

## **Marine Stewardship Council Full Assessment**

### **Final Report**

*For The*

### **ISF Iceland Capelin Fishery**



*Facilitated By*

### **Iceland Sustainable Fisheries (ISF)**

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## Glossary

ACOM	ICES Advisory Committee
AWI	Animal Welfare International
Bpa	Precautionary reference point for spawning stock biomass
Blim	Limit biomass reference point, below which recruitment is expected to be impaired.
BIOICE	Benthic Invertebrates of Icelandic Waters
CoC	Code of Conduct
CE	Critically Endangered
CFP	Common Fisheries Policy
CMS	Convention on Migratory Species
CR	Council Regulation
DoF	Directorate of Fisheries
EC	European Commission
EEZ	Exclusive Economic Zone
ETP	Endangered, threatened and protected species
EN	Endangered
EU	European Union
F	Fishing Mortality
Flim	Limit reference point for fishing mortality that is expected to drive the stock to the biomass limit
Fpa	Precautionary reference point of fishing mortality expected to maintain the SSB at the precautionary reference point
HCR	Harvest Control Rule
HS	Harvest Strategy
ICES	International Council for the Exploration of the Sea
ISF	Iceland Sustainable Fisheries
IGJM	Iceland -East Greenland- Jan Mayen Area
IWWA	Icelandic Whale Watching Association
ISF	Icelandic Sustainable Fishery
ITQ	Individual Transferable Quota
IUU	Illegal, Unregulated and Unreported fish catches
LS	Landssamband smábátaeigenda (Federation of Owners of Small Fishing Vessels, NASBO)
MII	Ministry of Industries and Innovation
MFRI	Marine Research Institute
PCR	Public Client Report
MCS	Monitoring, Control and Surveillance
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NEAFC	North East Atlantic Fisheries Commission
NEA	North East Atlantic
OSPAR	Oslo-Paris Convention (Convention for the Protection of the Marine Environment of the North-East Atlantic)
P1	MSC Principle 1
P2	MSC Principle 2
P3	MSC Principle 3
PI	MSC Performance Indicator
PCDR	Public Comment Draft Report
RFMO	Regional Fisheries Management Organisation
SGBYC	ICES Study Group on Bycatch of Protected Species
SONAR	Sound Navigation and Ranging
SSB	Spawning Stock Biomass
TAC	Total Allowable Catch
TASACS	Toolbox for Age-structured Stock Assessment using Catch and Survey data

TISVPA	Triple Instantaneous Separable Virtual Population Analysis
UNCLOS	United Nations Convention on the Law of the Sea
VMS	Vessel Monitoring System
VPA	Virtual Population Analysis
VU	Vulnerable
WGMME ICES	Working Group on Marine Mammal Ecology
WGRED ICES	Working Group for Regional Ecosystem Description

## 1 MSC Fishery Assessment Report

<b>Fishery Unit</b>	This assessment report under the 'Unit of Certification' (UoC) covers one target species and two methods of capture and the resulting scores are for landings by registered licence holders. This information can be consulted in the Figure 1. The fishery under assessment covers all Icelandic commercial vessels member of the Iceland Sustainable Fisheries that are entitled to fish capelin in ICES Division Va and east Greenland, FAO Fishing Area 27.	
<b>Report Issue</b>	<b>22<sup>nd</sup> September 2016</b>	• <b>Client Report</b>
	<b>24<sup>th</sup> September 2016</b>	• <b>Peer Review</b>
	<b>29<sup>th</sup> November 2016</b>	• <b>Public Comment Draft Report</b>
	<b>21<sup>st</sup> March 2017</b>	• <b>Final Report and Determination</b>
		• <b>Public Certification Report</b>
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The aim of this assessment is to determine the degree of compliance of the fishery with the Marine Stewardship Council's (MSC) Principles and Criteria for Sustainable Fishing.

This Final Report is written for stakeholders after the site visit, scoring, client review, and peer review, stakeholders consultation on the PCDR, and contains:

- The MSC Standard and Fisheries Certification Requirements (FCR) used, MSC Fishery Standard v2.0 and the MSC FCR v2.0.
- The scores, weighting and certification outcome (Section 7)
- All intended conditions set and the Client Action Plan in Appendix 1.3  
'Conditions provide for agreed further improvement in the fishery and provide one of the bases for subsequent audit. They are intended to improve performance against the MSC Principles'.
- The assessment team certification recommendation
- The stakeholders 'submissions and assessment team's responses in Appendix 3
- The peer reviewers' comments and assessment team's response in Appendix 2
- The assessment followed the current versions of MSC scheme requirements and these were implemented by SAI Global accredited MSC Procedures.
- Information sources used are provided throughout the report and full references for published, unpublished data and main websites accessed are documented at the end of this report in the reference section.

## 2 Authorship and Peer Reviewers

### 2.1 Assessment team

**Virginia Polonio Ph.D.**, SAIG Staff Lead Assessor and P2 expert

She has a degree in Environmental Sciences (B.S.c. University of Cádiz). She has a Master degree (M.Sc. University of Cádiz) in Fisheries Management and Aquaculture. She obtained her PhD in Biodiversity and Natural resources at the University of Oviedo and during her PhD she gained experience in the field of research of fisheries and how protect the Vulnerable Marine Ecosystems (VMEs) as coral reefs versus fishing activities. She wrote several articles describing new species of corals under her thesis and she developed skills in the fields of benthic ecology and management of ecosystems.

Before her PhD, she was contracted as technician in the Spanish Oceanographic Institute where she realized work at sea and gained field experience to assessment fisheries stocks. She participated in the Spanish National Basic Plan of Data to collect and evaluate the fishing in the ICES and CECAF areas where Spanish fleets realize their activities. During this period, she carried out feeding habit and age/size studies of *Pagellus Bogaraveo* and others commercial species (hake, anchovy, sharks, mackerel, squid, etc.) to know how the trophic level and predation could affect the ecosystems and the distribution of the species in the Gulf of Cadiz and the Strait of Gibraltar.

She has worked on several full assessments such as Cantabrian Sardine, North Atlantic Albacore, Squat lobster, Blue sharks and Swordfish among others as team member and lead assessor. She has participated in Surveillances acquiring experience in the MSC certification. She has participated in several pre-assessments. She is a full-time employee at SAI Global and she will be the **lead assessor** and P2 expert in this assessment,

**John Nichols**, team member expert on P1

Mr Nichols has 42 years' experience of plankton ecosystem research specialising in the taxonomy of North Atlantic & NW European plankton including phytoplankton, micro and meso-plankton, ichthyoplankton and young fish. Involvement with plankton surveys for stock assessment from 1977 and direct involvement with the assessment of pelagic and western demersal fish stocks from 1994 to 2000.

In 1992 he set up the original CEFAS programme for monitoring phytoplankton in shellfish harvesting areas and was responsible for its compliance with the EU Directive. In that context he had to train staff in the identification of both diatoms and dinoflagellates.

Since retiring from CEFAS Mr. Nichols has been involved as an expert in the assessment of more than 20 separate fisheries for Marine Stewardship accreditation and subsequent surveillance visits to accredited fisheries.

**Ásgeir Dánielsson Ph.D.**, team member expert on P3

Dr. Ásgeir Dánielsson graduated in 1985 with Ph.D. in Economics from the University of Manchester. Currently holds the position of head of research and forecasting in the Economics department of the Central Bank of Iceland. He has lectured on microeconomics, statistics, macroeconomics and fisheries economics at the University of Iceland and University of Akureyri.

He has over 20 years' experience of macroeconomic analysis of the Icelandic fisheries for the Central Bank of Iceland and previously the National Economic Institute. He has been involved in and advised numerous national and international task forces on the utilization of living marine resources and fisheries management.



From 1993-1994 and 2001-2004 he was a member of a committee, set up by the Icelandic Minister of Fisheries, formulating a long term policy on exploitation of fish stocks. He has worked with the “Nairobi group” set up by the UN’s UNEP and UNSD, and was later commissioned by the FAO to provide a guide on the incorporation of environmental factors into national accounting with special regard to fisheries and the living marine environment.

Dr. Daníelsson has written and co-authored several peer-reviewed publications, as well as research reports on the utilization of fish stocks in Icelandic waters, ITQ efficiency and environmental- and economic accounting of fisheries. During the last five years, Dr. Daníelsson has served as Principle 3 expert on several MSC fishery assessments, the first one was completed in 2011.

The fishery under assessment has enough data to evaluate it using default tree, therefore RBF has not been used even though the lead assessor Virginia Polonio has the training to use this technique.

## **2.2 Peer Reviewers**

The list of potential reviewers was proposed by MSC’s Peer Review College. It was published on MSC website on August 23<sup>rd</sup> 2016. From the shortlist of reviewers proposed two of them were selected to review the report.

The peer-reviewers were:

- Sten Munch-Petersen (DTU-AQUA)
- Tom Jagielo (Marine fish science consultant)

### 3 Executive Summary

This report sets out the details of the MSC full assessment for the ISF capelin fishery against the MSC Principles and Criteria for Sustainable Fisheries. The report details the background, results and justification of the fishery, carried out by SAI Global.

The assessment process began on May 10, 2016.

The Conformity Assessment Body (CAB) who is in charge to evaluate the fishery is composed of: Virginia Polonio from SAI Global who is lead assessor and expert on P2, as external assessor; John Nichols is responsible of P1 and Asgeir Danielsson expert on P3.

The MSC guidance for FCR specifies that the Unit of Certification (UoC) is “The target stock or stocks (biologically distinct unit) combined with the fishing method/gear and practice (vessel(s) pursuing the stock and any fleets, groups of vessels, or individuals of other fishing operators”.

The Unit of Assessment (UoA) defines the full scope of what is being assessed and includes other eligible fishers.

Consequently, the ISF capelin fishery under assessment is according to 2 UoCs and 2 UoAs. (Table 1)

**Table 1. Unit of Assessment and Unit of Certification described in the fishery under assessment**

UoA 1	
Target species	Capelin, <i>Mallotus villosus</i> (Muller, 1776)
Geographic area	The Iceland waters ICES Divisions Va and East Greenland, FAO Fishing Area 27
Stock	Capelin in the Iceland -East Greenland- Jan Mayen Area
Fishing gear	Pelagic trawl
Management system	European Union with ICES advice and The Ministry of Fisheries and Agriculture based on fisheries Management Act 1990 and the Icelandic Coast Guard who is the responsible for the inspection in the Iceland grounds
Client group and other eligible fishers	Iceland Sustainable Fisheries, Greenlandic and Faroes vessels targeting capelin with pelagic trawl in Icelandic waters.
UoA 2	
Target species	Capelin, <i>Mallotus villosus</i> (Muller, 1776)
Geographic area	The Iceland waters ICES Va and East Greenland, FAO Fishing Area 27
Stock	Capelin in the Iceland-East Greenland -Jan Mayen Area
Fishing gear	Purse- seine
Management system	European Union with ICES advice and The Ministry of Fisheries and Agriculture based on fisheries Management Act 1990 and the Icelandic Coast Guard who is the responsible for the inspection in the Iceland grounds.
Client group and other eligible fishers	Iceland Sustainable Fisheries and Norwegian, Greenlandic and Faroes vessels targeting capelin with purse seine in Icelandic waters.
UoC 1	
Target species	Capelin, <i>Mallotus villosus</i> (Muller, 1776)
Geographic area	The Iceland waters ICES Va and East Greenland, FAO Fishing Area 27
Stock	Capelin in the Iceland -East Greenland- Jan Mayen Area
Fishing gear	Pelagic trawl

<b>Management system</b>	European Union with ICES advice and The Ministry of Fisheries and Agriculture based on fisheries Management Act 1990 and the Icelandic Coast Guard who is the responsible for the inspection in the Iceland grounds
<b>Client group</b>	Iceland Sustainable Fisheries
<b>UoC 2</b>	
<b>Target species</b>	Capelin, <i>Mallotus villosus</i> (Muller, 1776)
<b>Geographic area</b>	The Iceland waters ICES Va and East Greenland, FAO Fishing Area 27
<b>Stock</b>	Capelin in the Iceland -East Greenland- Jan Mayen Area
<b>Fishing gear</b>	Purse-seine
<b>Management system</b>	European Union with ICES advice and The Ministry of Fisheries and Agriculture based on fisheries Management Act 1990 and the Icelandic Coast Guard who is the responsible for the inspection in the Iceland grounds
<b>Client group</b>	Iceland Sustainable Fisheries

The fishery has not been previously assessed against the MSC Principles and Criteria for Sustainable Fishing under a previous certificate. The current assessment do not require harmonization taking into account other assessments led by different CABs to ensure consistency of assessment outcomes as there are other Iceland fisheries certified (see section 5.1) because the stock of capelin is certified by first time in the area.

The ISF capelin fishery under assessment covers all Icelandic commercial vessels member of the Iceland Sustainable Fisheries that are entitled to fish capelin in ICES Division Va and est Greenland, FAO Fishing Area 27.

The client group is Iceland Sustainable Fisheries (ISF). The group was founded in 2012 by companies engaged in fishing, production and sales of Icelandic fish products. Only the company's shareholders have the right to sell their products as MSC certified. The ISF is formed by 44 partners who are involved in catching, processing and sales of pelagic catches, all the activities carry out by the client group may be consulted in the ISF website ([www.icelandsustainable.is](http://www.icelandsustainable.is)) with a clear report of how it develop them and information regarding each company involved.

The client group listing is provided in section 6.

As required by MSC FCR 7.4.12.2, a certificate sharing commitment must be made by the applicant fishery. The Client Sharing Letter can be seen at:

<https://fisheries.msc.org/en/fisheries/isf-iceland-capelin/@@assessments>

### 3.1 Assessment process

The assessment followed set procedures as described in the MSC FCR V2.0. Key stages of the assessment were:

- **Stage 1: Fishery Announcement and Assessment Team Formation**
  - Stakeholder Notification: Fishery enters full assessment – 10<sup>th</sup> May 2016
  - Stakeholder Notification: Assessment team nominated – 10<sup>th</sup> May 2016
  - Stakeholder Notification: Fishery name change - 16<sup>th</sup> May 2016
- **Stage 2: Information gathering, stakeholder meetings and scoring**
  - Stakeholder Notification: Site Visit scheduled – 21<sup>st</sup> June 2016

- **Stage 3: Client and peer review**
  - Stakeholder Notification: Revised timeline – 5<sup>th</sup> December 2016
- **Stage 4: Public Comment Draft Report**
  - Stakeholder Notification: Amended PCDR – 22<sup>nd</sup> December 2016
  - Stakeholder Notification: Additional stakeholder consultation period–22<sup>nd</sup> December 2016
- **Stage 5: Certification decision- Final Report**
  - Stakeholder Notification: Final Report – 21<sup>st</sup> March 2017

The eligibility date should be defined following the MSC requirements and could be:

- a. The date of the certification of the fishery; or
- b. The date when the first Public Comment Draft Report is published.

Therefore for this fishery, the **Target Eligibility Date (TED)** is **December 1<sup>st</sup> 2016** when the PCDR was first posted on the MSC website.

## 3.2 ISF Capelin fishery key strengths and weaknesses

### Strengths

The Capelin Stock is well managed, it complies with the 3 principles of the FCR.

Principle 1: In the context of management objectives the Capelin stock has a precautionary long-term management plan in place. This implements appropriate reference points to manage the exploitation rate in the fishery.

The fishery management plan takes into account the uncertainty in the assessment model and the remaining 400,000 tonnes of spawner, in order for this to be a well-defined plan.

Principle 2: The fishery is not a risk to the habitat or ecosystem. Pelagic fisheries of Capelin, purse seine and midwater trawl are under evaluation and they operate without any contact with the seabed – thus reducing any likelihood of negative impact on benthic habitats. Non-target species are monitored by obligations to land all catches and can be regulated in any trawl and purse-seine vessel.

Principle 3: The management systems is clear and transparent, no conditions were opened regarding P3, the fisheries management process and system are appropriate to the fishery, these are accomplished to govern the level of fisheries exploitation in an informed and transparent manner, employing clearly defined decision-making process, which take account of the precautionary principle.

There is an appropriate level of enforcement and control in this fishery, the right level of confidence on the part of the authorities in the degree of compliance of the fleet with the fisheries regulations.

Iceland operates a highly transparent catch reporting system that is subject to verification by the Fisheries Directorate. All catches for all vessels are individually reported and catch data for all trips are publicly available on the Fiskistiofa (Fisheries Directorate) website where any stakeholder can consult the data by species, gears, years, etc. Therefore, the data is accessible, transparent and the regulation system is precise.

The fishery management is supported by a well-resourced and strong scientific capacity, which helps to enable management to make informed decisions.

#### Weaknesses

Overall, very few weaknesses have been identified in the fishery assessment and scores are generally high for all PIs.

For Icelandic Capelin, a weakness relating to Principle 1 was identified. The CAB recommended that predation by whale on capelin is included in the model to estimate the natural mortality and eliminating uncertainties in the predictive models.

Under Principle 2, the fishery scored adequately under all performance indicators. However, the fishery should be more proactive to obtain quantitative data of ETPs species and their interactions to meet SG 100. The interactions with humpback whales are known, the fishery should have more measures to report and identify the position of these interactions to collaborate with different research projects which are going on.

On the other hand, more effort to work closely investigation regarding the predation on capelin coming from seabird should be carried out. The consumption of pelagic fish from seabird and marine mammals must be taken into account the estimation models.

The only weakness the CAB identified in P3 was that management processes are not easily shared with all the stakeholders, although the systems are transparent, more effort needs to be made to allow stakeholders to access to the management system .

### **3.3 Assessment results**

A rigorous assessment against the MSC Principles and Criteria was undertaken by the assessment team and detailed, fully referenced scoring rationale is provided in Appendix 1 of this report.

The UoCs achieved the minimum required score of 80 or above on each of the three MSC Principles independently and did not score less than 60 against any Performance Indicator (PI). Final Principles scores are shown in the table below (Table 2).

**Table 2. Overall scoring in the three MSC principles**

Principle	Score	PASS/FAIL
Principle 1 – Target Species	87.5	PASS
Principle 2 – Ecosystem	92.3	PASS
Principle 3 – Management System	92.9	PASS

### **3.4 Conditions for continued certification and Recommendations**

No condition has been raised by the assessment team.

#### Recommendation 1:

##### **1.2.2. – Harvest Control Rules and tools**

There is a potential element of natural mortality which is not fully accounted in the stock assessment and management process. Marine mammal abundance and its coincidence with the seasonal migration and distribution of capelin should be further investigated in particular during the winter spawning migration of

capelin. Those investigations should include a thorough investigation of the level of dependence by whales on capelin as a source of food.

If appropriate the results should be incorporated into the existing predation model which currently only includes predation by cod, saithe and haddock. This investigation should provide a precautionary estimation of natural mortality and help to eliminate areas of uncertainty in the predictive models.

Recommendation 2:

**2.3.3. – ETP species information**

The assessment team found that the fishery does not have a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species. While there are no reports of direct mortality of whales due to the Capelin fleet, injuries by the gear are reported and several studies are carried out to know more about this (Barscan, 2014). Scientists at MFRI have provided comments that there is interaction with whales and Icelandic fisheries. There is a system for reporting interactions and this is reviewed in the scoring rationales for PI 2.5.3 ETP Information. The team is satisfied that the ETP outcomes achieves an 80 score but makes a recommendation to the client to support methods that promote proactive reporting of whale interactions specific to capelin. Regarding seabirds, research into the distribution of the breeding areas and the possible overlapping with the fishery could inform better of these species and support the development of the estimation models.

In support of this, methods to support proactive reporting all interactions, direct and indirect, with ETPs should be considered.

Recommendation 3:

**General recommendation on key LTL species and their relation with ETPs:**

Whilst the assessment modelling procedure on which the Harvest Control Rules are based does take into account the ‘main’ predators there are elements of known predation on capelin which are not fully considered in the management of this stock.

One element which should be considered within the model is the predation on capelin by seabirds. Organisations such as Birdlife International may have information which could be used in this way. For example, stomach contents analysis of the consumption of capelin by seabirds in the north of Iceland. This could be used together with their knowledge of seabird population numbers to estimate the likely take, and thus the ecosystem requirements of seabirds, of capelin. Investigation into the overlap of seabird populations with seasonal spatial distribution of capelin would also be useful. Where appropriate, these data could then be considered by the ICES assessment working group for incorporation into the current modelling procedure for cod, haddock and saithe. This would then add a further element of precaution into the annual TAC setting procedure.

The assessment team has documented these overall recommendations in principles 1 and principles 2.

Recommendation 4:

**General recommendation for the fishery regarding LTL species**

The client should liaise with Birdlife International and scientists at the Marine Research Institute in Reykjavik and encourage both parties to address this issue. They should ensure that predation on IGJM capelin by seabirds is properly quantified and if appropriate incorporated into the assessment modelling procedure on which the Harvest Control Rules are based.

### 3.5 Certification Recommendation

On completion of the scoring process, the assessment team has recommended that the ISF capelin fishery is eligible to be certified according to the MSC Principles and Criteria for Sustainable Fishing.

## 4 Description of the Fishery

### 4.1 Unit(s) of Assessment (UoA) and Scope of Certification Sought

#### 4.1.1 Eligibility for Certification against MSC Standard

The fishery is eligible for certification and able to be assessed within the scope of the MSC Principles and Criteria for Sustainable Fishing as:

- The target species is not an amphibian, reptile, bird or mammal.
- The fishery does not use explosive or poisons
- The fishery under assessment is not an enhanced fishery.
- The fishery under assessment is not an Introduced Species Based Fishery (ISBF)
- The fishery is not conducted under controversial unilateral exemption to an international agreement
- The client is not prosecute for violations of laws on forced labour
- There is a mechanism to resolve possible disputes
- No pre-assessment reports and other information regarding the certification
- Other fisheries certified in the area to harmonize with Capelin assessment
- Capelin is considered to be a “Key LTL species” following the criteria defined in the box SA1 of the FCR 2.0. The target species has been evaluated as LTL. The table 1.1.1A has been applied to score the P1 and more details regarding its role in the ecosystems as key LTL species are given herein (4.3.4-Key Lower Trophic Level Status)

#### 4.1.2 Unit of Assessment and Unit of Certification

The MSC guidance for FCR specifies that the Unit of Certification (UoC) is “The target stock or stocks (biologically distinct unit) combined with the fishing method/gear and practice (vessel(s) pursuing the stock and any fleets, groups of vessels, or individuals of other fishing operators”.

The Unit of Assessment (UoA) defines the full scope of what is being assessed and includes other eligible fishers.

Accordingly, the ISF capelin fishery under assessment is defined by two UoC and two UoA (Table 1).

#### 4.1.3 Total Allowable Catch (TAC) and Catch Data

The total allowable catches defined in this report are expressed in tonnes and the last recent report was published on May 19<sup>th</sup> 2016 for the season 2016/2017. The report where the TAC for 2015/2016 season was established was published one year before on May 19<sup>th</sup> 2015. The client group facilitated the data but these catches may be consulted in the Directorate of Fisheries (DoF) website by vessel and ICES reports on ICES Advice 2015 and 2016, books 2 in both of them. The general catches of the last two years are shown in the table 1.

**Table 3. TAC and Catch Data**

<b>TAC</b>	<b>Year</b>	<b>2016</b>	<b>Amount</b>	<b>171,100 tones</b>
<b>UoA share of TAC</b>	<b>Year</b>	<b>2016</b>	<b>Amount</b>	<b>171,100 tones</b>
<b>UoC share of total TAC</b>	<b>Year</b>	<b>2016</b>	<b>Amount</b>	<b>101,042 tones</b>
<b>Total green weight catch by UoC</b>	<b>Year (most recent)</b>	<b>2016</b>	<b>Total amount</b>	<b>101,042 tones</b>
	<b>Year (second most recent)</b>	<b>2015</b>	<b>Total amount</b>	<b>353,713 tones</b>



## 4.2 Overview of the fishery

To describe the fishery under evaluation, the assessment team described the main aspects of the target species, the history of the fishery and the main characteristics of the fishing operations.

### 4.2.1 Biology of the target species

The common name of the target species is Capelin in English and Loðna in Icelandic. From here on out the CAB will refer it as Capelin (Figure 1).

Capelin was original described by Muller in 1776 and was called *Mallotus villosus*. Two subspecies were described after the first description but nowadays both are accepted as *M. villosus* ([World register of Marine Species](http://www.fao.org/fishery/species/2126/en)).

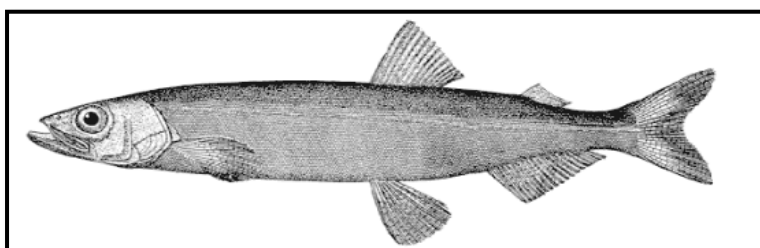


Figure 1. Capelin (*Mallotus villosus*, Muller 1776). Source : <http://www.fao.org/fishery/species/2126/en>

The capelin has the body elongate, somewhat compressed. Snout a little pointed, upper jaw reaching to about eye centre, lower jaw projecting; teeth on jaws small, vomerine teeth minute. Gillrakers 33-44 (48). Dorsal fin (with 10-14 rays) origin behind midpoint of body and about over pelvic fin bases, a low adipose fin behind it; pectoral finrays 16-21. Scales very small, cycloid, 170-220, lateral line complete and reaching to caudal peduncle; males develop a midlateral ridge of elongate scales along flanks at spawning time. Colour on the back, transparent olive to bottle green; below, the sides are silvery and the belly is silvery-white. The edges of the scales have dusky specks.

