 is met.</p> <p><u>Lophelia reefs:</u> Implementation of the habitat protection strategy has focused on this habitat type, which is widely perceived (not just in Iceland) to be the most vulnerable to towed fishing gear. Several areas have been closed to fishing to protect <i>Lophelia</i> coral reefs (see map in main report Figure 3.17); the other reef areas are either within closed area for bottom trawling (e.g. Reykjanes Ridge, Figure 5 above), outside the depth range of trawling or on grounds unsuitable for trawling (slope too steep, mountainous). While not all areas have been mapped, the unmapped areas are those considered at lowest risk from trawl damage, and not considered likely to have extensive coral habitat. Operation of all Icelandic fishing vessels is monitored by VMS and MRI has access to electronic logbooks for scientific purposes (high resolution data). During a site visit the DF confirmed that no vessel has violated the closure of coral areas. There is therefore an objective basis for high confidence that this strategy will work, and SG100 is met.</p> <p><u>Coral gardens:</u> As for sponge aggregations, the team considered that the limited overlap with bottom trawl fisheries and the closed area west of Iceland provide plausible measures of protection at the SG60 level. If necessary, there is a legal and regulatory framework which would allow designation of protected areas as in the case of <i>Lophelia</i> reefs (i.e. there is a strategy in general, but implementation has not focused on this habitat type). Therefore, SG60 is met. There is continuing mapping of the habitat (Olafsdottir, 2017) and interactions of the fishery with the benthos are recorded quantitatively (logging of benthos in trawls) and qualitatively (interviews of captains as to fishing grounds) in order to inform management of the fishery with regards to habitat. SG80 is met.</p> <p><u>Seapens and burrowing megafauna:</u> The overlap of this fishery with this habitat type is limited – most fishing activity in these areas is by Nephrops trawls. The habitat type has remained widespread and is not considered threatened in Icelandic waters by OSPAR.</p> <p>The team therefore concluded that there is an objective basis for concluding that the current situation (strategy although not focused in implementation on this habitat type) is nonetheless sufficient, since habitat outcome is met at the 80 level. However, it is not possible to argue that there has been extensive testing in relation to impacts on this habitat type or its distribution over time, although there is some information available, so SG100 is not met. The score for this component is 80.</p> <p><u>Subtidal sedimentary habitats:</u> There has been testing (Garcia et al. 2006b, Ragnarsson & Lindegarh 2009, Thórarinsdóttir et al. 2010) showing that demersal trawling has low impacts on this habitat type in Icelandic waters and elsewhere. Therefore, SG100 is met.</p>												
Overall scores	for PI 2.4.2 SI(b)	<table border="1"> <thead> <tr> <th data-bbox="418 1545 594 1570"><u>Scoring element:</u></th> <th data-bbox="1040 1545 1105 1570"><u>Score:</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="440 1593 748 1619">Deep-sea sponge aggregations</td> <td data-bbox="1040 1593 1068 1619">80</td> </tr> <tr> <td data-bbox="440 1640 521 1665"><i>Lophelia</i></td> <td data-bbox="1040 1640 1084 1665">100</td> </tr> <tr> <td data-bbox="440 1686 578 1711">Coral gardens</td> <td data-bbox="1040 1686 1068 1711">80</td> </tr> <tr> <td data-bbox="440 1732 797 1757">Seapens and burrowing megafauna</td> <td data-bbox="1040 1732 1068 1757">80</td> </tr> <tr> <td data-bbox="440 1778 805 1803">Other subtidal sedimentary habitats</td> <td data-bbox="1040 1778 1084 1803">100</td> </tr> </tbody> </table>	<u>Scoring element:</u>	<u>Score:</u>	Deep-sea sponge aggregations	80	<i>Lophelia</i>	100	Coral gardens	80	Seapens and burrowing megafauna	80	Other subtidal sedimentary habitats	100