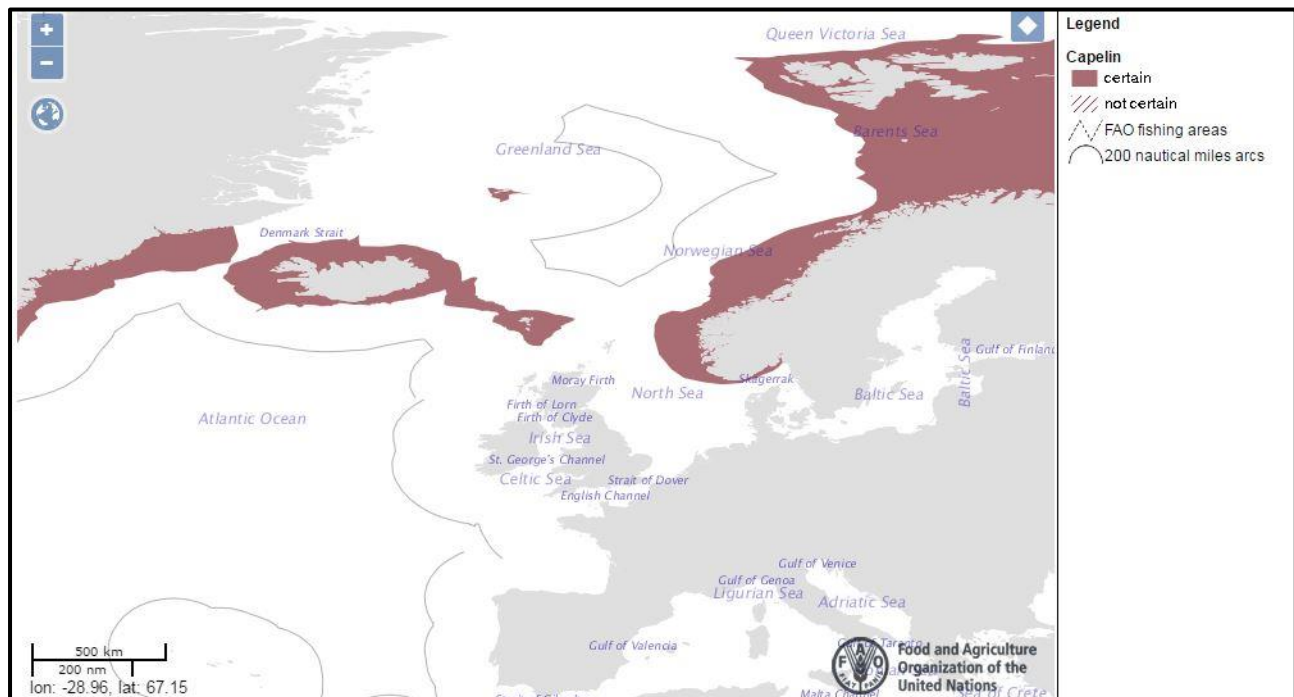
*M. villosus*, is easily distinguished from other osmerids by the high number of scales along the lateral line, 170 to 220, from all other except Thaleichthys by the numerous pectoral rays (16) 17 to 21, from all other except hypomesus olidus by the long adipose base, 1.5 or more times orbit; from all other by the small ninth pelvic ray. Other species (*Osmerus eperlanus* and *Osmerus mordax*) because these have the incomplete lateral line. The capelin is rare to exceedingly abundant with strong seasonal and annual fluctuations and it is vital to many food-chains in the Arctic (FAO-Species).

The capelin is possibly the most ecologically important fish in Icelandic waters. It is a small pelagic fish, usually between 15 and 18 cm in catches and has a very short life cycle. Capelin size is normally up to maximum size of 23 cm. Males are slightly larger than females in each year class.

It spawns in late winter along the south and southwest coast of Iceland at ocean temperatures of 4°-7°C. The eggs and larvae drift north to the continental shelf of North Iceland or Greenland. It gradually migrates further north as it grows and spends the time before maturity feeding in the Iceland Sea on zooplankton, mainly copepods. Maturity is usually reached at the age of 3, but some become mature one year earlier or later. At this time they condense into large schools and migrate around Iceland, usually clockwise to the spawning grounds in the south. During these migrations the capelin becomes the main food of many species in Icelandic waters, most importantly the cod. Spawning takes place in very shallow waters and is a very

intense behaviour. After spawning all the males and most of the females die. Capelin rarely live longer than five years.

Its distribution is mainly in cold waters (Figure 2). Except for the need to spawn in relatively warm waters. It is found in the North Atlantic from Newfoundland and Greenland in the west to the Barents Sea and along northern Russia in the east. It also occurs in the North Pacific.



**Figure 2.** Distribution of Capelin. Different colours show the abundance in the different areas of Iceland. (Source: FAO).

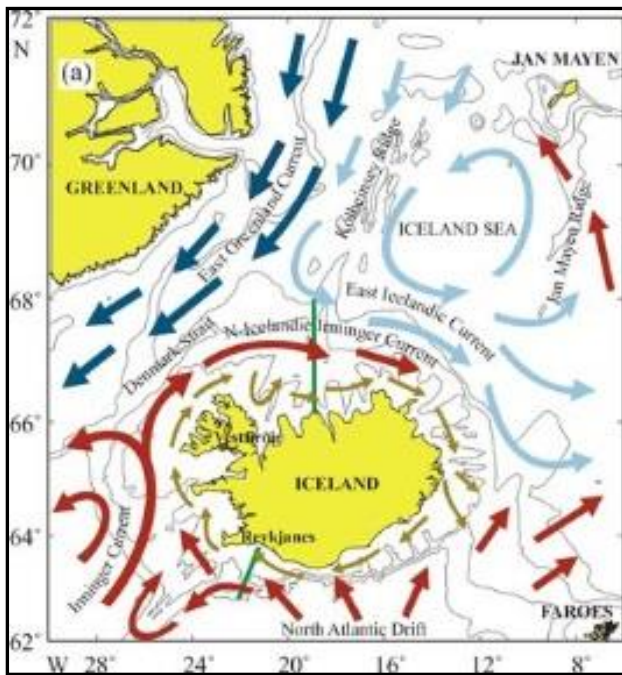
Capelin has a key role in the food chain between animal plankton and larger fish. Most groundfish species, feed on capelin at some stage in their life and it is estimated that capelin may be 40% of the total food of cod. Capelin is an important prey for other ETPs species such as whales, black legged kittiwake and Atlantic puffin. As the stock of capelin migrates to the southwest coast of Iceland in March for spawning it meets a large number of cod, ready for the feast.

Capelin habitat is considered marine, littoral to neritic and epibenthic fishing banks down to 300 m. They feed almost exclusively on small planktonic crustaceans (euphausiid shrimps as well as various isopod, gammarid and copepod).

#### 4.2.2 Fishing area

The fishing areas are defined by the hydrography of the waters surrounding Iceland and of those between Iceland, East Greenland, and the island of Jan Mayen. These characteristics have been described by many authors (Stefánsson 1962; Stefánsson and Ólafsson 1991; Malmberg 1972, 1984). Atlantic water (Irminger Current branching from the Gulf Stream) of relatively high temperature and salinity predominates off the south and west coasts. Off Northwest Iceland, the Irminger Current splits into two branches; the larger branch flowing west towards Greenland, while the smaller branch, the North Icelandic Irminger Current, flows eastwards onto the shelf north and east of Iceland. A coastal current, essentially driven by gravity forces resulting from land run-off, runs clockwise round Iceland (Vilhjálmsen et al. 2010).

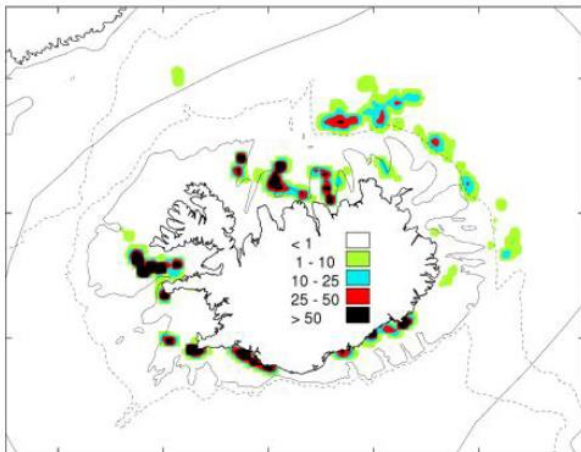
The oceanographic conditions and currents around Iceland provide the basis for the principal stock characteristics of the Icelandic capelin, including the distinctive migratory pattern. The Icelandic capelin spawn in March/early April in the warm Atlantic waters off South and West Iceland, mostly within a depth range of 10-150 m. After spawning, the larvae hatch in about three weeks, where after they drift with the surface currents in a clockwise direction to the shelf area north and east of Iceland, and to a varying extent across the northern Irminger Sea and the southern Denmark Strait to the East Greenland plateau. The map (Figure 3) below shows the patterns of the currents and their relation with the capelin migrations.



**Figure 3. Distribution and currents patterns in the study area. Red arrows-spawning areas; soft blue-feeding migration and juvenile distribution; dark blue-return of migration. Source: Vilhjálmsson 2002**

Maturing capelin aged two and three (spawning at ages three and four during the following year) usually undertake extensive northward feeding migrations into the Iceland Sea in spring and summer as shown in the figure 3. The return migration takes place in September-November. By late November/early December, this capelin have usually assembled near the shelf edge off Northwest, North, and Northeast Iceland, from where the spawning migration starts in December/January. In most years, the spawners follow a clockwise direction along the warm/cold water boundary near the shelf break north and east of Iceland, entering the warm Atlantic waters off the eastern south coast. The first spawning migration then continues west along the coast to the main spawning grounds off Southwest Iceland. Late arrivals usually spawn off the central and eastern south coast (Vilhjálmsson et al. 2010).

These migrations define the fishing grounds and which area must be protected due to the presence of juvenile specimens. Some of the measures established to keep the stock status above the Blim are relational with these migrations, for example in areas of Northwest and Northeast, the vessels targeting Capelin have on board inspections to control the population of juveniles. Then, the studies regarding the biology of the target species and how is affected by environmental conditions are relevant to manage the fishing grounds (Figure 4).



**Figure 4. Fishing grounds in the season of 2014/15. Data expressed in tonnes/nm<sup>2</sup>. Dark areas indicate highest catches. Source: Marine Research Institute (MFRI).**

#### 4.2.3 History of the fishery

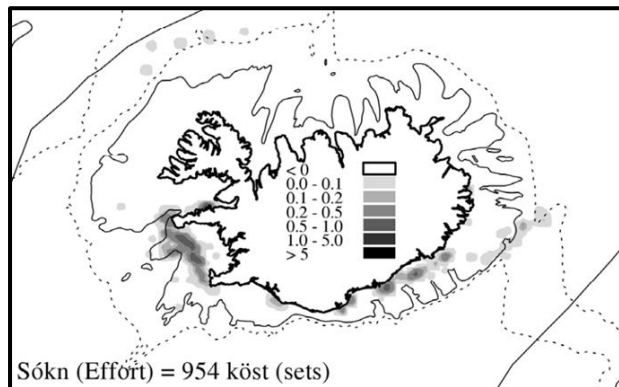
In the mid-1960s, the Icelandic capelin stock became the target of a purse-seine fishery that quickly developed into a large-scale operation. During its first eight years, this fishery was conducted in February and March on schools of pre-spawning fish, on or close to the spawning grounds nearshore south and west of Iceland, and the catch gradually increased from about 10,000 t in 1964 to 275,000 t in 1972. Then, in January 1973, a successful capelin fishery was initiated in deep water near the shelf break east of Iceland. This brought the total winter catch to some 450,000 t, i.e. close to the processing capacity of the land-based reduction plants at that time.

In July 1976, a summer capelin fishery began in the southern Iceland Sea. This fishery soon became multinational, with participation by Icelandic, Norwegian, Faroese, and Danish vessels. The seasonal (July–March) catch increased rapidly and reached almost 1,200,000 t in the 1978/1979 season. Since then, the seasonal catch has varied between about 700,000 and 1,600,000 t, depending on the success of the summer/autumn fishery. Exceptions are periods of low stock size, when the winter catch has been restricted or the fishery closed altogether. The total catch of Icelandic capelin is distributed over fishing season (summer/autumn and following winter until spawning). The catches of the fishery will be explained later.

Nowadays the fishery is carried out by purse seine and pelagic trawl. Most of the newest boats in the pelagic fleet are within the categories of vessels between 501 – 1,000 GT and 1,001 GT and larger. These use, in roughly equal amounts, purse seines and midwater trawls, depending on the species and season. These boats are much more powerful than the older purse seiners and have the advantage that they can also target blue whiting, Atlanto-Scandian herring and mackerel with midwater trawl. These newer boats are also equipped with cooling equipment that keeps the catch fresh for longer. This development towards larger and more powerful pelagic vessels began in the 1990's and is ongoing. The category of vessels 501 – 1999 GT also contains some new, very large deepwater longliners. As opposed to the intermediate sized boats, the main operators of these very large vessels are from north-eastern and eastern Iceland. This has historical and biological roots, as the intermediate boats are best suited for the spawning fisheries for cod, mostly conducted off the southwest coasts, whereas the larger vessels are best suited to fish the pelagic species, herring and capelin. The main fishing grounds for these are off the north and east coast.

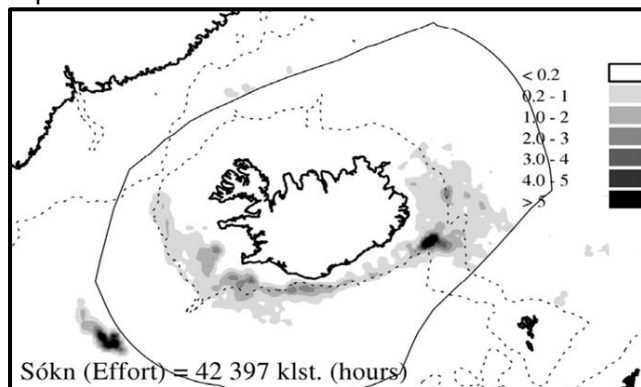
Purse seines are used by large decked vessels, some of which are of similar size to large trawlers. The current two main types of purse seines are the herring and capelin seines. The main difference is the mesh size, which is 31, 4 mm in herring seines and 21, 0 mm in capelin seines.

The effort to fish Capelin with purse-seine in Iceland is shown in the Figure 5.



**Figure 5. Location of effort with purse seines dark areas indicate highest effort. Source: MFRI**

Midwater or Pelagic trawls are the principal fishing gear used in oceanic redfish and blue whiting fisheries, but in the last years, they are also increasingly used alongside purse seines for capelin. It operates without touching the bottom and is frequently trawled at depths of a few hundred metres. The trawls used for capelin are of the same construction but have a smaller mesh size, 21 mm for capelin.



**Figure 6. Location of effort with midwater trawl in 2011 (hours trawling), dark areas indicate highest effort. Source: MFRI**

Currently the fishery is managed by Individual Transferable Quotas (ITQs). An individual vessel-quota system was introduced in the capelin fishery in 1980. In 1986, the quotas were made transferable. In 1990, the capelin management system was incorporated in the fleet. IQs were issued for this fishery in 1996. The Ministry of Fisheries has declared open access for all licensed vessels in this fishery in 1997, a decision that the Association of Vessel owners has protested, since they prefer ITQs. The capelin is a short-lived species and the fishery is very volatile. Since the introduction of the vessel-quota system in 1980 there has been no trend in catch levels, though mean catches have remained roughly unchanged. The capelin fleet, on the other hand, has been substantially reduced: the number of vessels has declined from 68 in 1979 to 44 in 1996, or by more than 30 percent, and the number of vessels is expected to decrease further this year.

Part of the capelin stock migrates seasonally into the jurisdiction of the Greenland and Norwegian fisheries. The capelin is therefore a shared stock, but, through an agreement with these two countries, Iceland determines the annual TAC to be shared between the three countries. There are strong indications that the efficiency of the capelin fishery has increased substantially since the introduction of the vessel-quota system. Catches and fishing season.



After the collapse of the herring stocks, the Icelandic pelagic fleet switch to capelin, which had been virtually ignored before. The capelin fishery was the most important pelagic fishery until 2004 when the value of herring catches again surpassed the capelin. However, these are mostly the same boats fishing all the pelagic species with purse seines or more recently pelagic trawls.

The capelin stock has often sustained a catch of more than 1 million t annually since 1978, often as much catch as all other species combined. The highest catches were in 1996 and 1997, about 1.5 million tonnes. The stock migrates to Greenlandic and Norwegian waters close to Jan Mayen, and therefore it is managed by agreement between these nations. Commonly there are two fishing seasons; the main winter season in January-April, fishing mainly 3-4 year old capelin and the summer season in the second half of the year for 2-3 year old capelin. The majority of the catch has been from the winter season in the past few years.

The trends in capelin catches are shown in the Figure 11. It shows the catches decreased sequentially until in 2009 the lowest catches were registered. A better management of the fishery and rebuilding plan made that the stock increased. Last year 2016 the TAC was 173,000, lowest quota since 2009 when the fishing was closed. It was due to the precautionary approach followed by ICES and Icelandic fisheries regulations. In last report carried by ICES in 2016 an initial quota of zero was established for the fishing season 2016/2017. The next survey in autumn or winter will establish the final TAC for next fishing season in 2017.

#### **4.2.4 Market information**

Historically the uses of Capelin fish were fish oil or fishmeal. ISF Iceland Fisheries who is under assessment in this report has different uses for capelin but normally is exported to several countries where the applications of this pelagic fish are different.

In 2013 most of the countries used up the Capelin to process it in fishmeal. Normally, the catches are exported being the most imported country in 2013 in fishmeal Morocco and Denmark and Frozen WR Portugal and Taiwan, respectively. In 2014 Morocco and Portugal kept their imported products.

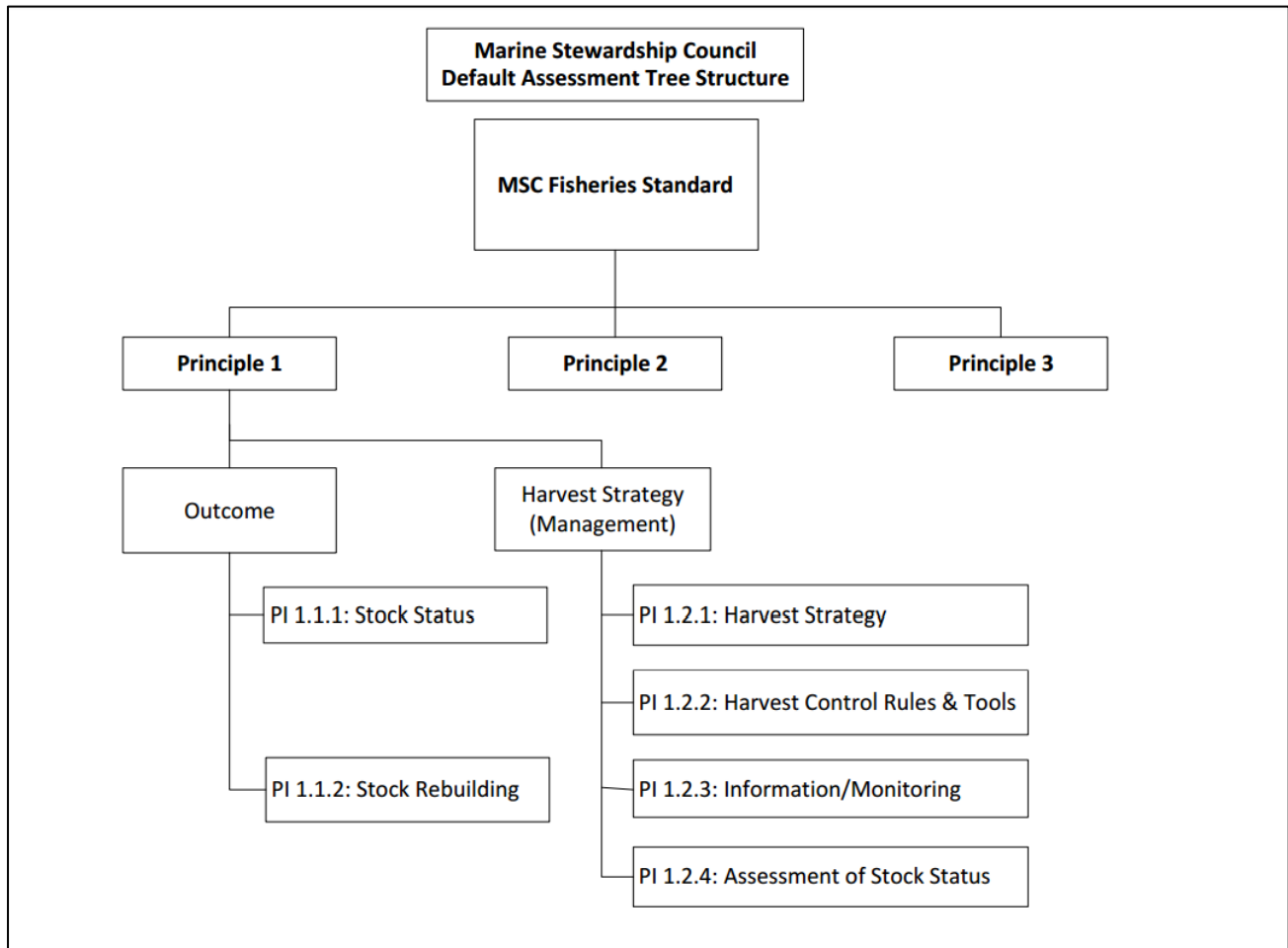
When the quota is low the market is focused on production of roe and whole frozen, for better utilization of this product and sell to the most important market in Japan and get as much as possible economic benefit of the total catches per year.

### **4.3 Principle One: Target Species Background**

Principle 1 of the Marine Stewardship Council standard states that:

*“A fishery must be conducted in a manner that does not lead to over fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery”*

Under P1 the CAB has described some aspects of the fishery that are divided into several sections (Figure 7). The chart below shows the PIs evaluated in the fishery under P1 and makes easier the understanding of this principle.



**Figure 7. Principle 1 Default Tree Structure. Performance indicators to evaluate under this principle. Source: MSC FCRV2.0**

To evaluate the PIs regarding P1 with the default tree is relevant to access to the stock assessment data. The stock status of Capelin is carried out by WKICE (ICES). The capelin stock in Iceland-East Greenland-Jan Mayen area has been assessed by acoustics annually since 1978. The surveys have taken place in autumn (September–December) and in winter (January–February).

In the last stock assessment the methodology was as it is described in the NWWG Report 2016. Two autumn surveys were conducted in 2015 with the aim of assessing both the immature and the maturing part of the stock. Since 2010 the autumn surveys have started in September, a month earlier than in previous years.

The survey area was on and along the shelf edge off East Greenland from about 73°30'N to about 65°30'N and between 16° and 30°W including the Greenland Strait and the slope off western and north Iceland to about 16°W (Bardarson and Jonsson, 2016a). Weather conditions during the survey were adverse but for the first few days and the survey had to be discontinued several times because of storms. Furthermore, drift ice in the northern part of the surveyed area (north of 72°N) restricted the coverage in that region. Both the drift ice and storms delayed the progress of the cruise. Immature capelin was found in unusually small numbers (6.2 billion) mainly in the southwestern part of the surveyed area. Further north along the Greenland shelf up to 73°N older, maturing capelin predominated. No capelin was recorded off N-Iceland east of 21° W. The distribution of the capelin was very westerly both for the 1-group and older capelin as it was in recent years (2010–2014) while unlike 2014 now no capelin was recorded in the more traditional areas north of Iceland. In

this survey around 550 thousand tonnes of mature capelin were estimated. The estimates of both mature and immature capelin are considered to be minimum estimates (likely underestimates) because the survey did not reach the edge of their respective distributions. The edge of the mature capelin stock was not reached towards north and west, and the edge of the immature part of the stock was not reached towards west and south. On the basis of the estimate of the maturing part of the stock the Marine Research Institute recommended an intermediate TAC of 44 thousand t for the fishing season 2015/2016. This recommendation was in accordance with existing HCR and management plan between Iceland, Norway and Greenland.

The second survey in autumn was not used for TAC advice, given the limitations of coverage due to weather and ice conditions this survey estimate. In the winter survey, as the autumn survey used for calculating the intermediate TAC had limited coverage of the maturing stock the final TAC was based only on this winter survey. On the basis of this estimate of the mature stock and catch taken between autumn and winter survey the Marine Research Institute recommended a TAC of 173,300t for the fishing season 2015/2016. This recommendation was in accordance with existing HCR established by WKICE (ICES, 2015). As it happened in autumn the second survey in winter was not used for TAC advice due to limitations weather.

The objective of the HCR for the stock is to leave at least 150,000 tonnes (=Blim) for spawning (escapement strategy). The initial (preliminary), intermediate and final TACs are based on acoustic surveys. a) The initial TAC for the coming fishing season is advised in May based autumn survey abundance estimate of immature 1 and 2 year old capelin. b) The intermediate TAC is advised in autumn based on the biomass estimate of maturing capelin. c) The final TAC is advised in January/February based on the biomass estimate of maturing capelin. The initial (preliminary) quota follows a simple forecast that is based on the relation between historic observations of age 1 and 2 juvenile abundance from the acoustic autumn surveys and the corresponding final TACs nearly 1½ year later. This was done in ICES NWWG 2016 to set the initial quota for the fishing season 2016/17. The intermediate and final TACs are set so that there is at least 95 % probability that there will be 150,000 tonnes (=Blim) of mature capelin left for spawning at the spawning time (15 march). Previously, (since early 1980s) the stock has been managed according to an escapement strategy, leaving 400 thousand t to spawning (uncertainty of the estimates were not considered).

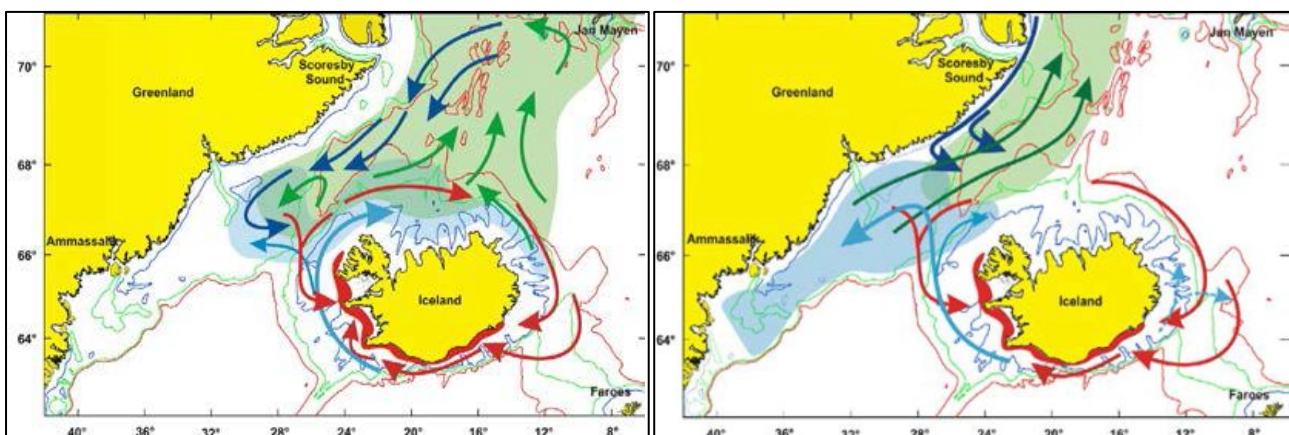
Large knowledge about Capelin fishery are needed to carried out the stock assessment for these reason the biology of this species between others is known in depth. As the CAB briefly mentioned, the Capelin is described as a small pelagic, cold water schooling species that inhabits Arctic and subarctic waters in the North Atlantic and North Pacific. They live by day at depths down to 150m moving close to the surface at night. They are plankton feeders mainly foraging on euphausiids, copepods and other planktonic crustacea all providing a rich source of oil. They thus form a rich and important part of the diet of many piscivorous fish, cetaceans and birds. They are the main single item in the diet of Icelandic cod (Vilhjálmsón, 2002). A symposium was held in Reykjavik, Iceland in 2001 titled 'Capelin 'What are they good for?'. This has provided an excellent overview of the biology, management, and the ecological role of capelin (Carscadden and Vilhjálmsson 2002).

Capelin migrations are complex and have changed significantly since the early 2000s. The migration routes, spawning, feeding and overwintering areas are well described and presented pictorially by Carscadden et al. (2013) and reproduced in Figure 8 below. Maturing capelin around Iceland make extensive feeding migrations northwards in spring and summer returning southwards between September and November.

The observed shift in distribution and migration patterns in the early 2000s took place during a period of environmental changes observed since the mid-1990s (Carscadden et al. 2001). Temperature and salinity both increased during that period southwest of Iceland, with a temperature increase of one degree or more (Hafro, 2014).



Capelin becomes sexually mature at 2 to 4 years old at a length of 15-20cm for males and 13-17cm for females living to a maximum of 6 years old. The majority of each year class spawns at age 3 years, the remainder in the following year. They are demersal spawners depositing their adhesive eggs on fine gravel at depths ranging from 10 to 150m in the Iceland area (Vilhjálmsón, 1994). Some spawning may occur in sand furrows in shallow water (Muus and Dahlstrom, 1974). They tend to move in large shoals from the north of Iceland to spawn in the main spawning areas off the southeast, south and west coasts of Iceland. They also spawn in other areas such as off the North coast but these areas are less important (Figure 8). Spawning begins in January, at temperatures of 2-40 C, peaking in March in the main spawning areas but as late as April in other areas. Capelin produce between 8,000 and 12,000 eggs per female. After fertilisation all the males die but a small proportion of females do survive to spawn again the following year (Carscadden and Vilhjálmsón, 2002). The eggs hatch in about four weeks dependent on temperature and the planktonic larvae, about 4-5mm in length, are then subjected to the residual drift which carries them to the extensive nursery areas north, northeast and northwest of Iceland and on the East Greenland plateau (Figure 8).



**Figure 8. Changes in the seasonal distribution and migration of IGJM capelin. Historical until early 2000s (left) and since early 2000s (right). Red areas: spawning grounds. Blue areas: Nursery areas. Green area: Feeding area for the maturing capelin. Green arrows indicate the adult feeding migrations, blue arrows indicate return migration from feeding areas to overwintering areas, and red arrows indicate the spawning migrations (From Carscadden et al., 2013).**

These patterns affect the results that the scientists have found in the different surveys carried out during autumn and winter every year since 1980.

#### 4.3.1 Stock Structure

Capelin is a cold-water pelagic species widely distributed in the arctic and subarctic waters of the North Atlantic and North Pacific Oceans. The capelin, which are subject to this assessment, occur in the Iceland and Faroes Grounds, East Greenland, Jan Mayen areas and are considered to be a separate stock, the IGJM capelin stock. The stock is confined to ICES Subareas V and XIV and Division IIa west of 5°W.

The stock is shared between Iceland, Norway and Greenland according to a management plan agreed by the parties in 2003. The Faroe Islands participates in the fishery through an annual bilateral agreement with Iceland and the EU participates in the fishery through an annual bilateral agreement with Greenland. The vast majority of catches are landed at Icelandic harbours; however in some years capelin might also be landed in Norwegian or EU harbours (ICES, 2015b).

#### 4.3.2 Stock Status

##### 4.3.2.1 Spawning stock biomass

The annual fluctuations in SSB over the period 1979 to 2016 are shown in Figure 9. The current biomass limit level of 150,000t is also shown. Over that time series the SSB has only fallen below  $B_{lim}$  in the 1981/82 season and in the 1989/90 season. Since then it has consistently been more than two times  $B_{lim}$ , frequently more than three times and reaching more than five times  $B_{lim}$  in the 1995/96 season.

The 2016 ICES stock assessment and advice (ICES, 2016a) indicates a spawning stock biomass at spawning time (March/April) 2016 of 304,000t. This provides a greater than 95% probability that the SSB is above the biomass limit level of 150,000t. The 2016 estimate of SSB cannot be directly compared with previous estimates. This is because the method to estimate natural mortality, in the 2016 assessment process, has been revised to take into account predator abundance but the historic time series has not been revised using the new method and the biomass limit level has not been re-visited. Natural mortality is now set at 0.315.

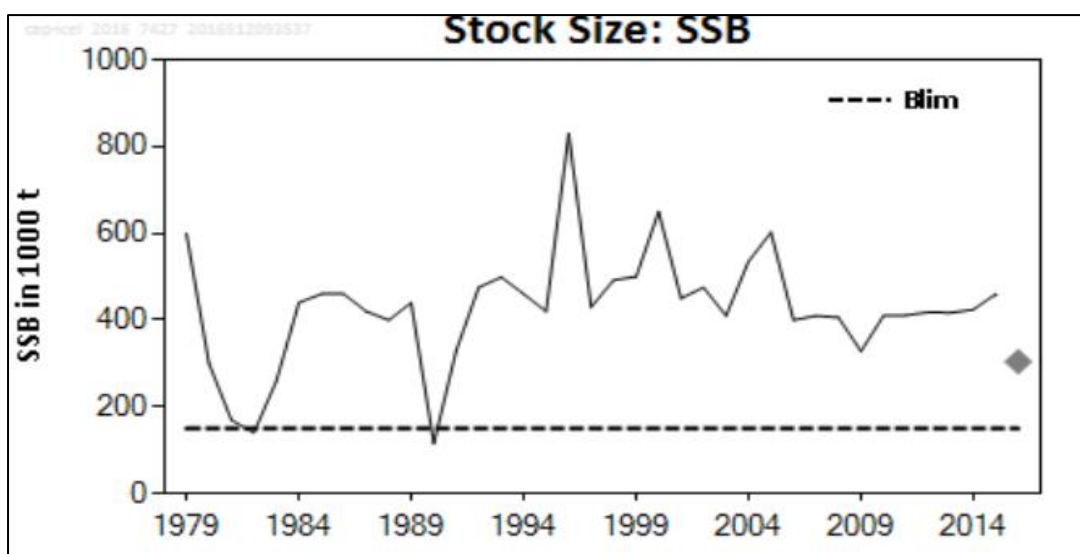


Figure 9. The Spawning stock biomass of Capelin in subareas V and XIV and Division IIa, West of 5°W. As noted in the text above the 2016 estimate of SSB (Diamond mark) is not directly comparable to the historic time series or to  $B_{lim}$  because it is based on different assumptions about natural mortality. (ICES, 2016a).

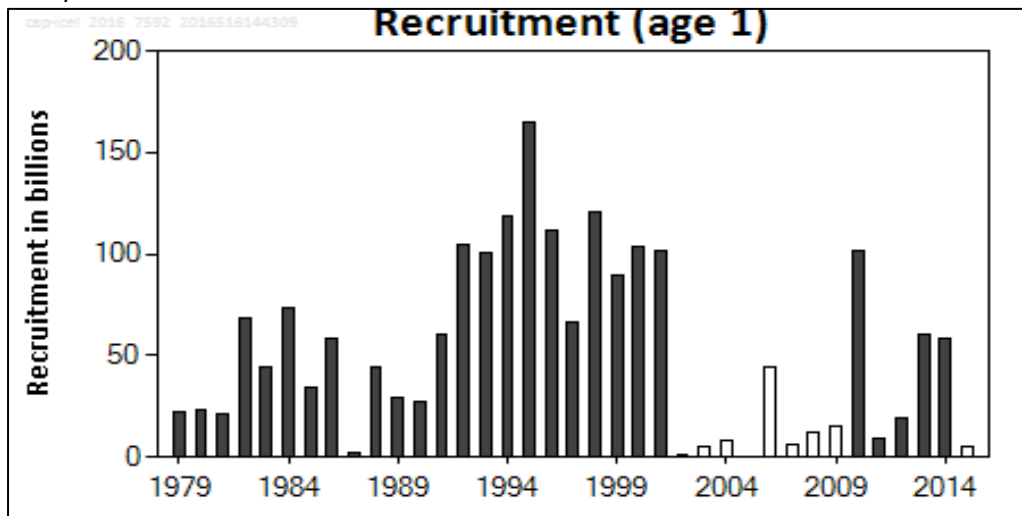
##### 4.3.2.2 Fishing mortality

The basic biology of this short-lived species, the nature of the fishery and the management, based on an escapement strategy to leave a minimum of 150,000t for spawning, means that the estimation of fishing mortality becomes irrelevant. The fishing mortality parameter is not required for the management of this stock which takes piscivorous predation into account via a predation model.

##### 4.3.2.3 Recruitment

The annual estimation of recruitment at age 1 year is now an integral and important part of the management strategy for this stock. The estimation is based on a series of autumn acoustic surveys which have a time series dating back to 1979. The autumn surveys have been carried out in late autumn (October to December) from 1978 to 2009 and in early autumn (September to October) since 2010. A detailed overview of the surveys can be found in the stock annexe of the ICES assessment working group report (ICES 2015b). The autumn surveys also measure the mature part of the stock.

Figure 10 shows the annual recruitment of capelin at age 1 in the IGJM stock over the period 1979 to 2015. This clearly shows the high variability of recruitment with a period of relatively high recruitment between 1991 and 2001. This period led to spawning biomass being maintained at over 400,000t and up to 830,000t in 1995/96.



**Figure 10. Annual recruitment as billions of 1 year old capelin from the autumn surveys acoustic index (the hollow bars indicate incomplete spatial coverage resulting in a potential underestimation of recruitment (ICES, 2016a).**

#### 4.3.2.4 Catch and Landings

Information about landings in the fishery is collected by the Icelandic Directorate of Fisheries which has access to both landing figures in the Icelandic ports (the official landings) and the recorded catch in the digital logbook kept by all Icelandic vessels. (ICES, 2015b).

The Icelandic legislation allows for slipping in those cases where the catches are beyond the carrying capacity of the vessel and none of the nearby vessels are able to take the surplus quantity on board. The practice of transferring catches from the purse-seine of one vessel to another vessel is a long-standing tradition in Iceland, and since skippers of purse-seine vessels generally operate in groups due to the behaviour of the fish, discards are practically zero. In the pelagic trawl fishery, such large catches of capelin rarely occur (ICES, 2015b). As a consequence the landings figures are considered by the ICES assessment working group to be a fair reflection of the actual catch.

Figure 11 shows the ICES estimate of landings over the period 1979 to 2015 (ICES, 2016a). The landings are assessed on the basis of fishing season which extends from July to March of the following year. The biology of this short lived species means that the annual pattern of landings is clearly and inevitably related to the pattern of recruitment shown in Figure 10 above. The ICES benchmark workshop on Icelandic stocks, WKICE (ICES, 2015a) and the ICES assessment working group report stock annexe (ICES, 2015b) show the catch of capelin from the IGJM stock from the 1964/65 to 2013/14 by fishing years .

Figure 12 shows the landings in the winter fishing season of 2015 by each of the four participating countries with Iceland taking 75% of the total catch of 471,900t. A total of only 45500t was taken in the previous autumn fishery. For the fishing season 2015/2016 an initial quota of 54,000t was advised, the intermediate TAC was 44,000t (Gudmundsdottir et al. 2016) and the final TAC was set to 173,300t (Bardarson et al. 2016). The landings were 174,000t.

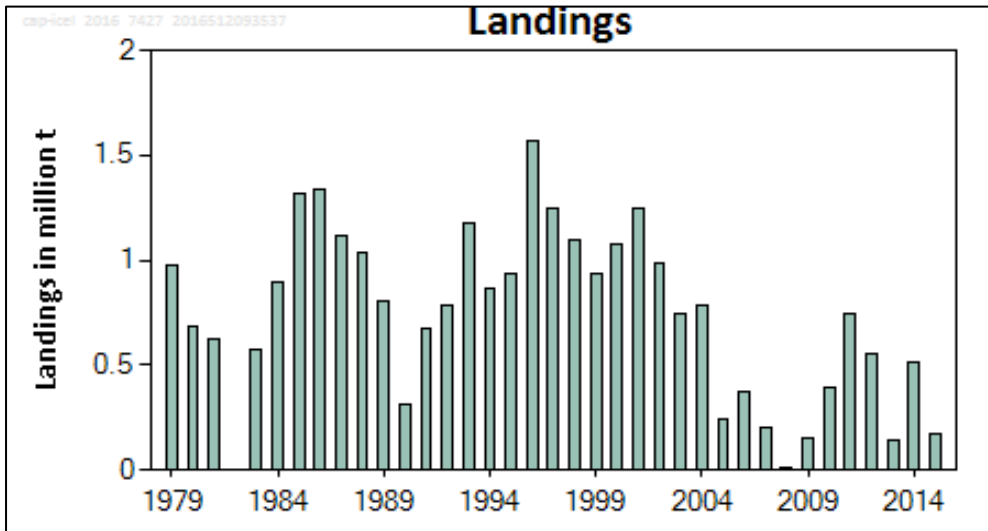


Figure 11. Landings of Capelin, in millions of tonnes, from subareas V and XIV and Division IIa.West of 5°W by fishing season - July to March of the following year, over the period 1979 to March 2016. The final figure for 2015/16 fishing season (174,000t) is provisional. (ICES, 2016a).

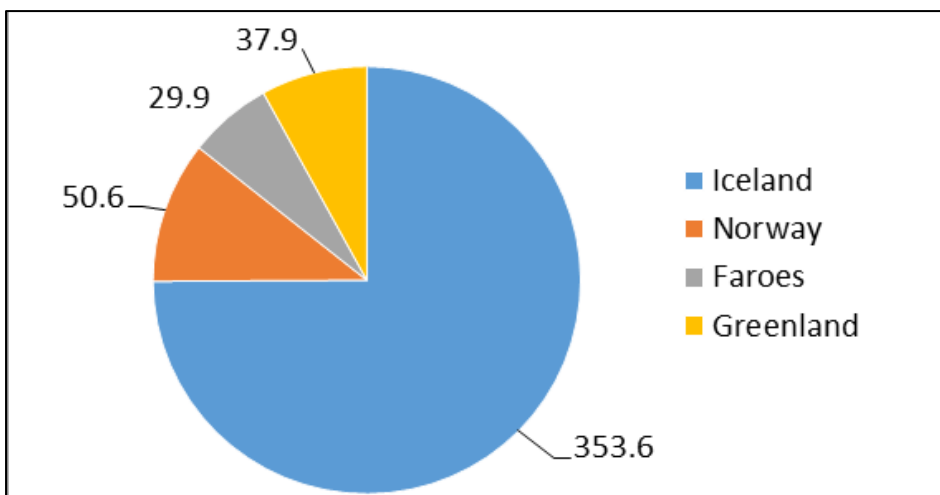


Figure 12. National landings of Capelin, in thousands of tonnes of tonnes, from subareas V and XIV and Division IIa.West of 5°W in the winter fishing season of 2015 (ICES, 2016a).

#### 4.3.2.5 Biological Reference points

Since 1979 a Biomass escapement reference point of 400,000t has been used for the management of this stock. A biomass limit reference point had not been set. In 2015 the Benchmark Workshop on Icelandic stocks, WKICE (ICES, 2015a) defined a biomass limit reference point of 150,000 t. This new reference point is based on  $B_{loss}$ , based on observations that the recruitments generated around  $B_{loss}$  (cohorts: 1981, 1982 and 1990) were of average strength and that average recruitment did not appear to decline at low SSB over the observed range (ICES, 2015a). The suggestion of the Benchmark Workshop, of  $B_{lim}$  at 150,000t, is now established as the only biological reference point for this stock.

### 4.3.3 Harvest Strategy and Harvest Control Rules

#### 4.3.3.1 Harvest strategy

The more familiar fishing mortality based harvest strategy is inappropriate for this type of fishery harvesting a short lived species with a vital ecosystem role as an important forage species. For IGJM capelin the most important element underpinning the harvest strategy is to leave enough mature fish to ensure adequate

recruitment levels for subsequent years. The strategy has to take into account not only the impact of the fishery but also predation on all age groups. This is achieved by the use of a complex model to estimate the requirements of the three main demersal predators on capelin; cod, haddock and saithe. The model is described in detail in the stock annexe to the 2015 ICES assessment working group report (ICES, 2015b) and summarised in the section on the key lower trophic level status of capelin, below.

The series of important milestones linked to the life history, which underpin the harvest strategy, are detailed in the ICES Benchmark Workshop Report, WKICE (ICES, 2015a) and summarised below.

a) Following a cohort:

- Year 0: March /April Spawning and hatching from demersal eggs
- Year 1: Measured as immatures in the autumn surveys.
- Year 2: In summer the bulk of the cohort is still immature but starting to mature. The feeding migration begins. In the autumn the majority of the cohort is mature and measured in the September to October surveys. Some of the cohort may still be immature (delayed spawners)
- Year 3: During the winter the bulk of the cohort migrate to spawn. The January to February surveys are used to measure the size of the spawning cohort on which the final TAC is based. In March/April this cohort spawns with a subsequent high natural mortality during which all the spent males and most of the spent females die. The autumn survey measures the remains of that cohort which did not spawn.
- Year 4: The winter surveys measures the rest of the cohort when migrating to the spawning grounds. The remains of the cohort spawn and die.

b) The Acoustic Surveys

- Autumn acoustic surveys (year 1) September to October measures the ages 1-3 year olds. The mature element is used to revise the TAC for the current year and the winter of following year (Fishing season year 1 / yr+1). The immature element is used to set a preliminary TAC for the following year (fishing season years +1 / +2).
- Winter acoustic surveys from January to February (year +1) measures ages 3-4 year olds. Used to revise the current year TAC (Fishing season year 1 / yr+1).
- Autumn acoustic surveys (Year +1) September – October measures 1-3 year olds. The mature element is used to revise the TAC for the year +1 and the winter of following year (year +2) – fishing seasons year +1 and year +2. The immature element is used to set a preliminary TAC for year +2 and year +3 (fishing season years +2 / +3).

The timing and selection of the fishery that leads to the maximum yield (MSY) has not been estimated for IGJM capelin. In the Barents Sea, it has been suggested that MSY from the capelin fishery would be obtained by fishing in autumn; however, a later opening of the fisheries (January 1<sup>st</sup>) would preserve more capelin for the predators (Hamre and Tjelmeland, 1982; Gjøsæter et al. 2002).

#### 4.3.3.2 Harvest control rules

The objective of the harvest control rule for the stock is to set a final TAC which ensures, with a 95% probability, that a minimum of 150,000t ( $=B_{lim}$ ) remains for spawning (escapement strategy). This is achieved by a series of acoustic surveys from September through to February and a three stage process in finalising a seasonal TAC (described above). The quantity available for the fishery also has to take the quantity removed by predators.

- The initial TAC for the coming fishing season is advised in May, based on the autumn survey abundance estimate of immature 1 and 2 year old capelin.

- The intermediate TAC is advised in autumn based on the biomass estimate of maturing capelin.
- The final TAC is advised in January/February based on the biomass estimate of maturing capelin.

A new methodology for setting a preliminary TAC was developed by the benchmark workshop, WKICE (ICES, 2015a) in 2015 to replace a method which had remained unchanged since the 1990s. The new stochastic (random processes with probability) harvest control rule also covers the intermediate and final TACs which was adapted from the HCR for Barents Sea capelin.

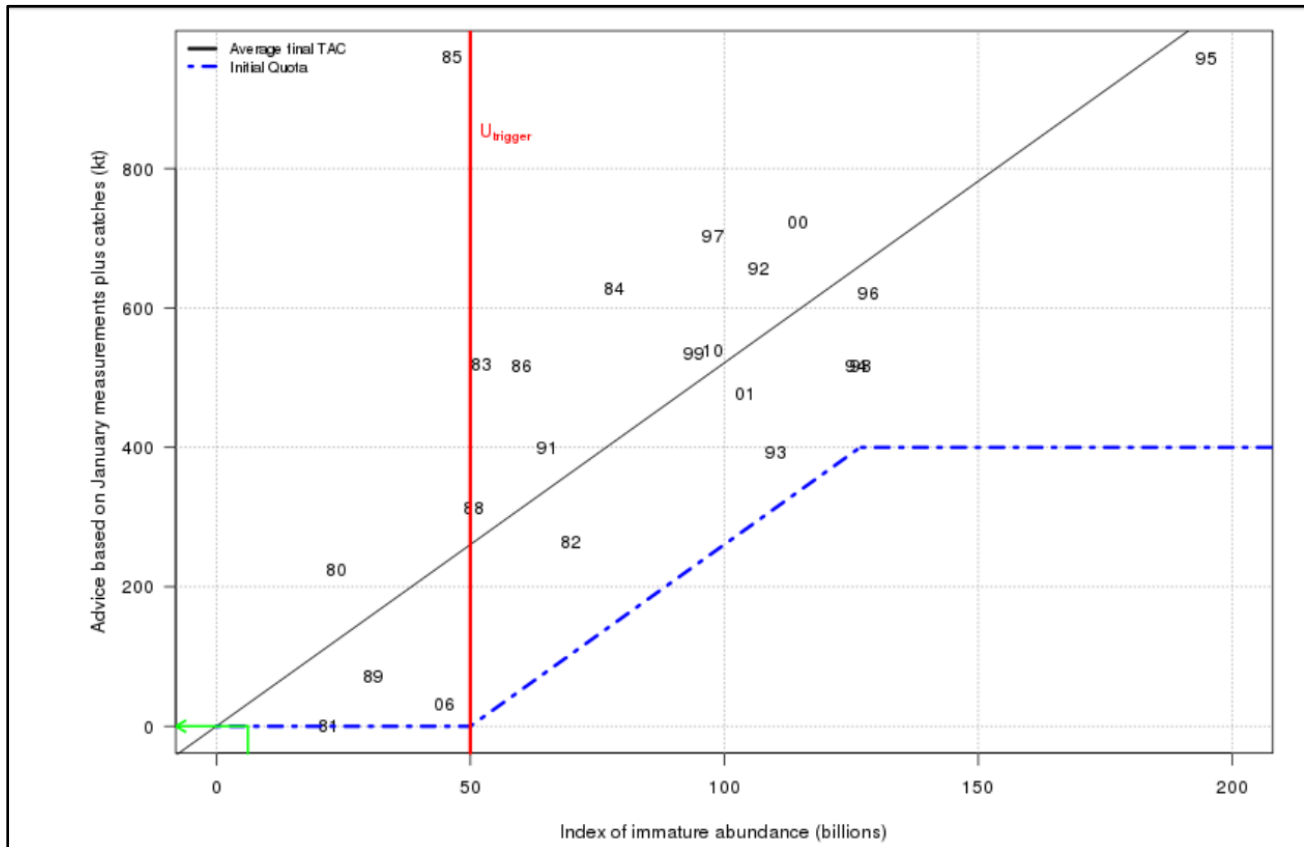
The method for setting the preliminary TAC is detailed in Figure 13 below. This is a regression of immature (1-2yrs old) capelin abundance as measured on the autumn acoustic surveys, against a precautionary fishable biomass value. The fishable biomass value is based on the January acoustic survey taking into account catches taken before that survey, subtracting the biomass limit (the minimum mature biomass to be left to spawn) and also subtracting 150Kt for predation. The graph has a trigger level of 50 billion immature capelin which provides a limit level of zero for the initial TAC and a maximum initial TAC of 400Kt if the immature abundance is 127 billion or more (blue dashed line). The predicted final TAC is shown on Figure 13 as the solid black line.

The final TAC is set at the catch which will generate a SSB which has a 95% probability of being above the biomass limit level of 150Kt.

This whole strategy, backed by the harvest control rules to set the TAC, is considered by ICES to be precautionary. However ICES has recommended that at some time in the future, once experience of the operation of the new HCR has been gained, assumptions and practical operation of the rule should be evaluated. The ICES working group particularly identified the need for further information on predator/prey relationships and how SSB estimates from autumn and winter surveys should be weighted when final TAC is defined.

There are other harvest control rules in place in support of the harvest strategy which provide further protection for the ecological role of the stock and permit a sustainable harvest of the surplus production. These include the facility to quickly close areas where there is a high abundance of juveniles (1-2yr olds) as assessed by on board observers. There is a legal requirement to carry these inspectors when fishing in certain designated areas. There are also restricted areas where pelagic trawling is not permitted in order to avoid disturbance of capelin shoals. Furthermore areas with known high abundances of juvenile capelin (on the shelf region off NW, N and NE Iceland) have usually been closed to the summer and autumn fisheries.





**Figure 13. Indices of numbers of immature capelin from autumn surveys against advice (based on acoustic measurements in January plus catches taken before the measurements). The solid line is the ‘Final TAC regression’ representing the ‘best’ guess on the final TAC based on the survey result while the dashed line, taking a precautionary approach, shows the decision rule for advising the initial TAC. (ICES, 2015a).**

#### 4.3.3.3 Management advice

Based on the Harvest Control Rules described above ICES advised in 2015 an initial TAC of 53600t and a final TAC of 174000t for the 2015/2016 fishing season (ICES, 2015c).