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c	Guide-post		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.												
	Met?		yes	Partial												
	Justification	<p>Scoring elements:</p> <ul style="list-style-type: none"> • deep-sea sponge aggregations (ostur) • Lophelia reefs • coral gardens • hydrothermal vents • seapens and burrowing megafauna • subtidal sedimentary habitats <p>There is some evidence (benthos logs, VMS, interviews, habitat mapping) that the partial strategy is being implemented successfully for sponges and coral gardens; for seapens and burrowing megafauna, there is some evidence (habitat outcome = 80 although the strategy is not focused on this habitat type). SG80 is met. For <i>Lophelia</i> reefs, there is clear evidence that the strategy is being implemented successfully (closed areas where the habitat overlaps with the fishery, with strong surveillance and no evidence of infringements, as described above). SG100 is met. For non-vulnerable sedimentary habitats, there is clear evidence that no actions under the strategy appear to be required (habitat outcome = 100).</p>														
Overall scores for PI 2.4.2 SI(c)	<table border="0"> <thead> <tr> <th><u>Scoring element:</u></th> <th><u>Score:</u></th> </tr> </thead> <tbody> <tr> <td>Deep-sea sponge aggregations</td> <td>80</td> </tr> <tr> <td><i>Lophelia</i></td> <td>100</td> </tr> <tr> <td>Coral gardens</td> <td>80</td> </tr> <tr> <td>Seapens and burrowing megafauna</td> <td>80</td> </tr> <tr> <td>Other subtidal sedimentary habitats</td> <td>100</td> </tr> </tbody> </table>		<u>Scoring element:</u>	<u>Score:</u>	Deep-sea sponge aggregations	80	<i>Lophelia</i>	100	Coral gardens	80	Seapens and burrowing megafauna	80	Other subtidal sedimentary habitats	100		
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Coral gardens	80															
Seapens and burrowing megafauna	80															
Other subtidal sedimentary habitats	100															
d	Guide-post			There is some evidence that the strategy is achieving its objective.												
	Met?			No												
	Justification	There is no evidence on whether closure of coral areas have contributed to the recovery of the habitat, and little information on changes in distributions of habitats over time (limited historical information).														
Overall score	<table border="0"> <thead> <tr> <th><u>Scoring element:</u></th> <th><u>Score:</u></th> </tr> </thead> <tbody> <tr> <td>Deep-sea sponge aggregations</td> <td>85</td> </tr> <tr> <td>Lophelia</td> <td>95</td> </tr> <tr> <td>Coral gardens</td> <td>85</td> </tr> </tbody> </table>		<u>Scoring element:</u>	<u>Score:</u>	Deep-sea sponge aggregations	85	Lophelia	95	Coral gardens	85						
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	<p>Seapens and burrowing megafauna 85</p> <p>Other subtidal sedimentary habitats 95</p> <hr/> <p>In line with 7.10.7.5 Table 4: All elements meet SG80; some achieve higher performance at SG100, but some do not. Score = 90</p>
References	<p>Anon. 2012a; Act 97/1997; Ministry for the Environment 2010; OSPAR Commission 2008 a&b; Ólafsdóttir & Burgos 2012; OSPAR 2013; Schopka et al. 2010; Umhverfisiráðuneytið 2014</p>
OVERALL PERFORMANCE INDICATOR SCORE:	90
CONDITION NUMBER (if relevant):	-

Appendix 2: Stakeholder Submissions

No submissions were received from stakeholders regarding this surveillance.

Appendix 3: Surveillance Audit Information

N/A

Appendix 4: Additional Detail on Conditions and Client Action

N/A

Appendix 5: Revised Surveillance Program

This fishery, in conjunction with the ISF Iceland golden redfish, blue ling and tusk fishery (under the banner of the ISF Iceland multi-species demersal fishery) entered re-assessment at the time of the fourth surveillance audit. If re-certified, future surveillance level will be set at the time of re-certification.