For the 2016/2017 fishing season ICES advises a precautionary preliminary TAC of zero. This is because of the low abundance of immature capelin in the autumn surveys in 2015 estimated at only 6.2 billion fish which is well below the trigger level of 50 billion. However the survey coverage was incomplete because of adverse weather conditions and it is therefore likely that this was an underestimate of the abundance of immature capelin. The intermediate TAC and final TACs for the 2016/2017 fishery will be updated based on acoustic surveys in the autumn of 2016 and the winter surveys of 2016/2017.

#### Data Collection

A very important data source for the management of this fishery is the series of acoustic surveys carried out during the autumn and winter periods.

The autumn surveys in 2015 suffered from adverse weather resulting in poor coverage. As a consequence the initial TAC was set at zero for the 2016/17 fishing season and the intermediate estimate for the 2015/16 fishing season was set at 44000t. This was increased to 173000t as a result of the early winter survey in 2016. The second winter survey in 2016 suffered from adverse weather resulting in poor coverage and the survey results were not used for TAC revision.

Of equal importance as a data source is the reliability of the information on actual catches and landings from the fishery. In that context on board inspectors are present on many of the vessels and is a legal requirement when fishing in certain designated areas. All landings are made to designated ports and provide reliable estimates of the actual weight of capelin landed. In 2015 a department of fisheries inspector was present at 19.8% of all pelagic landings in Iceland. The marine research institute have a programme for biological sampling of the landings in Iceland. However in 2015 the ICES working group reported that sampling from commercial catches is not considered to be adequate. Nineteen samples from Icelandic and Greenlandic vessels have been analysed by MFRI in Iceland (length measured and age read), although samples from Norway and Faroes have not yet been processed.

Biological samples from the catch are taken at sea by the fishermen, in the ports by the Marine Research Institute in Iceland (MFRI) or inspectors from the Icelandic Directorate of Fisheries. The samples are analysed at MFRI (fish length, weight, age (from otoliths), sex, maturation, and gonad weight). The information from the samples are then used along with the total landings data and the logbook data to estimate the age and length composition and numbers of fish by age of the total landings. Similar programmes are conducted by other participants in the fishery to a varying extent, sometimes providing catches in numbers for example by the Institute for Marine Research in Norway.

In July 2006 a multidisciplinary project began (oceanography/ecology) covering the area from Ammassalik in the west to about 10°W east of Iceland as well as the Iceland Sea north to 71–72°N. One of the main purposes of this project is to study the distribution, behaviour and feeding habits of all age groups of capelin in spring and summer.

#### Stock Assessment Method

The nature of this short lived species dictates that annual stock assessment using an age based population analysis modelled approach is inappropriate. The nature of the fishery also requires contemporaneous data on abundance in order to successfully manage rational exploitation in line with the ecosystem role of this important forage species. As a consequence the capelin stock in the Iceland, East Greenland and Jan Mayen area has been assessed entirely by annual acoustic surveys since 1978. The surveys have been conducted in late autumn (October–December) in 1978–2009, in early autumn (September–October) since 2010 and in winter (January–February) since 1979.

The acoustic surveys provide absolute biomass estimates of the spawning stock and numerical abundance indices of the immature element (1-2yrs old) of the stock. These estimates are fed directly into the management of the stock

The surveys in autumn have a dual purpose, aimed at covering both the immature and the mature part of the stock. The area covered has been expanded since 2010 to cover changes in the distribution of capelin on the continental shelf of East Greenland (to 73°N in 2013), the Denmark Strait and the continental slope north off Iceland. Timing of the autumn survey has also been brought forward to avoid potential drift ice conditions affecting coverage. The indices of immature capelin are used to predict an expected catch for the fishing season starting in the year after the surveys are conducted. The estimate of the maturing stock is used to set an intermediate TAC, sometimes revising the already set initial TAC.

The winter surveys in January–March target the spawning migration. The main survey area is along the spawning migration routes in late February and early March (Figure 2). The purpose of these surveys is to obtain an immediate estimate of the size of the spawning stock in order to set a final TAC for the rest of the season which will ensure a minimum of 150,000t will be available to spawn.



The uncertainty of the assessment and forecast depends largely on the quality of the acoustic surveys in terms of coverage, conditions for acoustic measurements and the variance in the aggregation of the capelin (ICES, 2016b). The CV on the estimate of immature abundance on the autumn survey in 2015 was 0.19 and for the mature biomass on the same survey the CV was 0.26. The CV on the estimate of mature biomass on the winter survey was 0.16 (ICES, 2016b).

During the site visit we were apprised of the direct involvement of industry in the stock assessment process. Acoustically calibrated commercial vessels have been used to input directly to the biomass estimates and to ensure adequate coverage of the distribution of the stock. They have also been used to carry out scouting surveys to complement the research vessel acoustic surveys.

#### **4.3.4 Key Lower Trophic Level Status**

Capelin is a very important forage species in the ecosystems of the Barents Sea, Greenland and Iceland. They are the main single item in the diet of Icelandic cod. They are prey to several species of marine mammals and seabirds and are also important as food for several other commercial fish species (Vilhjálmsen, 2002). There is an overview of the ecosystem, fisheries and their management in Icelandic waters, in section 09 NWWG of the ICES assessment working group report (ICES, 2015b). This has numerous references to capelin as a forage species and to changes in the distribution and abundance of capelin. For the Barents Sea ecosystem, it has been estimated that the maximum sustainable yield from its capelin fishery would be obtained by fishing in autumn, but that delaying opening of the fisheries until 1 January would be beneficial for the ecosystem (Hamre and Tjelmeland, 1982; Gjøsæter et al. 2002).

Research on the ecosystem role and growth of IGJM capelin is much more limited than in the Barents Sea. However it is not unreasonable to assume that the ecosystem role of capelin is similar in both areas. Therefore the initial TAC should not be of much importance as a new measurement of the fishable stock would be available before the start of the fisheries. Initial TAC could still be beneficial for the industry to know how much to expect (ICES 2015b: stock annexe). The ICES benchmark workshop have developed a method for setting the initial and final TACs which clearly take into account the ecosystem role of capelin as a forage species based on the modelled predation rates. The method is described in the section on harvest control rules above. Consumption of capelin by Cod, haddock and saithe are modelled using a variety of data sources to arrive at realistic estimates of consumption of IGJM capelin by these three predators. Data from fish farming, stomach analysis from the wild and theoretical evacuation rates modelled by Magnusson and Pálsson (1989) are used to estimate feeding rates. The predation model also requires abundance estimates of the three species and information on the spatial and seasonal coincidence with capelin schools. Spatial distribution and abundance of demersal fishes are readily available from the ICES assessment working group reports for each species. Stomach samples of cod are available from groundfish surveys in March from 1985 to 2014, for haddock from 1992 and 2005 to 2014 and from a number of other demersal fishes in 1992. Stomach samples are also available from Acoustic survey sampling in January 1993 and 1994 and also from sampling on commercial fishing vessels in 2002.

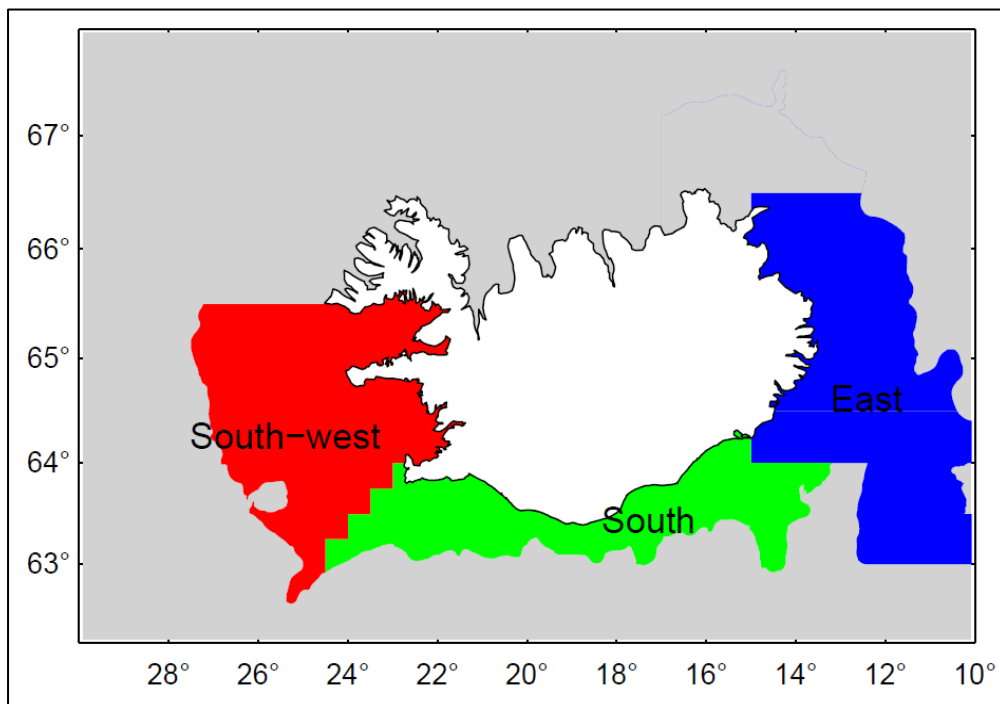
The modelled predation rates are based on three clearly defined areas (Figure 14) in order to refine and better quantify the interactions between predator and prey. Thus predation per area is calculated independently for the three areas: east, south and southwest. In the model 10% of the catches are assumed to be taken in the eastern area between 15 January and 1 February, 65% of the catches in the southern area between 1 February and 15 March, and the remaining 25% in the southwestern area between 15 February and 15 March.

The proportion of fish predators inhabiting the different areas along the capelin migration route is obtained from the groundfish survey in March. There may be some changes in distribution from January to March as some of the mature fish may migrate to the spawning areas so the distribution in March may be underestimating the proportion of cod and other predators east of Iceland. The area crossed and time spent in it by the eastern capelin migration is divided into three parts (ICES, 2015b).

- Eastern Area: six weeks (January 15<sup>th</sup> –March 1<sup>st</sup>).
- Southern Area: six weeks (February 1<sup>st</sup>–March 15<sup>th</sup>)
- Western Area: four weeks (February 15<sup>th</sup>–March 15<sup>th</sup>)

The resultant estimates of predation, which are used in the assessment and harvest control rules are based on half feeding rates in each area. The estimate for the Eastern area is 300-600Kt; for the Southern area 100-200Kt and for the Western area 100-200Kt.

During the site visit the assessment team was not made aware of any major concerns regarding the impact of the fishery on cetaceans in terms of capelin as a food resource. However distributions are likely to coincide at times and an evaluation of the potential impact of cetaceans on capelin abundance would provide useful additional information for the sustainable management of the stock. The benchmark workshop on Icelandic stocks, WKICE (ICES, 2015a) recommended that marine mammal abundance in the capelin distribution areas should be monitored, for example by including observers on autumn acoustic surveys. Such a program could indicate whether predation on capelin by whales in the autumn should be added to the TAC framework.



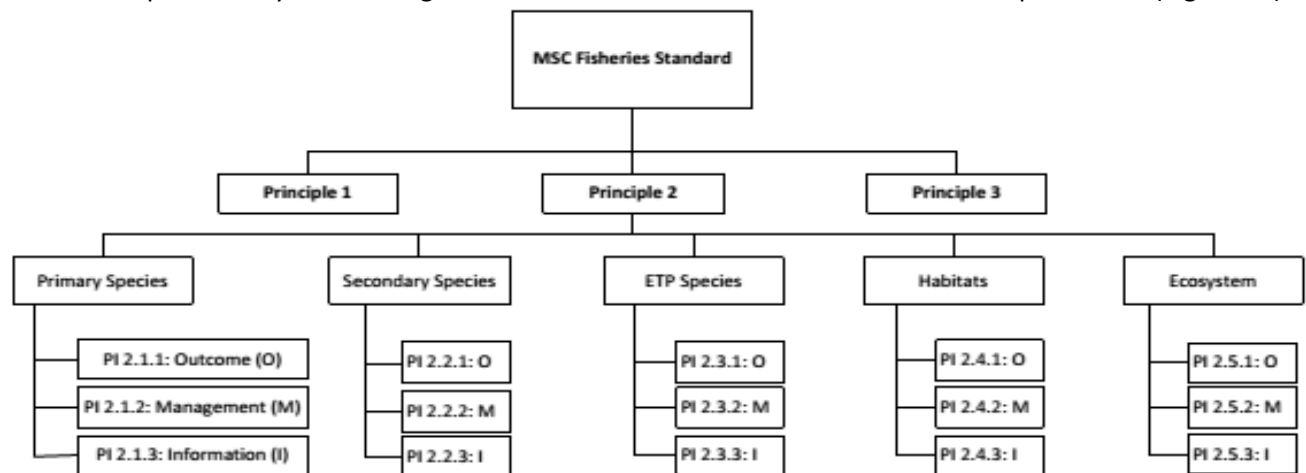
**Figure 14. The three regions used in the simulations of predation on capelin migrating through the eastern part of the Icelandic shelf (ICES, 2015b stock annexe)**

#### 4.4 Principle Two: Ecosystem Background

Principle 2 of the Marine Stewardship Council standard states that:

*“Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent ecologically related species) on which the fishery depends”*

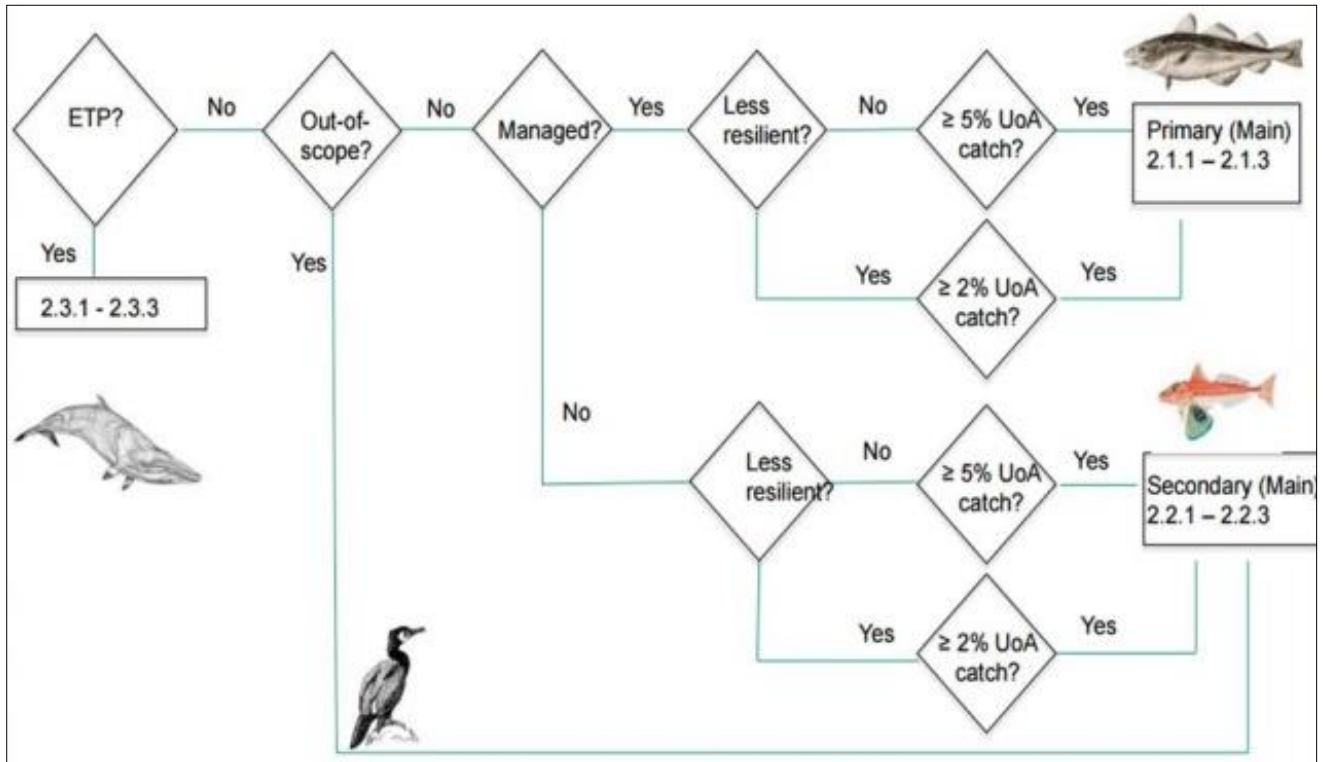
PIs of Principle 2- Ecosystems background- are detailed in the next chart from the requirements (Figure 15).



**Figure 15. Chart of Principle 2 from MSC requirements V2.0. Components and Performance Indicators to be evaluated under this P2: Ecosystems Background.**

Under this principle, 5 components are evaluated: Primary Species, Secondary Species, ETP species, Habitats and Ecosystems. In each component three performance indicators are scored: Outcome, Management and Information.

To defining the primary and secondary species, a decision tree is used. In the new version V2.0 of FCR the CAB must classify the species. If the species have management plan or tools in place, it might be classified as primary species; if there is no management plan or tools in place, the species are identified as secondary. Depending on the % of composition in the total catch, the species will be main (> 5%) or minor (<5%) and it will be evaluated differently. Figure 16 below shows the decision tree to classify these species.



**Figure 16. P2 Species Decision tree FCR V2.0. Source: MSC FCRV2.0**

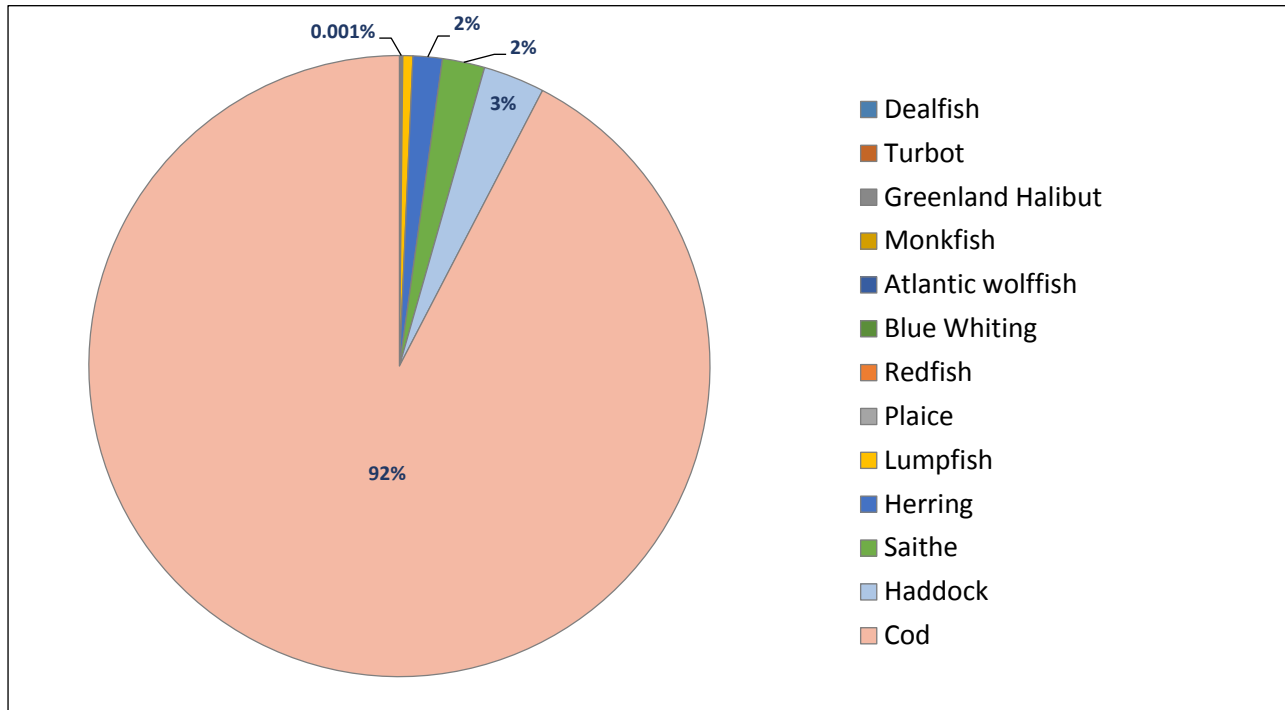
More details about primary and secondary species classification in the fishery under assessment will explain in next sections of this report. However to classify the species into primary and secondary species, The assessment team has used the data from the DoF from the period of fishing activities between 2011 to 2016. The Table below shows the data:

**Table 4. Composition of catches in % based on tonnes reported from the fleet to the Directorate of Fisheries.**

Species	Catches (kg)	Catches (tonnes)	% Total
Capelin	1,948,686,000	1,948,686	99.9870%
Dealfish	2	0	0.0000%
Common Skate	77	0	0.0000%
Turbot	2	0	0.0000%
Greenland Halibut	6	0	0.0000%
Monkfish	14	0	0.0000%
Atlantic wolffish	19	0	0.0000%
Blue Whiting	71	0	0.0000%
Redfish	116	0	0.0000%
Plaice	140	0	0.0000%
Lumpfish	1,335	1	0.0001%
Herring	403	0	0.0000%
Saithe	5,782	6	0.0003%
Haddock	8,310	8	0.0004%
Cod	236,403	236	0.0121%
<b>Total retained catches</b>	<b>1,948,938,605</b>	<b>1,948,939</b>	<b>100.0000%</b>
<b>Total retained non-target</b>	<b>252,605</b>	<b>253</b>	<b>0.0130%</b>

\*Data from the Directorate of Fisheries (DoF) from 2011 to 2016

From the data in the table above, in the fishery, there are a total of 13 species retained by the Capelin fleet. Figure 17 shows that although cod account for 92% by weight of non-target catches, catches of cod as a percentage of total catch (including capelin) is negligible  $\sim 0.012\%$ . Considering all the catches, no main species has been identified in the fishery.



**Figure 17. Composition of non-target species (Percentage of total non-target catches) from the Iceland Capelin Fishery (Source: DoF data from 2011 to 2016).**

As mentioned, Cod is so far, the most retained species in the fishery, followed by Haddock. All the non-target species reported in the fishery represent percentages of catch less than 0.1% (Table 4).

Primary and Secondary species evaluated in this section are managed by the catch limitation system which is based on the catch share allocated to individual vessels. Each vessel is allocated a certain share of the total allowable catch (TAC) of the relevant species. The catch limit of each vessel during the fishing year is thus determined on basis of the TAC of the relevant species and the vessel's share in the total catch.

In addition to the ITQ system, Icelandic fisheries management includes many other management measures such as area restrictions and fishing gear restrictions to ensure the fishery is targeting the Capelin and other catches are reduced. Therefore all these measures in place take into account the reduction of catches of other retained species in the fishery.

#### 4.4.1 Primary Species

Primary species are defined as “Only in-scope species that are managed according to either target or limit reference points”. The primary species are also split in main or minor species as shown in the Figure 16.

Capelin fishery is a clean fishery and the presence of retained species is not relevant. The Directorate of Fisheries (DoF) makes easy the consultation of the total composition of catch by vessels which fishing in Icelandic waters, the composition of catch is published in the DoF website.

Vessels targeting capelin with purse seine and with midwater pelagic trawls have the same retained species. No differences by gear can be detected. In both fisheries approximately 0.086% of catches are other species that are not the target species. In this minimal % of catch; only 13 species were described. Eleven of them were defined as primary retained species by the fishery. There have not been catches above 5%. All the primary species are less than 5%, the catches are almost negligible with % up to 0,1.

The data reported by DoF has shown that in the last season 2015/2016 the fishery has had 99.97% of Capelin catches. For that reason all the species are minor in the fishery. The list of species classified as primary species is shown in the table.

**Table 5. List of primary species described in the Capelin fisheries, purse seine and pelagic trawl. Data collected by DoF during last five fishing seasons and published in its website.**

Species	Classification	Stock component
Cod ( <i>Gadus Morhua</i> , Linnaeus, 1758)	Primary Minor	Northeast Atlantic
Haddock ( <i>Melanogrammus aeglefinus</i> Linnaeus, 1758)	Primary Minor	Northeast Atlantic
Saithe/Pollock ( <i>Pollachius virens</i> Linnaeus, 1758)	Primary Minor	Northeast Atlantic
Lumpfish ( <i>Cyclopterus lumpus</i> Linnaeus, 1758 )	Primary Minor	Northeast Atlantic
Herring ( <i>Cuplea harengus</i> Linnaeus, 1758)	Primary Minor	Atlanto Scadian
Greenland Halibut [ <i>Reinhardtius hippoglossoides</i> (Walbaum, 1792) ]	Primary Minor	ICES Subdivision 5 to 10
Monkfish ( <i>Lophius piscatorius</i> Linnaeus, 1758 )	Primary Minor	North Atlantic subareas 5-10
Atlantic wolfish ( <i>Anarhichas lupus</i> Linnaeus, 1758 )	Primary Minor	North Atlantic
Blue Whiting [ <i>Micromesistius poutassou</i> (Risso, 1827)]	Primary Minor	Northeast Atlantic
Redfish [ <i>Sebastes norvegicus</i> (Ascanius, 1772)]	Primary Minor	Northeast Atlantic
Plaice ( <i>Pleuronectes platessa</i> Linnaeus, 1758 )	Primary Minor	Northeast Atlantic

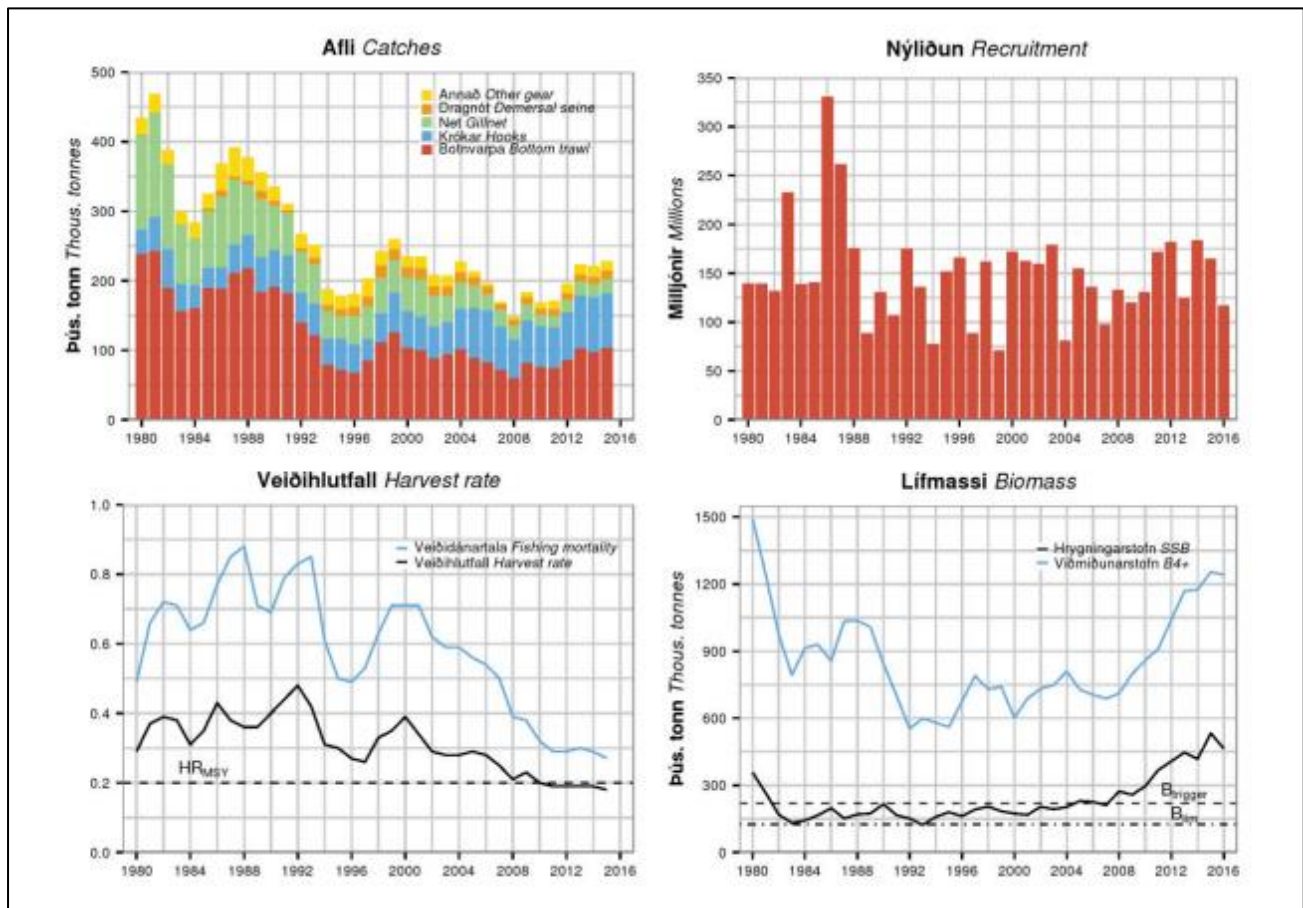
The DoF shows in its website the catches (kg) of Cod (*Gadus morhua* Linnaeus, 1758) by the Capelin fleet since 2012 to 2016 (in 2016 the catches of February and March are included).

The main aspects of the stock status of each species are explained as follows:



### Cod- *Gadus Morhua*

The Marine and Freshwater Research Institute (MFRI) has published the assessment of the cod every year. The catches of cod during the last years (2012-2016) by Capelin fishery was 236,403 kg representing more than 95% of the non-target species in the fishery. Last report published by MFRI shows that the total landings of cod were more than the TAC established. MFRI estimate sthat in 2017 the population of mature will be less than the previous years due to the decreased of inmature population in 2013. Although the catches of cod are decreasing in relation with previous years and since 2000 the trends of catches is decreasing (Figure 18).



**Figure 18. Catch by gear type, recruitment at age 3, fishing mortality and harvest rate, reference stock biomass (B4+) and spawning stock biomass (SSB)). Source: Hafro Stock Status, 2016.**

Estimated SSB has increased in recent years and has not been larger in 40 years. Harvest rate has declined and is at its lowest value in the assessment period. Recruitment since 1998 is lower than the average recruitment in the period 1955-1985. The increase in SSB is therefore primarily the result of lower harvest rate. The 2013 year class is estimated small but the year classes of 2014 and 2015 that will enter the fishery in 2017 and 2018 are larger than the long-term mean recruitment.

ISF Iceland Cod was certified against MSC requirements version 1.3. Nowadays, the re-assessment is going on.

## Haddock

ISF Iceland Haddock is a certified fishery. It was certified against V1.3 in April 2012. At the moment, the re-assessment is carried out and is in the stage 2: peer review.

The last report from MFRI shows that SSB has decreased in recent years but is above MGT  $B_{trigger}$ . Harvest rate in 2014–2015 is estimated at its lowest level in the assessment period and is currently below  $HR_{MGT}$ . Recruitment in 2010–2015 was low but is estimated high for 2016.

Information from surveys indicate that the proportion of the fishable part of the stock on the northern and eastern part of the shelf has increased from 10–15% to 50% in the period 2000–2008 but only 20% of catches are taken there. Therefore the fishing pressure is much lower in the north and the east compared to other areas. The northern part of the shelf has always been important nursery ground for haddock but before 2000 it migrated out of the area once mature. The areas where haddock is fished are not completely overlapping with the capelin grounds. Further the % of catches come from Capelin is 0.2%, almost negligible.

Figure 19 shows the main aspect of stock status in the last assessment. The trend of catches is decreasing, the recruitment in 2016 increased regarding the previous years, the mortality is above the sustainable limit and SSB is above  $B_{trigger}$  and increasing as it was described.

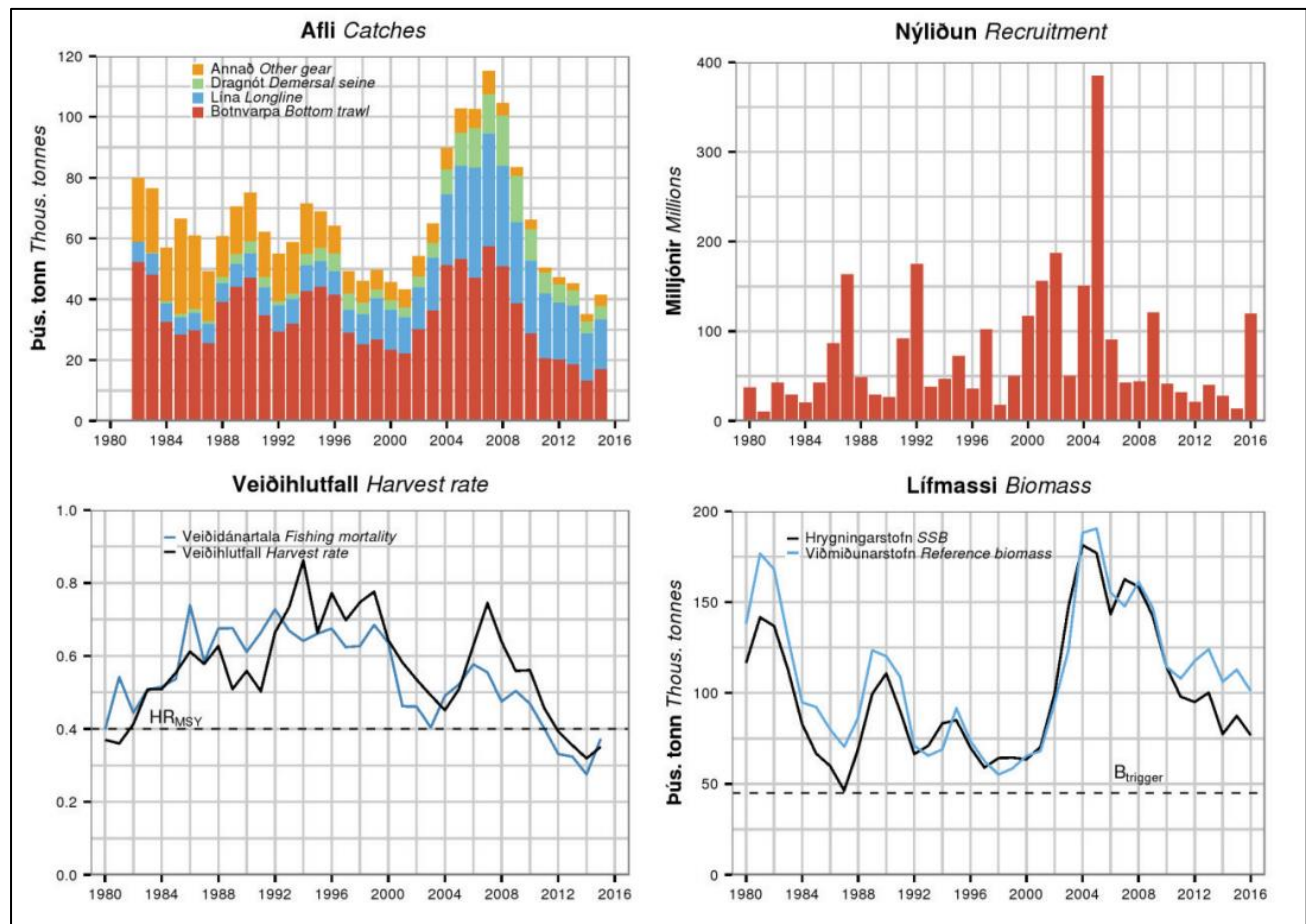


Figure 19. Haddock: Catch by gear type, recruitment at age 2, fishing mortality and harvest rate, reference stock biomass (45 cm and larger) and spawning stock biomass (SSB). Source: Hafro Stock Status, 2016



## Saithe

This fishery was certified against V1.3 in September 2014, at the moment the 2<sup>nd</sup> Surveillance is going on, it has been stated in August 2016.

Stock size has increased in recent years and the SSB is now close to the average of 1980–2015. Recruitment in 2009–2015 was relatively constant and about 20% higher than the average. Harvest rate in 2015 was below  $HR_{MSY}$ .

The set TAC was not caught in 2014/2015 and that is also likely to happen in 2015/2016. At the turn of the century there was a large increase in longline effort in the demersal fisheries in Iceland, this increase was mostly at the expense of gillnet and bottom trawl fleets, the main fleets fishing saithe. Therefore, the catches come from Capelin fishery are insignificant because the gear used to fishing Saithe work in different ways. Figure 20 shows the most relevant characteristics in the stock status of saithe.

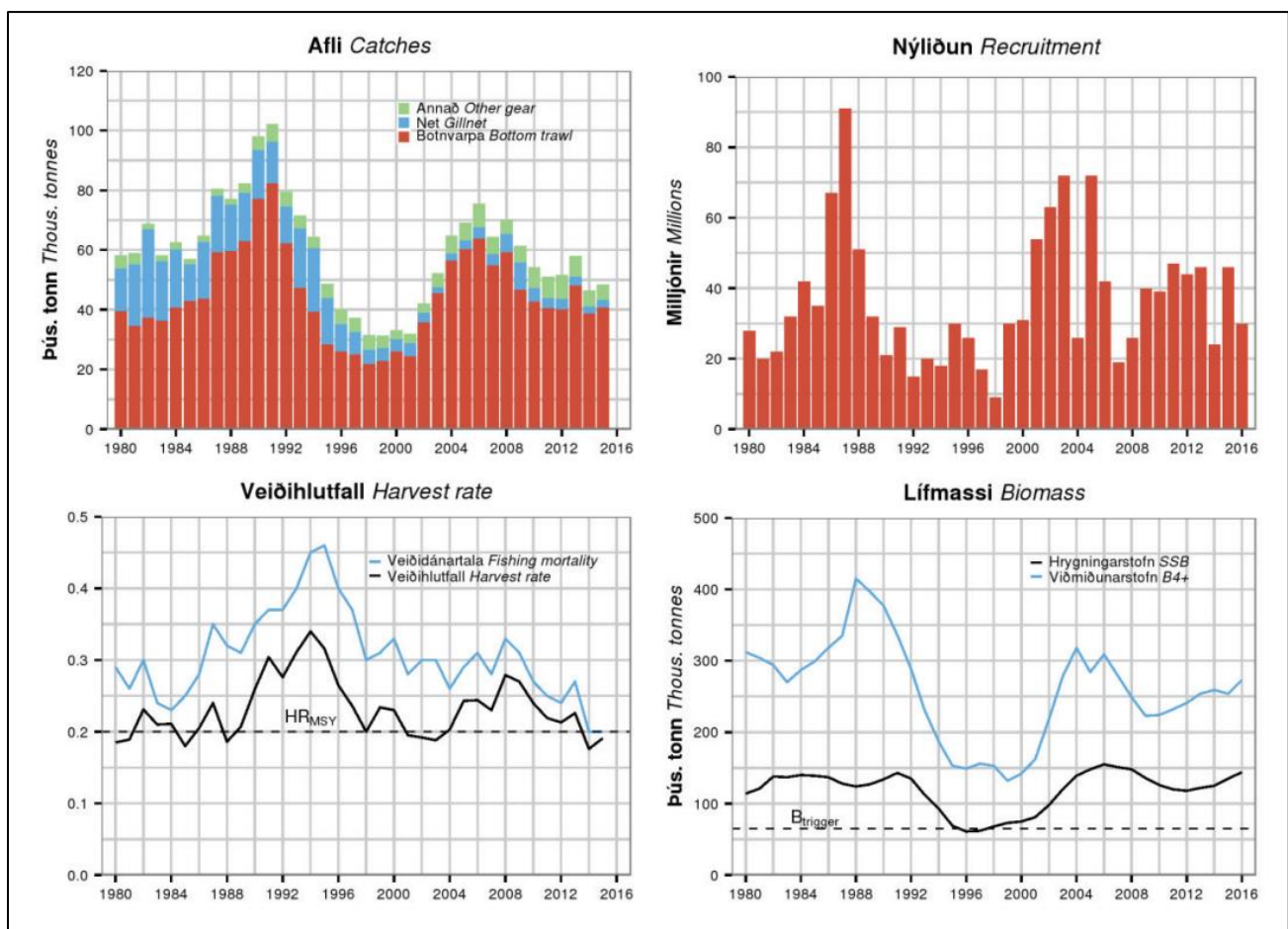


Figure 20. Saithe: Catch by gear type, recruitment at age 3, fishing mortality and harvest rate, reference stock biomass and spawning stock biomass (SSB). Source: Hafro Stock Status, 2016

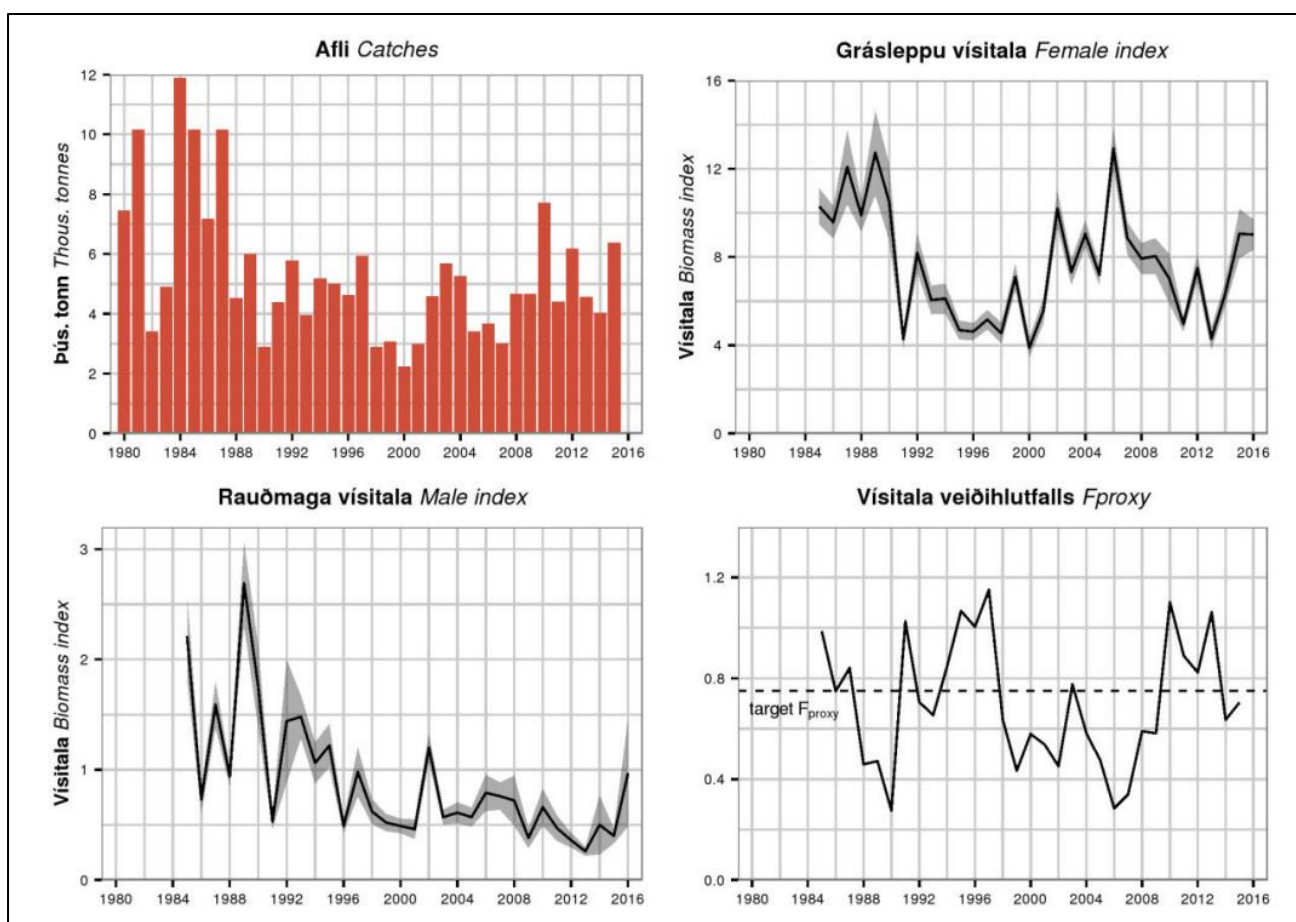
## Lumpfish

The fishery Icelandic Gillnet Lumpfish was certified against MSC requirements V1.3 in December 2014, at the moment the 2<sup>nd</sup> Surveillance is going on, it has been stated in August 2016.

MFRI advises that the initial TAC for the fishing year 2016/2017 does not exceed 2,030 tonnes. The MFRI will, after estimation of the biomass index in spring 2017, provide final advice for the fishing year 2016/2017. Assuming that fishing will be managed by the same method as before, MFRI recommends that the number of boats which will participate in the fishery is taken into account when allocating the number of fishing days. MFRI also recommends improved monitoring of bycatch and discards of other species from the female lumpfish fishery. Further, the bycatch of lumpfish must be controlled the catches from Capelin are less than 0.1%.

The female biomass index decreased between 2006 and 2013, but has increased since then. The male biomass index in 2016 has increased from 2015 and has now risen above the average of the reference period 1985–2011.

The target  $F_{proxy}$  value was originally set at 0.75, based on the mean  $F_{proxy}$  in 1985–2011. Landings in 1971–2007 were estimated in 2015, but the value of 0.75 is still used as target  $F_{proxy}$ . These data are described in the figure below:



**Figure 21. Lumpfish. Catch of females, biomass indices of females and males, and  $F_{proxy}$  (catch/survey biomass) of females. Source: Hafro Stock Status, 2016**

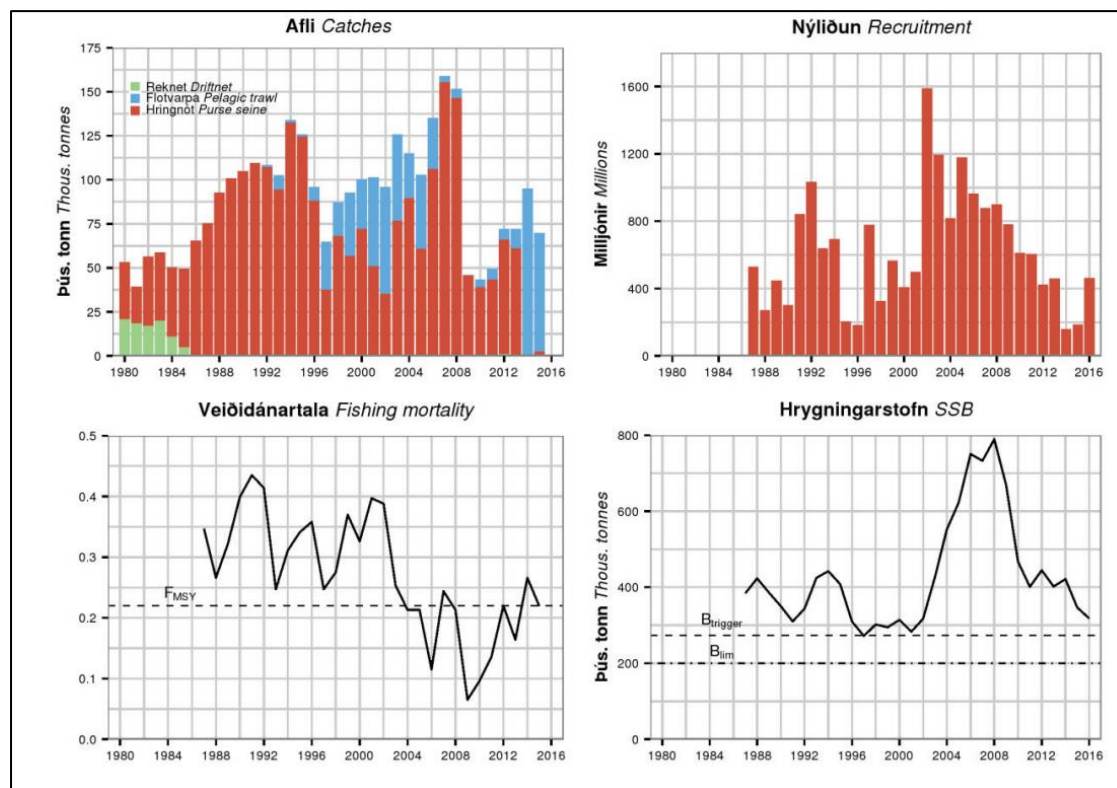
### Icelandic summer spawning Herring

The fishery ISF Norwegian & Icelandic herring trawl and seine was certified against MSC requirements V1.3 in May 2014, at the moment the 2<sup>nd</sup> Surveillance is going on, it has been stated in August 2016.

Good recruitment in 1999–2002 resulted in a record high SSB in 2005–2008. However, the stock declined rapidly until 2011 due to mortality caused by *Ichthyophonus* infection. Continued reduction in the size of the SSB in recent years is due to a declining trend in recruitment. Fishing mortality was low during the first years of the infection period, but has increased and is now at  $F_{MSY}$ .

Since 1973, the stock size of Icelandic summer-spawning herring has been measured annually on acoustic surveys, generally in November–January. The stock was surveyed west of Iceland the winter 2015/2016 in January and again in March. The total acoustic estimate of adult herring (>26 cm) was 396 thus tonnes. An acoustic survey on the juvenile part of the stock was conducted in inshore northern areas from Breiðafjörður to Öxarfjörður in September–October. The results indicate that the 2014 year class is small or 2/3 of the average year class size. This year class was mainly found in Húnaflói and Eyjafjörður. Prevalence of *Ichthyophonus* infection in the 2003–2006 year classes is still high or 30–40%, while in the 2007–2009 year classes the rate has been increasing in the last two years. Further, new infection was detected in age 2 herring north of Iceland during this winter. Therefore, it is evident that new infection which has hardly been seen since 2001 is occurring but at a lower rate than in 2009–2010. Continued monitoring of the development of infection in the stock is important. The main results of *Ichthyophonus* research and monitoring to date is that the infection does not cause as high mortality as previously assumed.

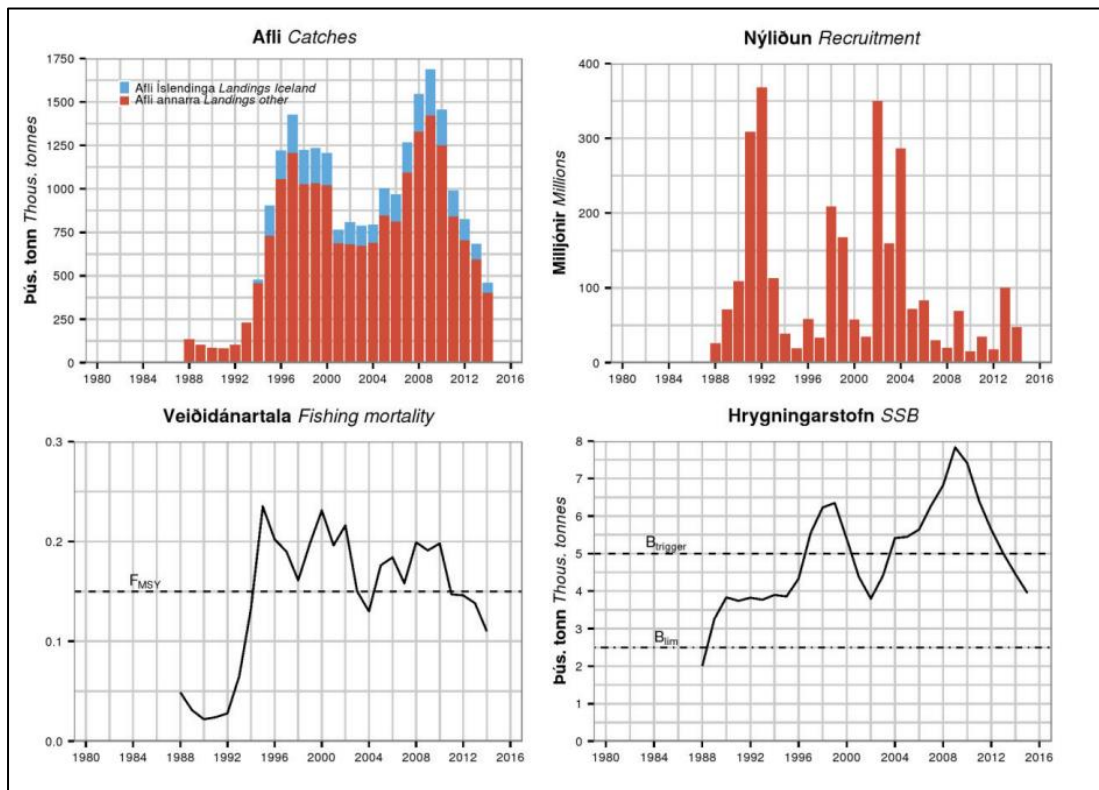
Although, the stock is under observing to control the infection the catches from Capelin are less than 0.2% therefore it isn't a relevant retained species in the fishery.



**Figure 22. Herring: Catch by gear, recruitment at age 3, fishing mortality and spawning stock biomass (SSB). Source: Hafro Stock Status, 2016**

### Atlanto-Scandian herring

The stock is declining and estimated to be below  $B_{trigger}$  ( $B_{pa}$ ) in 2014. Recruitment was estimated at low level since 2004. The 2013 year class is estimated to be close to the average recruitment of 1998–2012. Fishing mortality in 2014 was below  $F_{pa}$  and  $F_{MSY}$  and the management plan target  $F$  (From ICES advice 2015b) (Figure 23).

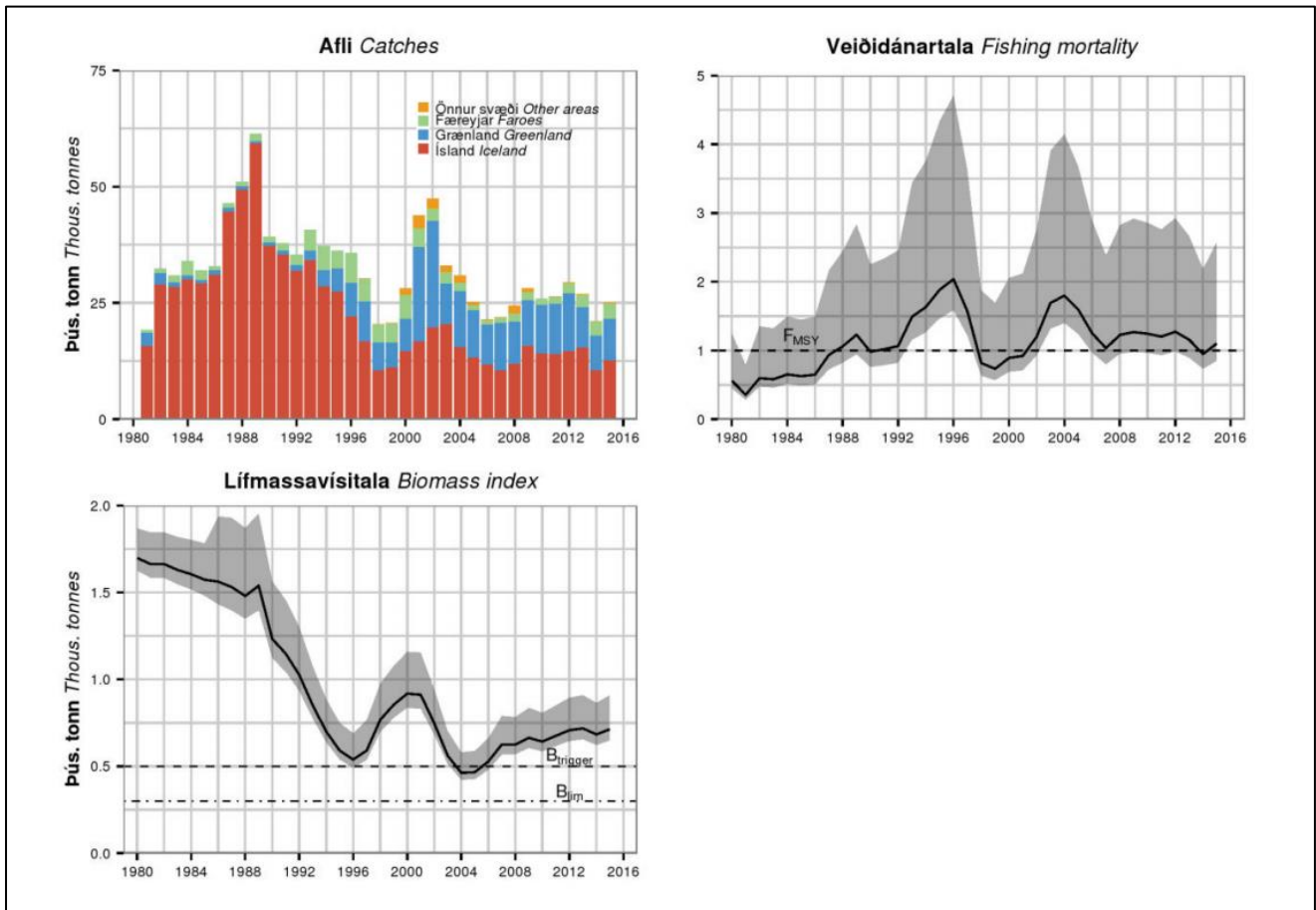


**Figure 23. Catch, recruitment at age 0, fishing mortality and spawning stock biomass (SSB) of Atlanto-Sacandian Herring. (Source: Hafro report Hafrannsóknir nr. 185)**

Since 2013, a lack of agreement by the Coastal States on their share in the TAC has led to unilaterally set quotas which together are 9–14% higher than the TAC indicated by the management plan. Simultaneously, the stock size has declined because of relatively poor recruitment since 2005. An ICES benchmark for NSS herring in winter 2016 proposed a new assessment model that will form the basis for the advice for 2017, released in October 2016.

### Greenland Halibut

MFRI and ICES advise that when the MSY approach is applied, catches in 2016/2017 should be no more than 24 thus tonnes. According to an agreement between Iceland and Greenland, 56.4% of the TAC is allocated to Iceland. Although is not a relevant fact to Capelin fishery because the catches as retained species in this fishery are far less than 0.1%, almost negligible. Figure 24 shows the main aspects of the stock status, fishing mortality has decreased in recent years but is above  $F_{MSY}$ . Biomass is slowly increasing.



**Figure 24. Greenland halibut: Catch by area, relative fishing mortality (F/F<sub>MSY</sub>) and changes in relative biomass (B/B<sub>MSY</sub>). Source: Hafro Stock Status, 2016**



## Monkfish

The biomass index was high in 2005–2011 compared to previous years, but has since then decreased substantially. Juvenile indices show poor recruitment for year classes 2008–2014.  $F_{\text{proxy}}$  was stable when the stock peaked, but has reduced in the last few years.

Annual landings of anglerfish in Icelandic waters have steadily decreased since peaking in 2009. About half of landings are caught by gillnets and the other half mostly in demersal seine and trawls as bycatch. In recent years, most of the landings come from off Iceland's west coast. Even though as a typical demersal fish is not attained by the fishery and the catches are much lower than 0.1%. Figure 25 shows the mortality and how the catches are decreasing in the last years.

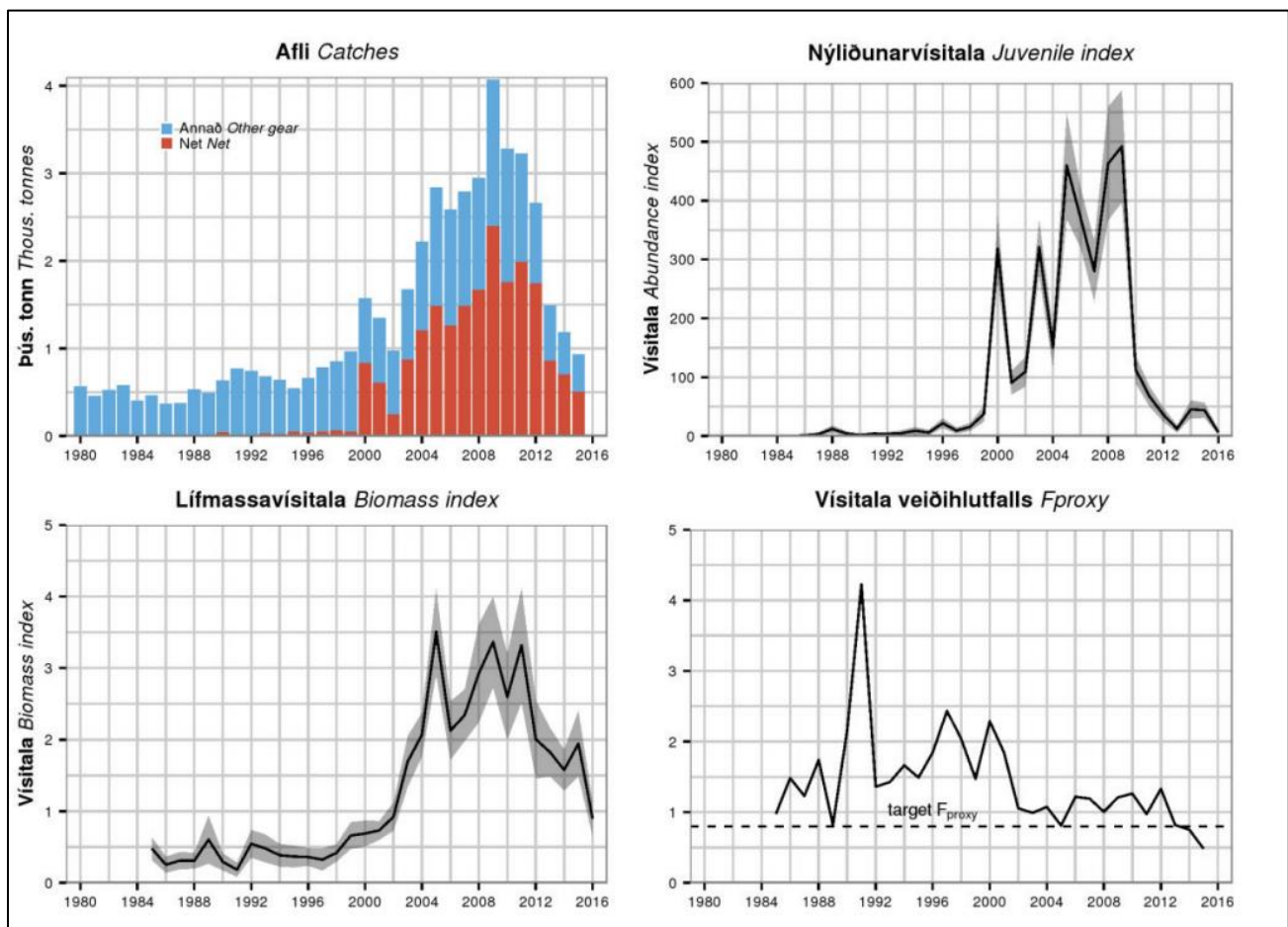
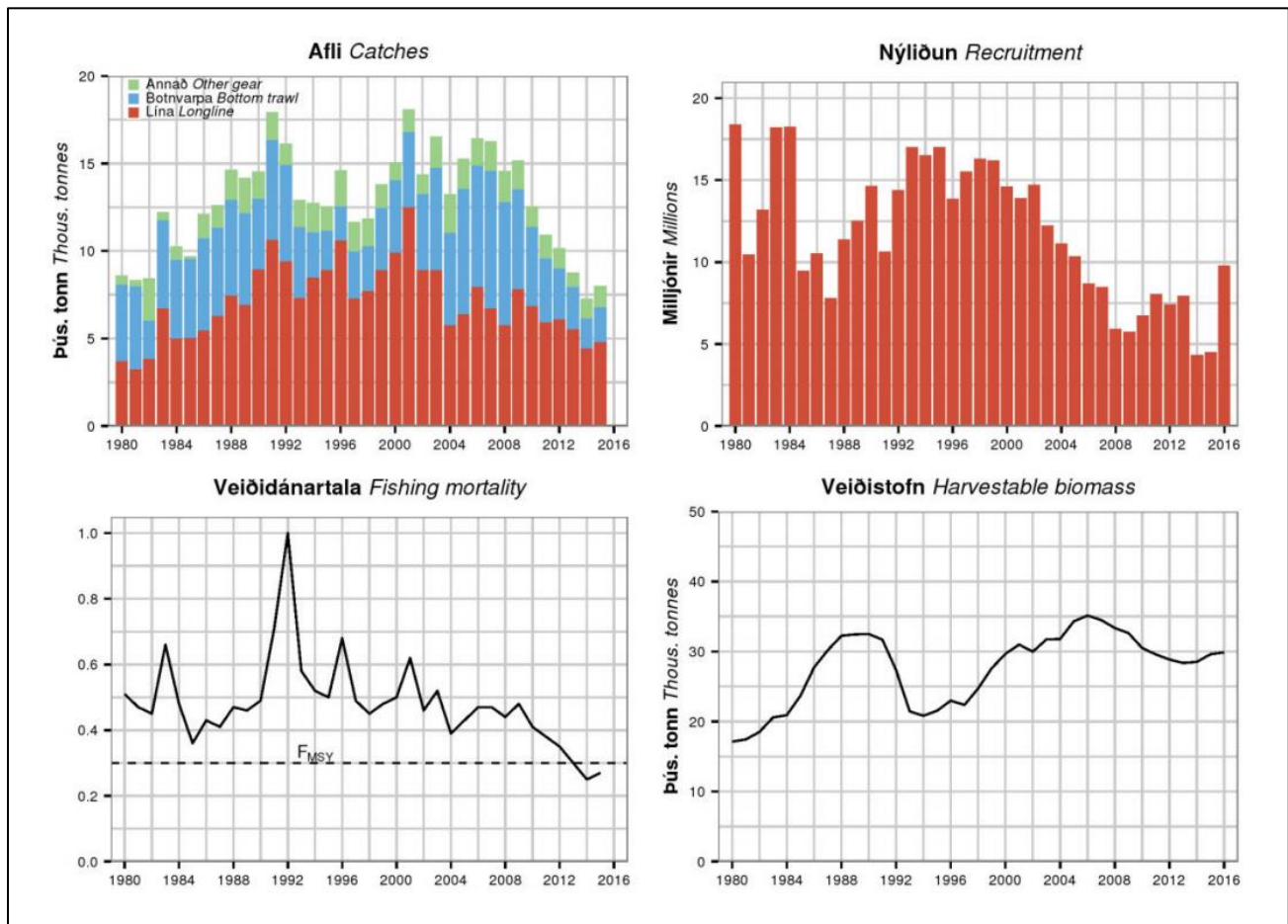


Figure 25. Anglerfish: Catch by gear type, juvenile (2-yr old) and biomass indices, and  $F_{\text{proxy}}$  (catch/survey biomass index). Source: Hafro Stock Status, 2016



### Atlantic wolfish

The annual landings of Atlantic wolfish in 2013–2015 are the lowest since before 1950. Atlantic wolfish is mainly caught in the longline fishery. Bottom trawl effort increased in 1998–2008 but has since then decreased. Fishing mortality has declined since 2009 and is now below  $F_{MSY}$ . Harvestable biomass has dropped since 2006, but is above average compared to the years from 1980. Recruitment was low in 2008–2015 (Figure 26).



**Figure 26. Atlantic wolfish: Catch by gear type, recruitment at age 5, fishing mortality, and harvestable biomass. Source: Hafro Stock Status, 2016**

## Blue Whiting

Fishing mortality ( $F$ ) has increased from a historical low in 2011 to above  $F_{MSY}$  in 2014. SSB increased from 2010 to 2014 and is above  $MSY B_{trigger}$ . Recruitment after 2010 is estimated above the long term average. Year classes 2009–2012 are estimated above average, and the survey indices for year classes 2013 and 2014 are also above average. (From ICES advice 2015b).

The International Blue Whiting Spawning Stock Survey is carried out yearly since 2004 on the spawning grounds west of the British Isles in March-April. The survey is carried out by Norway, Russia, the Faroe Islands and the EU. There is no agreement between the participating nations about catch allocation. This has resulted in catches exceeding the advice given by ICES, however the catches from Capelin Fishery doesn't hinder the stock status because are almost negligible.

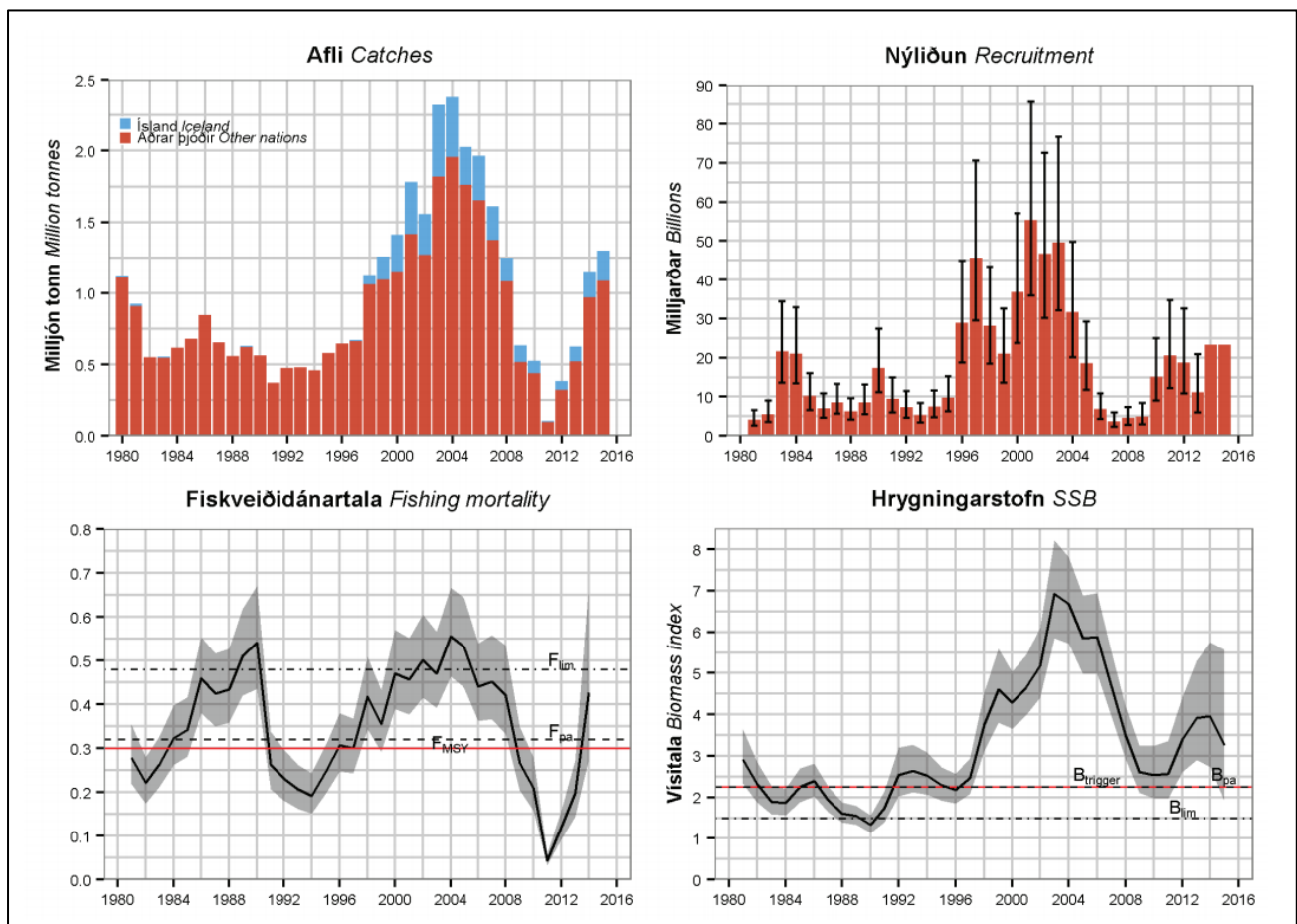


Figure 27. Blue whiting: Total and Icelandic catch, recruitment at age 1, fishing mortality and spawning stock biomass (From ICES advice 2015b). Source: Hafro Stock Status, 2016.

## Redfish

The fishery ISF Iceland golden redfish was certified against MSC requirements V1.3 in October 2014, at the moment the 2<sup>nd</sup> Surveillance is going on; it has been stated in August 2016.

The 2000–2005 year classes accounted for most of the catches in 2015. The 1996–2005 year classes are above average in size, but the 2006–2011 year classes are estimated to be below the average. Fishing mortality since 2010 has been estimated to be around F<sub>MSY</sub>. Spawning-stock biomass (SSB) has steadily increased for the past 20 years and is well above MSY B<sub>trigger</sub>. (Figure 28).

Bilateral agreement between Iceland and Greenland on the management of the golden redfish fishery was signed in September 2015 and is based on the management plan. The agreement is for the period 2016–2018 and states that each year 90% of the TAC is allocated to Iceland and 10% to Greenland. Furthermore, 350t are allocated each year to other areas. The Faroe Islands are not a part of this agreement. Although this agreement is not relevant for Capelin fishery because the catches from these vessels are much lower than other targeting for Redfish.

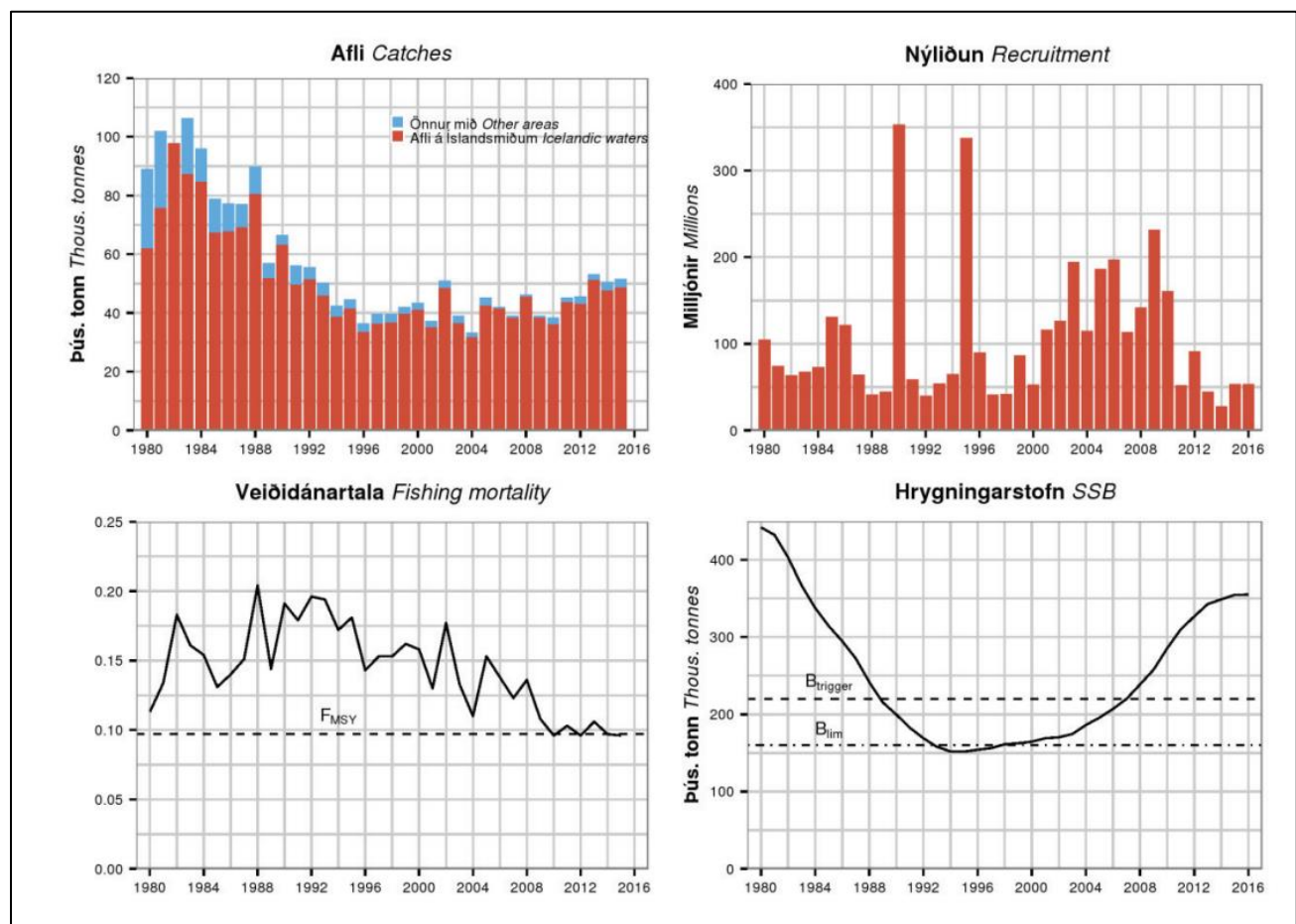


Figure 28. Golden redfish: Catch by area, recruitment at age 5, fishing mortality, and spawning stock biomass (SSB). Source: Hafro Stock Status, 2016.

## Plaice

The annual plaice catch has been around 6,000 tonnes in recent years, with about two thirds caught in demersal seine. In 1992, around half of the TAC was caught in bottom trawl, but since 1996 that proportion has been 24– 38%. Fishing effort has decreased and CPUE as increased, both in demersal seine and bottom trawl, however due to the nature of the gears using in Capelin fishery, the vessels under assessment doesn't hinder the stock status because they don't fish in the bottom surface and the fishing activities are pelagic.

Recruitment has been slow but steady since 1994. Fishing mortality has declined since 1997 and is at an all-time low, while biomass has slowly increased since 2000. (Figure 29)

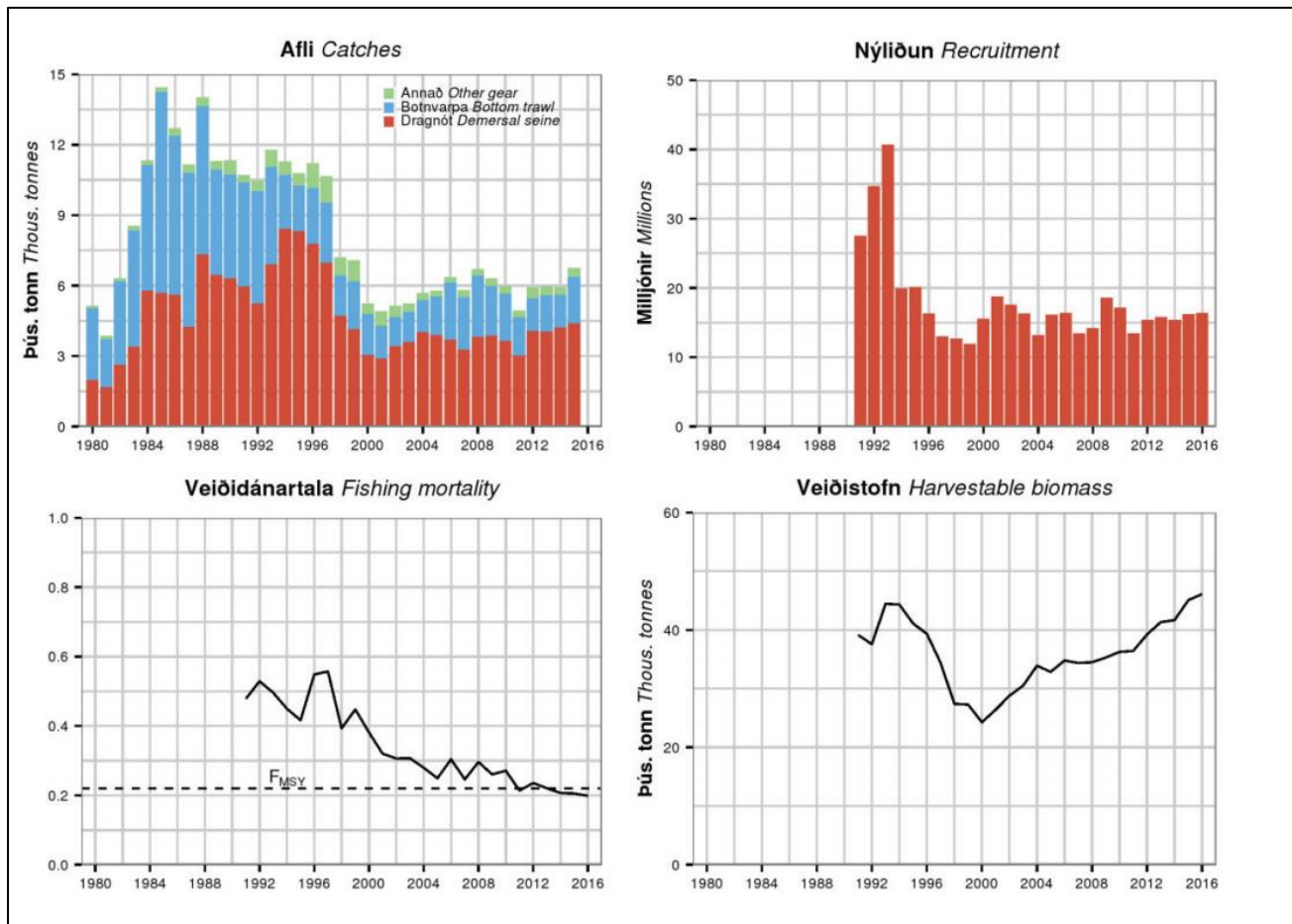


Figure 29. Plaice: Catch by gear type, recruitment (3-yr old), fishing mortality, and harvestable biomass. Source: Hafro Stock Status, 2016.

#### 4.4.2 Secondary Species

Secondary species are defined as “Unmanaged and contains a large variety of species including out-of scope sp.(amphibians, birds, reptiles and mammals) that are not ETP species”. Secondary species are classified into two groups: main (>5%) or minor (<5%) species as it was explained in the Figure 16. If a species is out-of-scope then it is automatically main and also secondary.

Based on the definition of secondary species, and on Figure 17 and the data reported in the Table 4, the assessment team has concluded that there are no main secondary species. Catch on-target species are similar for pelagic trawl and purse seine and no differences were found, therefore the species in the two UoCs are analyzed together.

Three species were identified as minor secondary species with catches so far less than 5% of composition of the total catch.

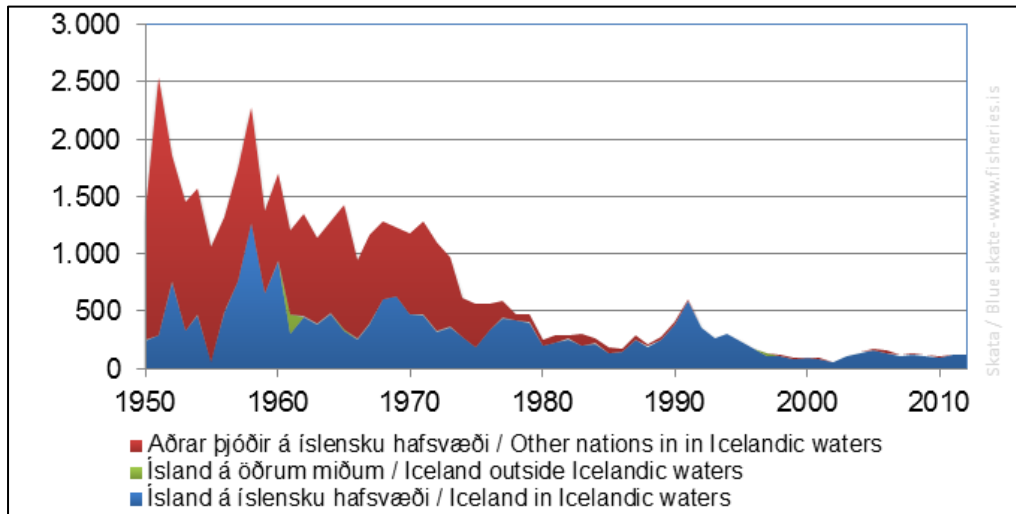
The species identified are listed below:

- Dealfish [*Trachipterus arcticus*, (Brünnich, 1788) - Northeast Atlantic stock component]
- Turbot [*Scophthalmus maximus* (Linnaeus, 1758) - Northeast Atlantic stock component]
- Grey skate [*Dipturus batis* (Linnaeus, 1758)- Northeast Atlantic stock component]

Grey skate is in the IUCN list considered as “Critical Endangered, (CE)”. Although the species is in the IUCN list as CE, it is not considered as ETP species in this assessment because it is not an “out of scope” species (amphibians, reptiles, birds or mammals) and there is no binding international agreements or national regulations to classify the species as ETP. The Art. 46 of CFP has established a prohibition of catching Grey Skate in the ICES areas II, IV, VI, VII, VIII, IX and X. The area under assessment is not included in this article.

Along the years, there have been some uncertainties about the validity of historical identification. There was recent evidence presented that considers that the species of skate encountered in Iceland includes a different species, (*Dipturus flossada*), termed “blue skate”. There are historical records of landings under *Dipturus batis* species classification in Iceland fisheries back over 30 years. This species could potentially be confused but to be precautionary the assessment team has considered the identification made over last years and is known as Grey skate in the report as is also reported by DoF.

Currently, there is no directed fishery for skate species and all catches are recorded by gear. Most of the catches are coming from bottom trawl. The catch of skate from the fleet under evaluation is not common. The data reported to DoF are almost negligible, 77 kilos in a period of time of 2012-2016 (Table 4). The data showed the catches are decreasing since 2000 (Figure 30).



**Figure 30. Skates catch (t) in Icelandic waters. Source: MFRI**

In the Capelin fishery the catches are low, however due to the overfished occurred 50 years ago by other demersal gears, the stock of skates has been monitored (Figure 30), the results is that the catches are much lower than in the 50' years and have been decreasing over recent years.

Further, the distribution of this species is not overlapping the capelin fishing grounds, the grey skate provided the bulk of the reported skate and ray catches in the past; the other species either being too small to be of interest or living in deep waters out of reach for the fishing gear. The grey skate is fished in a variety of fishing gear throughout the year. The impact on skate by bycatch of different gears was a concerns in the iceland fisheries, however, rays (or skates) are benthic fishes that feed on a variety of benthic animals over a wide depth range.

The percentage of cathes respectively were: 0.0001% for each species. Information about the stock status of these species is available in the Icelandic Fisheries form Ministry of Fisheries and Agriculture website (<http://www.fisheries.is>). Although, these species have not TAC established they are bycatch of many kind of fisheries, the obligation to land all the catches make effort to control the fishing of these no targhet species in the UoAs.

The pelagic gear do not contact the seabed, they have different distribution with optimal range of depth different than capelin. Therefore, due to the characteristics of the fishery and the types of gear the cathes are insignificant.

In the year 1992 the Marine Research Institute started to collect turbot in collaboration with Icelandic fishermen to form a brood stock, they has concluded that is a very rare species in Icelandic waters and the annual catch is usually only a few fish. Additional, the distrubution of turbot is at sandy bottom surfaces. The delafish has a range of distribution of 300m-600m. The grounds of the fishery are normally distributed until 300 meters and the fishery operates in the water colum therefore the catches of turbot and dealfish are very unusual. Turbot and dealfish, the catches are mainly taken as bycatch, and these stocks are currently not regulated by a TAC. Fishing effort of active and passive gears of all countries has been stable in the last years. DoF manages this cathes with the obligations for landing all the species retained. Although these species have not reference points, Capelin fishery, as the assessment team mentioned above, is clean and the catches of these three species are negligible. Therefore, the assessment team can said that the species are higly likely above biological limits.

#### 4.4.3 ETP species

ETPs species are defined by MSC as "Species recognised by national legislation and/or binding international agreements to which the jurisdictions controlling the fishery under assessment are party. Species listed under Appendix I of CITES shall be considered ETP species for the purposes of the MSC assessment, unless it



can be shown that the particular stock of the CITES listed species impacted by the fishery under assessment is not endangered”

The CITES appendices I, II and III can be consulted in this [link](#), where all the species that might be considered ETP are listed.

Also, FCR V2.0 shall consider ETP species, those species listed under Convention on Migratory Species (CMS) or species classified as “out of scope” (amphibians, reptiles, birds and mammals) that are listed in the IUCN list as Vulnerable (VU), Endangered (EN) or Critically Endangered (CE).

After reviewing the possible ETP-species present in Icelandic waters, the assessment team has added the species reported in the table below (Table 6). The Table 6 presents a list of relevant species known that might be common in the area where the fishery takes place and the relevant determining convention or legislation.

**Table 6. List of ETP species reported in the study area and reported by the vessels under certification as well as in the independent Observer Study of IWDG. DD – Data Deficient, LC – Least Concern, NT – Near Threatened, VU – Vulnerable, and CR – Critically Endangered and EN - Endangered**

Species	Class	CITES	CMS	IUCN status
Belugas ( <i>Delphinapterus leucas</i> )	Mammals	X (appex.II)	X	NT
Blainville’s ( <i>Mesoplodon densirostris</i> )	Mammals	X (appex.II)	X	DD
Blue whale ( <i>Balaenoptera musculus</i> )	Mammals	X (appex.I)	X	EN
Bottlenose whale ( <i>Hyperoodon ampullatus</i> )	Mammals	X (appex.I)	X	DD
Bowhead whales ( <i>Balaena mysticetus</i> )	Mammals	X (appex.I)	X	LC
Common or harbour seals ( <i>Phoca vitulina</i> )	Mammals	NO	X	LC
Cuvier’s beaked whales ( <i>Ziphius cavirostris</i> )	Mammals	X (appex.I)	X	EN
Fin whale ( <i>Balaenopterus physalus</i> )	Mammals	X (appex.I)	X	EN
Grey seals ( <i>Halichoerus grypus</i> )	Mammals	NO	X	LC
Grey whale ( <i>Eschrichtius robustus</i> )	Mammals	X (appex.I)	X	LC
Harbour porpoises ( <i>Phocoena phocoena</i> )	Mammals	X (appex.II)	X	LC
Humpback whale ( <i>Megaptera novaeangliae</i> )	Mammals	X (appex.I)	X	LC
Killer whale ( <i>Orcinus orca</i> )	Mammals	X (appex.II)	X	DD
Long- finned pilot whale ( <i>Globicephala melas</i> )	Mammals	NO	X	DD
Minke whale ( <i>Balaenoptera acutorostrata</i> )	Mammals	X (appex.I & II)	X	LC
Northern right whale ( <i>Eubalaena glacialis</i> )	Mammals	X (appex.I & II)	X	EN
Sei whale ( <i>Balaenoptera borealis</i> )	Mammals	X	X	EN
Sowerby’s ( <i>Mesoplodon bidens</i> )	Mammals	X		VU
Sperm whales ( <i>Physeter macrocephalus</i> )	Mammals	NO	X	DD
White-beaked dolphin ( <i>Lagenorhynchus albirostris</i> )	Mammals	X (appex.II)	X	DD
Atlantic Puffin ( <i>Fratercula arctica</i> )	Bird	NO	X	VU
Kittiwake ( <i>Rissa tridactyla</i> )	Bird	NO	X	VU
Brunnich Guillemot ( <i>Uria lomvia</i> )	Bird	NO	X	LC
Common Guillemot ( <i>Uria aalge</i> )	Bird	NO	X	LC
Razorbill ( <i>Alca torda</i> )	Bird	NO	X	NT
Fulmar ( <i>Fulmarus glacialis</i> )	Bird	NO	X	LC

## Mammals

In Icelandic waters the presence of Humpback whales (*Megaptera novaeangliae*) and Minke whales (*Balaenoptera acutorostrata*) are well-known and reported. However, these two species are considered by

IUCN as least concern (LC) they are listed in the CITES appendix I and in the CMs and they must be evaluated as ETP.

Humpback whales, although no final assessment of the current global population relative to its 1940 level is available, it seems, based on the recent rates of increase, unlikely that it is below the threshold (50% of the 1940 level) that would qualify the species for inclusion in the vulnerable category under criterion A. The available population estimates total more than 60,000 animals, well above the C and D criteria thresholds for the vulnerable category. The range of the humpback whale is not restricted, and therefore the species does not qualify for inclusion under Criterion B. The species is therefore listed as Least Concern. Completion of the ongoing Comprehensive Assessment by the IWC Scientific Committee will enable a more accurate determination of the level of recovery of the species (IUCN-2008).

Minke whales has a limit set up. There is no estimate of total global population size, but estimates from parts of the range in the Northern Hemisphere (totalling in excess of 100,000 individuals) show that it is well above the thresholds for a threatened category. While declines have been detected or inferred in some areas, there is no indication that the global population has declined to an extent that would qualify for a threatened category (IUCN-2008).

The legislation in Iceland regarding ETP species is regulated by the Icelandic legislation (557/2007) who states to complete the logbook where any interaction or catch of birds or other endangered species must be reported to DoF. On the other hand, mammals are regulated by the Fisheries Management Act and Nature Conservation Act. no. 47/1971. Further, in Iceland, whaling is controlled by the International Whaling Commission (IWC) and the North-Atlantic Marine Mammal Commission (NAMMCO).

Marine mammals are the top predators and the largest consumers in Arctic and subarctic environments. Whale species are more evenly spread over the world, but most of the large species depend on abundant food supply in high latitudes in summer. Many migrate to warmer waters in the winter when food is harder to get in the colder ecosystems. This is also the case with many seabirds. Their ability to fly makes them able to escape the harsh northern winters but enjoy the rich food supply in these environments in the summer. The warm internal temperatures and high metabolic rate combined with large biomass of the whales make the marine mammals and the birds the top predators of the Arctic and subarctic environment.

At least 12 species of cetaceans occur regularly in Icelandic waters, 5 species of baleen whales and 7 species of toothed whales, including dolphins and porpoise. In addition, 11 species have been recorded more sporadically. Whaling has been conducted in Icelandic waters throughout the centuries and research on the whale stocks around Iceland is therefore considered important. Reliable abundance estimates exist for most species of large whales while such estimates are not available for small cetaceans. In the continental shelf area, common minke whales probably have the largest biomass while on the open ocean it is the fin whales. The list of species (Table 6) shows the species identified in the Icelandic waters, some of them such as minke or humpback whales are more common than others that have been seen sporadically.

The impacts that the pelagic fisheries, either purse seine or midwater pelagic trawl, have on ETP species are negligible. Therefore the strategy for managing the impact of these fisheries on ETP species, involves less effort than other fisheries with more impact on these kinds of species. The direct effects caused by the fishery are known because no species may be impacted by the fishery and there are not any protected species separately under Icelandic legislation.

Humpback whales have been protected in Icelandic waters since 1955. Although no direct estimates of abundance exist from this time, it is clear from the post-war whaling data that the species was then very rare in Icelandic waters. Thus, at

that time the population had not made a significant recovery from the overexploitation occurring from the late 19th century and up to the Icelandic whaling ban in 1915.

However, in the 1970's and 1980's a significant and rapid increase in relative abundance was documented (Sigurjónsson & Gunnlaugsson 1990), and this increase continued after the initiation of the series of the North Atlantic Sightings Surveys in 1987 (Lockyer & Pike 2009). In 1987, the estimated number of humpback whales in Icelandic and adjacent waters the Central North Atlantic) was around 1,800 animals. In subsequent surveys the abundance increased rapidly, with estimated abundance in the range 10-15 thousand in surveys conducted after year 2000. There are some indications that the increase rates may have levelled off after the turn of the century, which would be consistent with the population having reached the carrying capacity (K) of the environment, i.e. full recovery from previous overexploitation. High rates of population increase have been documented in recent decades for humpback whales in several other areas around the world (Barlow & Clapham 1997, Noad et al. 2011, Heide-Jørgensen et al. 2012) and for this reason more interactions have been recorded. This worldwide development has led to humpback whales being listed as "Least Concern" on the IUCN global Redlist as well as on the IUCN regional list for Europe (North Atlantic). The fact that humpback whales are still listed in CITES Appendix I and is classified as Protection Stock (PS) by the IWC has no bearing on the present population status of the species. The former is a result of a CITES resolution, listing all large cetaceans in Appendix I as long as the IWC moratorium is in force, irrespective of the biological status of individual species/populations. Some studies show that the IWC listing as PS is more than 30 years old, based on a management procedure (NMP) used up to 1985 and therefore irrelevant in terms of present status.

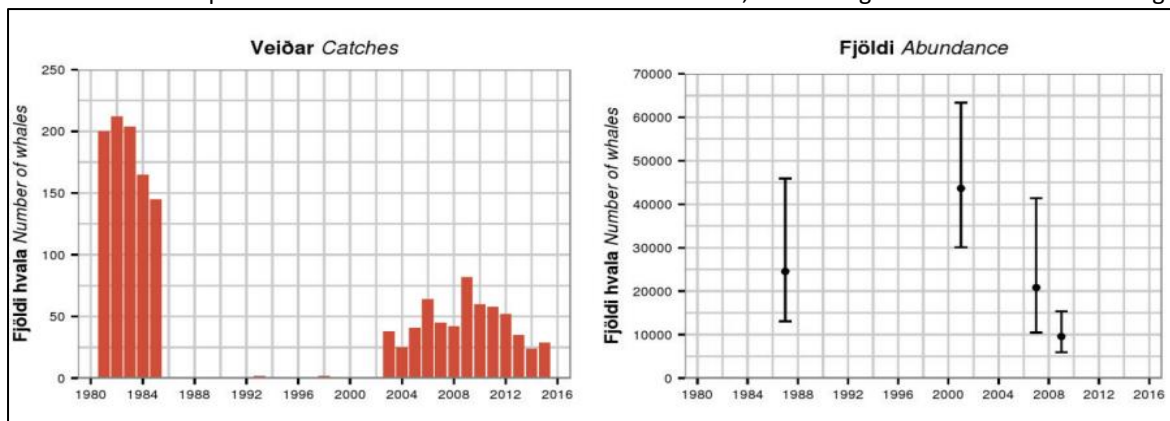
While significant data exist on abundance in Icelandic waters, very limited direct evidence exists on the diet composition of this species compared to the more recently exploited species s.a. fin, minke, sei and sperm whales. However, in general humpback whales are known to have a broad diet spectrum ranging from planktonic crustaceans to pelagic fish species s.a. herring and capelin. From visual observations it is clear that humpback whale diet in Icelandic waters includes both capelin and krill but the relative proportions of these and other potential prey species are unknown. The only reliable estimate of consumption by cetaceans in Icelandic waters dates back to the 1980-1990's (Sigurjónsson & Víkingsson 1997). Recent changes in distribution and abundance of cetaceans in Icelandic waters, possibly due to climate change, indicate that humpback whales have taken over the role of common minke whales as the dominant baleen whale predator on the Icelandic shelf (Víkingsson et al. 2015). While humpback whales are known to migrate between Iceland and the Caribbean and Cape Verde (Martin et al. 1984, Smith et al. 1999, Jann et al. 2003) an unknown proportion of the population seems to reside in Icelandic waters during winter, often seen in large numbers on the capelin fishing grounds (Víkingsson 2004).

Basran (Basran, 2014) studied interactions with fisheries through photographic analysis of scarring from fishing gear and from surveys among Icelandic fishermen. According to this analysis, 41.8% of the analysed humpback whales had scars presumably resulting from interaction with fishing gear, a somewhat lower frequency than from other well studied areas such as the Gulf of Maine and Southeast Alaska. However, majority of the scarring is believed to have resulted from fishing gear other than purse-sein as could be gillnets and lobster pots (Gulf of Maine). The survey among Icelandic fishermen resulted in three accounts of humpback whales being encircled in capelin purse seines, these confirm that encirclement of humpback whales by purse seines takes place on the capelin fishing grounds. They also confirm other anecdotal evidence that in most such cases the fishermen manage to lower the seine and thereby release the whales without notable harm. In some cases the humpback whales force themselves through the seine, causing considerable financial loss to the fishermen. Therefore, it is clearly in the fisheries 'interests to 1) avoid encircling whales and 2) if a whale is inside a seine, to lower the seine to free the whale, even if this means a loss of catch. The MFRI is not aware of any account of such interactions resulting in serious injury or mortality

to humpback whales due to entrapment in capelin purse seine in Icelandic waters. While this does not prove an absence of mortality from this fishery, it strongly indicates that interactions with the capelin fishery are not a significant source of mortality for humpback whales in Icelandic waters.

Acoustic deterrents as pingers have been used extensively to reduce bycatch in various fisheries (e.g. Erbe et al. 2011, McPherson 2011). The results are variable depending on type of fishery and cetacean species. The lack of long-term monitoring of the effects makes difficult the interpretations of these results and more studies are needed.

Through ongoing observer programmes in pelagic trawl, NGOs programmes and diverse researches, there is a growing body of evidence to support the understanding that pelagic trawl fisheries have few encounters with protected species that result in direct mortality of protected species. In addition Icelandic legislation (557/2007) states that all fishing vessels must keep a Fishery Log-book. Birds and Mammals that are caught in fishing gear are to be reported and recorded in the Fishery Log-book. This Fishery Log-book is returned to the Directory of Fisheries once a month. These reports are then sent onto the Marine Research Institute where the information is used in their scientific work. With this information MFRI realizes the stock status of minke whales which can be captured up to 226 from 2016 to 2018. Even though there is a TAC for Iceland whaling, there are no catches from Capelin fleet reported. Further, since 2003 when Iceland took part in the IWA for second time, whaling has decreased significantly (



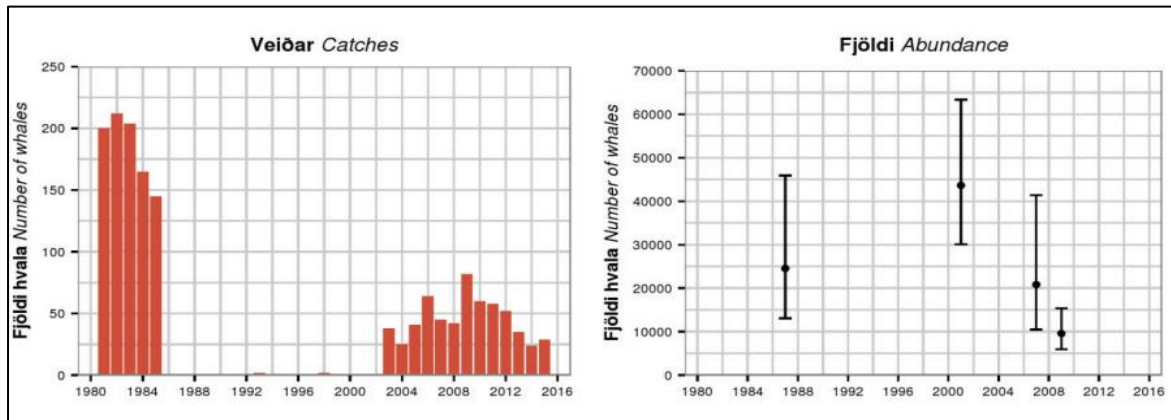
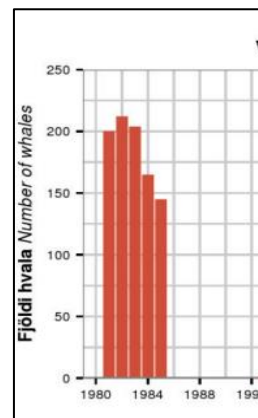
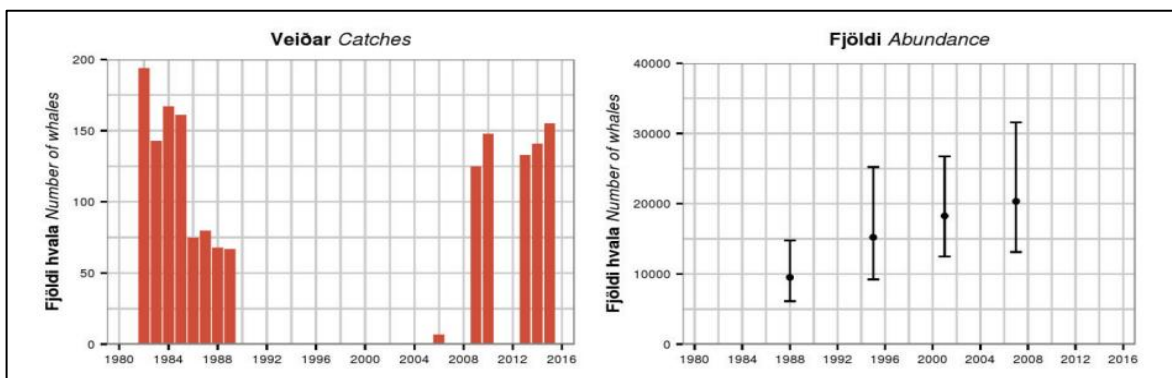
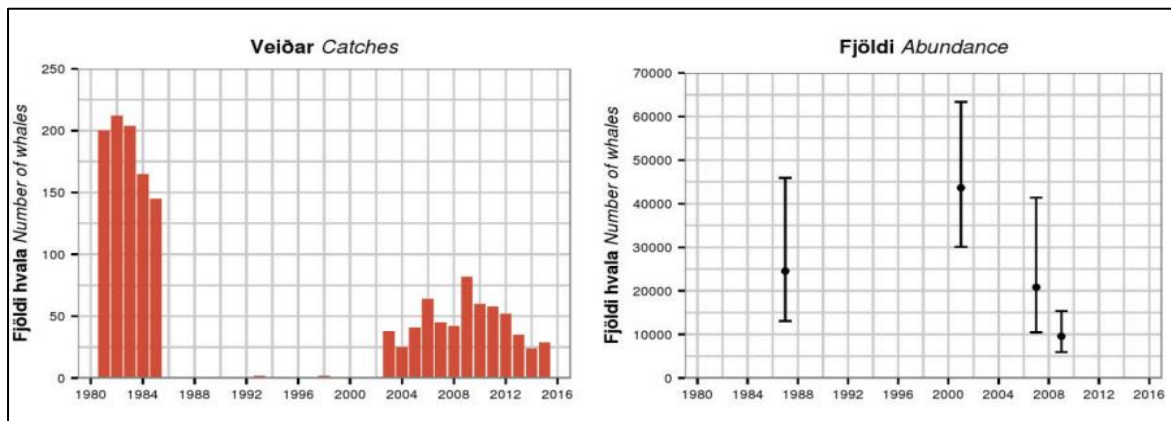


Figure 31).



**Figure 31. Whaling and abundance in the Icelandic continental shelf area with 95% confidence intervals. The top figures show the data from Minke Whales. The bottom figures show the data from Fin Whales. Source: MFRI Hafrannsóknir nr. 185, 2016.**

### Birds

Further the importance of mammals, there are several studies that show the seabirds can be affected by the fisheries. Seabirds are considered as an important part of the ecosystem in Iceland. Lilliendahl and Solmundsson (1997) highlighted that capelin is one of the most important prey source for breeding seabirds in northern Iceland, for this reason and because they are considered as vulnerable in the IUCN two species of seabirds are analyzed in depth in the fishery.

**Black legged-Kittiwake** (*Rissa tridactyla*, Linnaeus, 1758) is considered at least concern globally, despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (IUCN, 2016) but it must be considered Vulnerable in Europe.

**Atlantic Puffin** (*Fratercula arctica*, Linnaeus, 1758). This species has experienced rapid declines across its European range. Population trends outside Europe are unknown. Extrapolated over three generation lengths and allowing for uncertainty, the population is thought to be declining at a rate sufficient to trigger Vulnerable under the population size criterion (IUCN, 2016)

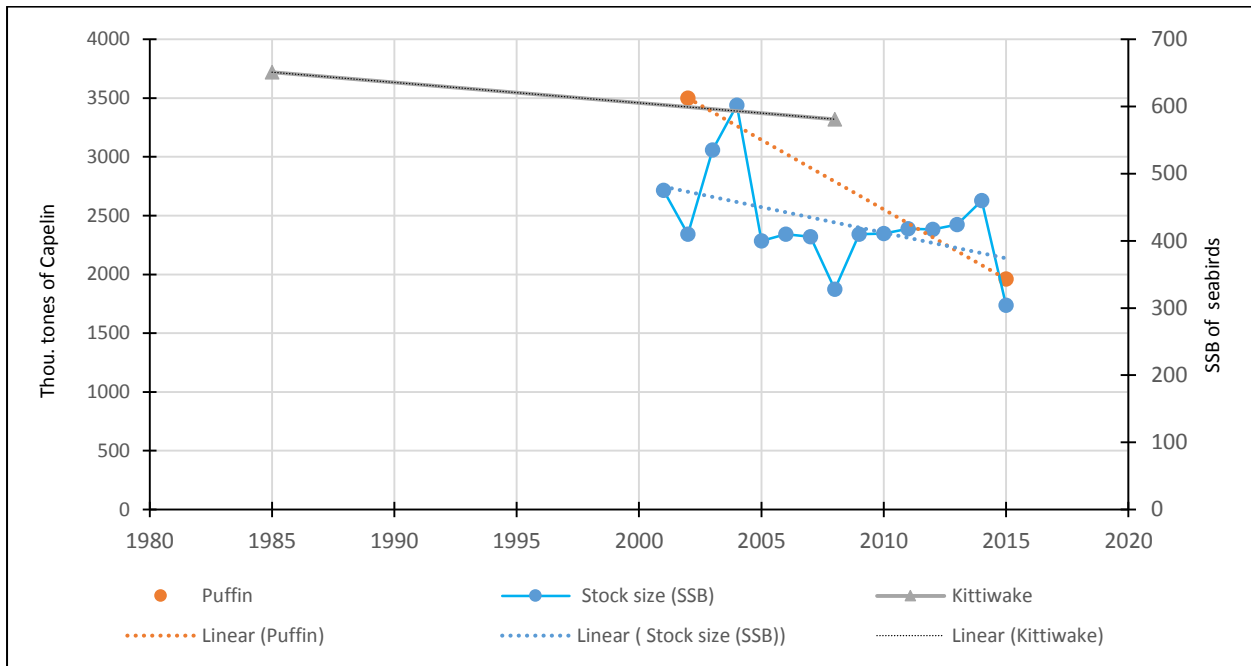
There are other seabirds in the area but these species are less relevant in the Capelin fishery, because direct or indirect impacts on the populations of those species have been reported. The Table 7 shows population data from "Icelandic seabird breeding population figures, from Garðarsson et al. (Gardarsson et al. In print) and Hansen & Sigurðsson" submitted by Birdlife to the assessment team.

**Table 7. Icelandic seabird breeding population figures. Source: Garðarsson et al. (Gardarsson et al. In print) and Hansen & Sigurðsson.**

Spp.	1983-1985	2006-2008	% change	% change /year
Brunnich Guillemot	579000	327000	-43.6	-1.7
Common Guillemot	992000	698000	-29.7	-1.2
Razorbill	378000	313000	-17.2	-0.7
Fulmar (partial count)	312000	203000	-35	-1.4
Kittiwake	651000	581000	-10.8	-0.4
Puffin 2002-2015	3500000	1961000	-44	-3.4

In terms of studying the possible indirect impact caused in the feeding habit of two species which prey on Capelin, the assessment team has assessed two species, kittiwake and Atlantic puffin. The plot below (Figure 32) shows the trend of capelin biomass and also, biomass trends of these two species.





**Figure 32. The graphic shows the data from Icelandic seabird breeding population figures, from Garðarsson et al. (In print) and Hansen & Sigurðsson and the benchmark of ICEs capelin biomass, the linear trend of biomass data is represented. Biomass data are expressed in thousand tonnes.**

Observing the plot from the biomass in the last years the assessment team cannot conclude that there is a linear trend but it can be observed that in the years when the capelin stock was depleted the population of seabirds was decreasing but now, when the stock is more stable and the biomass is bigger the linear trend of Puffin is not increasing. Therefore, it seems that there is not a direct relationship with the stock of capelin and the seabirds, other environmental factors are influence the population of seabirds and the assessment team cannot confirm that the fishery is affecting the density of population.

Furthers, the table below shows the results of Lilliendahl,k. and Solmundsson, J. (1997) of six birds in the Iceland waters during the summer. It can be observed that Puffin and kittiwake prey on Capelin but for Puffin is not the main species in the diet. Kittiwake prey on Capelin in the northeast and north west and it was explained in the same study. The fishing grounds of Capelin are not located in the same area, and the fishery is close during the summer. Figure 4 shows the main areas where the fleets take place their activities and there is not overlapping with the breeding areas.

In the table of ETPs in the section 8.3, the assessment team gives a justification to explain how the fishery could affect these seabird populations. The indirect impacts in the population should be more analyse in the models but the assessment team does not observe direct impact in the population seabirds.

**Table 8. The estimated annual summer food consumption of six species of breeding seabirds in Iceland in 1994 and 1995 divided by bird species and major food items. Numbers given are in thousands of tonnes. Source: Vilhjalmsón, H. 2002- (Species: RA- Razorbill; CG- Common Guillemot; BG- Brunnich Guillemot PU- Puffin; KI- Kitiwake; FU- Fulmar)**

Species	Capelin	Sandeel	Euphausiids	Other
RA	13.1	12.2	1.1	0.1
CG	67.8	27.9	4.6	2.4
BG	41.9	10.0	14.4	5.3
PU	23.7	109.9	9.7	4.6
KI	15.7	3.1	0.4	0.4
FU	8.5	21.3	4.0	39.6
Total	170.7	184.4	34.2	52.4

Some studies (Vilhjalmsson, H. 2002; Cury, et al. 2011) have shown that the predation of capelin come from puffin and kittiwake is notable on their feeding habit but in the case of Atlantic puffin, over the last 20 years, the behaviour of feeding is changing and they prey more on Sandeel, for this fact some researchers notes that the decreasing of Atlantic puffin population are due to the decreasing of sandeel stock and climate change.

The rest of the seabirds species are not affected by Capelin fishery, no direct impacts are reported and the populations of these species are not affected, they are considered Least Concern in the IUCN Redlist.

However, the assessment team has concluded that the fishery need to encourage information gathering regarding seabirds feeding habit. This measure will avoid the lack of data in the models and improve the accuracy of the estimation models. However, the current management system based on 2 TACs per year fulfils with the ecosystem needs.

#### 4.4.4 Habitats

The encountered habitat in the fishery is the water column, therefore, nets are towed at the appropriate level in this area of the sea to intercept target shoals, with gear depth being controlled by altering towing speed and/or warp length, therefore the interaction with the habitat is very low, the physical impacts of the gear on seabed habitat types are known. There are no known impacts of the fishery on the pelagic habitat (water column).

During normal fishing operations, the fishing gears do not touch the seabed and associated fauna/flora, therefore the fleets have no contact with the bottom surface. The possibility to contact with the seabed's surface is limited, and therefore, also the fishery is highly unlikely the likelihood to damage to seabedbenthic habitats.

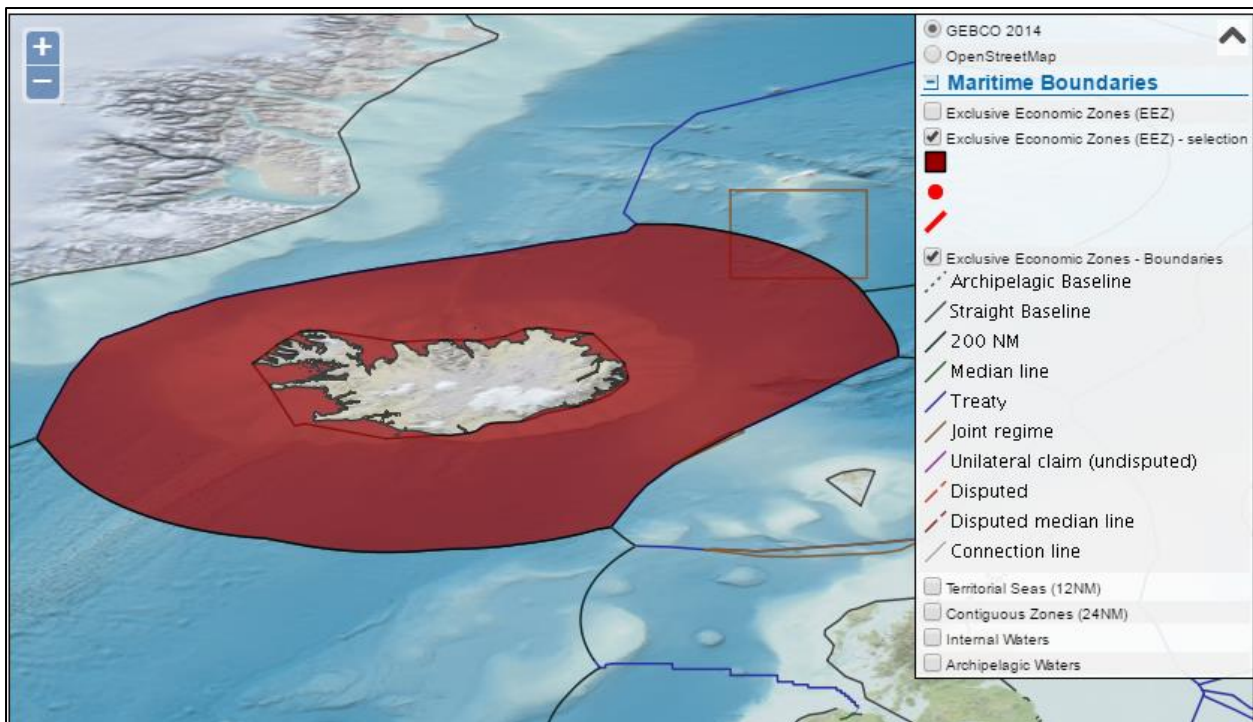
The method of fishing operations of the type of gears, include to allow the net to remaining within the water column, and the net would be immediately (and expensively) damaged were it to if it comes in contact with seabed structures. Skippers have good control over the position of the net and the use of technology reduces the likelihood of any encounters with the seabed. A net monitor (sonar) with a transducer actually on the net enables skippers to accurately fish to within a couple of meters of the seabed without making contact. Further, the skippers have good knowledge of the fishing grounds where they realize their fishing activities occur. They have a good knowledge of depth, kind of substrates, geomorphology among others features. Further, the accessory equipment, sonar, is a useful tool to detect fish concentration ahead of the trawler and the trawl path and trawl depth can be adjusted accordingly avoiding any contact with the bottom surface.

Therefore, the pelagic trawls and the purse seines evaluated in the assessment, are not designed to contact the seabed and then they do not impact with the bottom surface being less erosive than other gears. The gear types under evaluation are designed to fish in pelagic habitats and when any interaction happens with the seafloor is very unusual, almost irrelevant; the contact with the bottom imply large economical losses for the fishery.

As it is explained by Vilhjálmsson et al. (2002), Capelin has a pelagic distribution and it aggregated in schools between 0-700 meters but usually is located up to 200 m (Fishbase.org), therefore the fishing activity is localized at some point in the water column above the seabed and no negative impacts in the water column are reported by pelagic gears.

The habitats and the ground where the Capelin are and where the fishing activities take place are well defined. There is a widely information and mapping regarding the closed areas and the kind of substrate in each ground to allow fishing activities without damage the gears.

The Ministry of Fisheries and Agriculture has large knowledge regarding the distribution and characteristics of the grounds and the track record allow knowing where the vessels are fishing. Figure 33 shows the distribution of these grounds.



**Figure 33. The 200 mile EEZ around Iceland and around neighbouring countries. Source: Flanders Marine Institute (2016). <http://www.marineregions.org/gazetteer.php?p=details&id=5680>**

The geographic boundaries of the Icelandic fishing grounds have changed with time. Originally, the grounds consisted of the waters above the continental shelf where Icelanders could conduct their fisheries in their small boats. Later the Icelandic fishing grounds were generally acknowledged as the International Council for the Exploitation of the Sea (ICES) fishing area Va. Most recently, the grounds have been extended to the 200 nm exclusive economic zone (EEZ). These grounds are well located and can be monitored. On the other hand, the DoF enforcement to comply with the laws established other measure to protect the habitat in Iceland, it is the prohibition on fishing with trawls within 12nm of the coast in many areas of Iceland where the most vulnerable areas of seabed (deep sea coral reefs) and benthos organisms live.

There are several VMEs in Icelandic waters. They are classified as VMEs because of the presence of hard corals (*Lophelia pertusa*), soft corals (*Gorgonacea* & *Pennatulacea*) and or Sponges (*ostur*) In general, vulnerable habitats around Iceland occur in deep waters and are commonly close to the continental shelf

break or deeper. However, maerl beds and hydrothermal vents in the Eyjafjörður fjord are examples of vulnerable habitats that occur in coastal waters.

All the VME are well located and are no overlapping with Capelin fishing grounds. Further, the methodology of the gears under assessment do not affect these habitats.

There are a total of 9 marine protected areas in Icelandic waters designated under the OSPAR convention covering a cumulative total of ~156km<sup>2</sup>. The **Error! Reference source not found.** shows the number of marine Protected Areas in Icelandic waters declared by OSPAR convention.

To manage the MPAs and the sensitive areas to fishing activities, the ministry has published an “Icelandic National Biodiversity Strategy and ActionPlan” (Ministry for the Environment, 2008). The main measures of the plan are listed below:

- ~ protect threatened species in Icelandic waters
- ~ develop fishing methods with less impact on marine ecosystems
- ~ protect vulnerable benthic ecosystems

Large areas of Icelandic waters are closed for fishing, some of them temporarily (hours per day, days in total or seasonal) and others permanently (years). Areas are usually closed for fishing with bottom trawl or longline due to the presence of juvenile fish over extended periods of time or in order to protect spawning grounds (Directorate of Fisheries). Although, area closures are aimed at protecting juvenile fish, the measures have a secondary effect, i.e. protecting seabed habitats from being damaged by fishing activities. The Icelandic Coast Guard is in charge to monitor fishing activities in Icelandic waters, including surveillance of areas closed for fishing. The vessel are informed of the areas and are updated with the DoF following the MFRI advice. The VMS system makes easy the control and track record of every fishing haul in the Coast Guard operation centre. Figure 34 show the areas in the surveillance program which must be monitored.



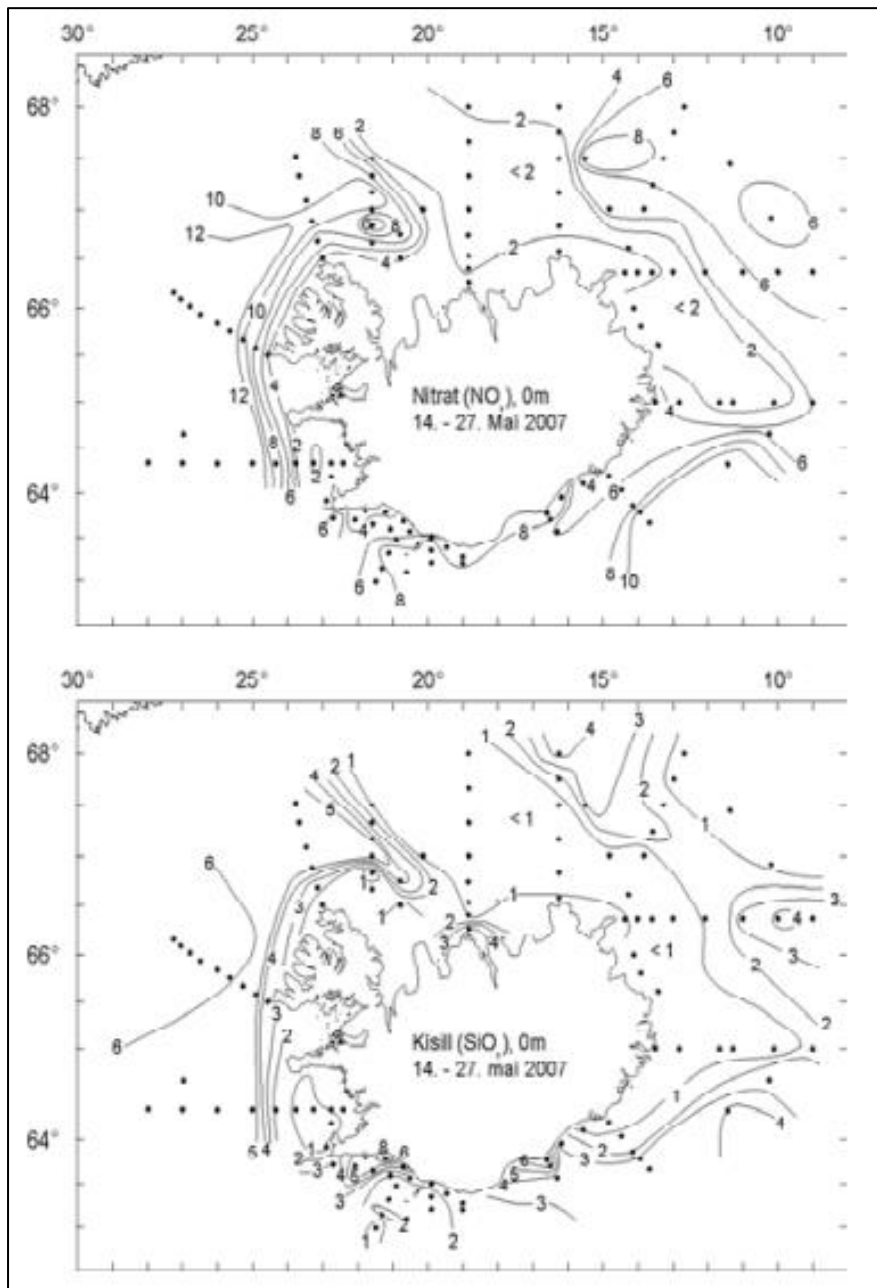
<http://www.fiskistofa.is/fiskveidistjorn/veidibann/reglugerdarlokanir/>).

Iceland is the second largest island in Europe, after Great Britain. It touches the Arctic Circle in the North and has maritime boundaries with Greenland in the west and north-west, Jan Mayen (Norwegian) in the north and the Faroe Islands in the south-east. The nearest neighbours are Greenland, 280 km to the northwest and the Faroe Islands, 430 km to the southeast.

The Irminger current keeps the waters south and west of Iceland relatively warm and stable both inter and intra-annually. The major spawning grounds for most Icelandic fish stocks are in these waters. Most of them spawn in early spring, when the larvae are able to utilise the spring phytol- and zooplankton bloom, while they drift to nursery areas. The waters north of the country are colder and fluctuate more, both between seasons, years and decades, depending on the strength of the Irminger current versus the colder currents. The waters north of Iceland are also important rearing grounds for juveniles of many species such as capelin, herring, haddock and cod. Most of the coldest waters are habited by capelin shrimp, capelin and Greenland halibut. These characteristics described and are the responsible for Capelin migrations.



The ecosystems in Iceland is well known, the MFRI realized several project to improve the skills regarding the environmental conditions around Iceland. The Iceland Sea Ecosystem Project, of the Marine Research Institute, was initiated in 2006 and continued in 2007. The main objective of the project is to analyse structure and function of the Iceland Sea ecosystem, with particular emphasis on life history of the capelin stock and recent changes during the last decade. Some of the data collected in this project are still collected during the surveys realized to evaluate the stock status of main target species. The layers of salinity, temperature and nutrients are well defined in the Icelandic waters. (Figure 35 and Figure 36).



**Figure 35. Nutrient concentrations at the surface in Icelandic waters 14.—27. May 2007 above) nitrate ( $\text{NO}_3$ ,  $\mu\text{mol l}^{-1}$ ) and bellow) silicate (Si,  $\mu\text{mol l}^{-1}$ ). Source: Hafro.is.**



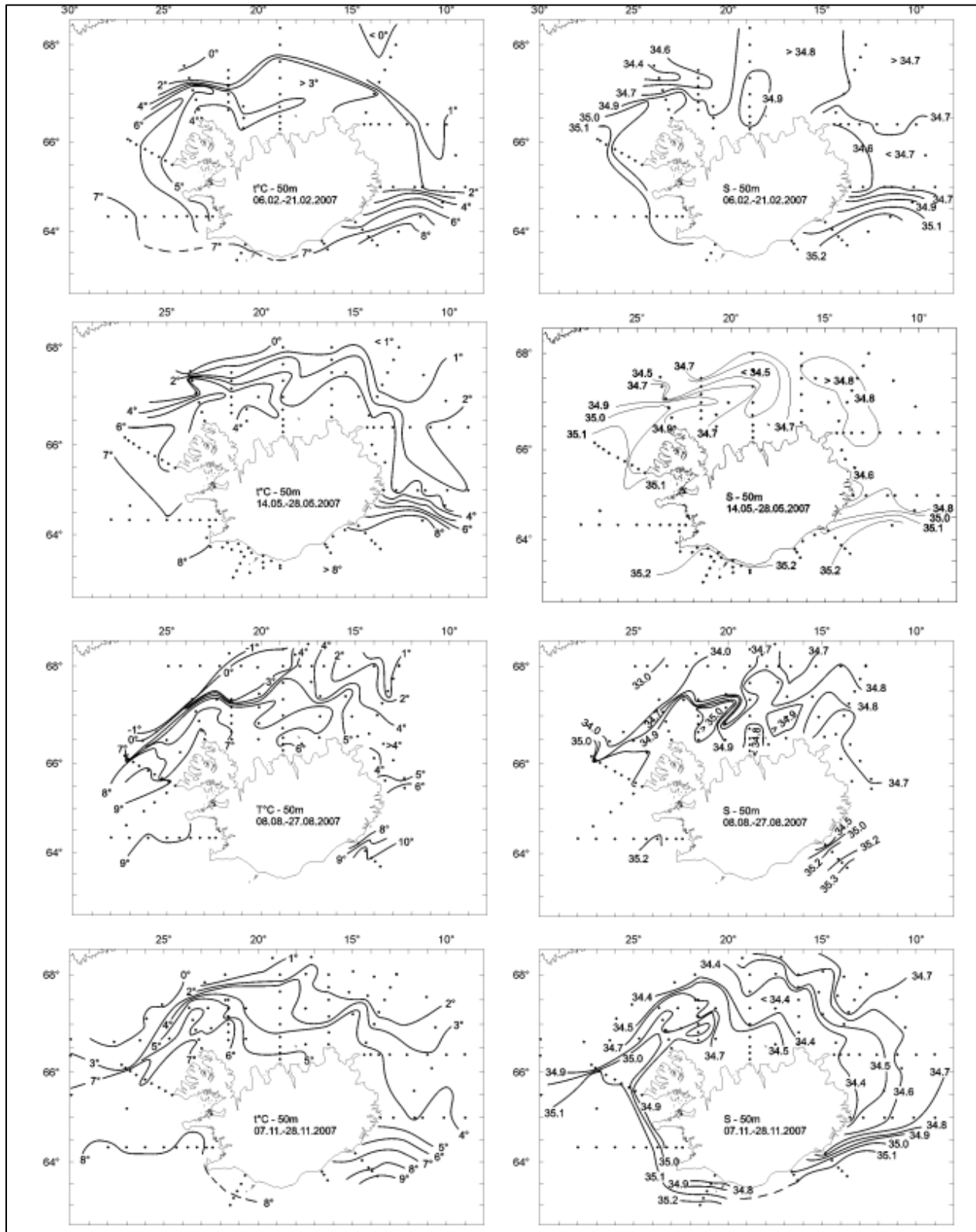


Figure 36. Sea temperature (°C, left) and salinity (right) at 50 m depth in Icelandic waters, for February, May, August and November 2007. Source: Hafro.is.

In the 755,932.4 km<sup>2</sup> that Iceland has as Exclusive Economic Zone including territories there are defined 18 Marine protected Areas with specific regulations to control their activities that are listed below and their distribution can be consulted on this [link](#). No overlapping with capelin fishing grounds is noted.

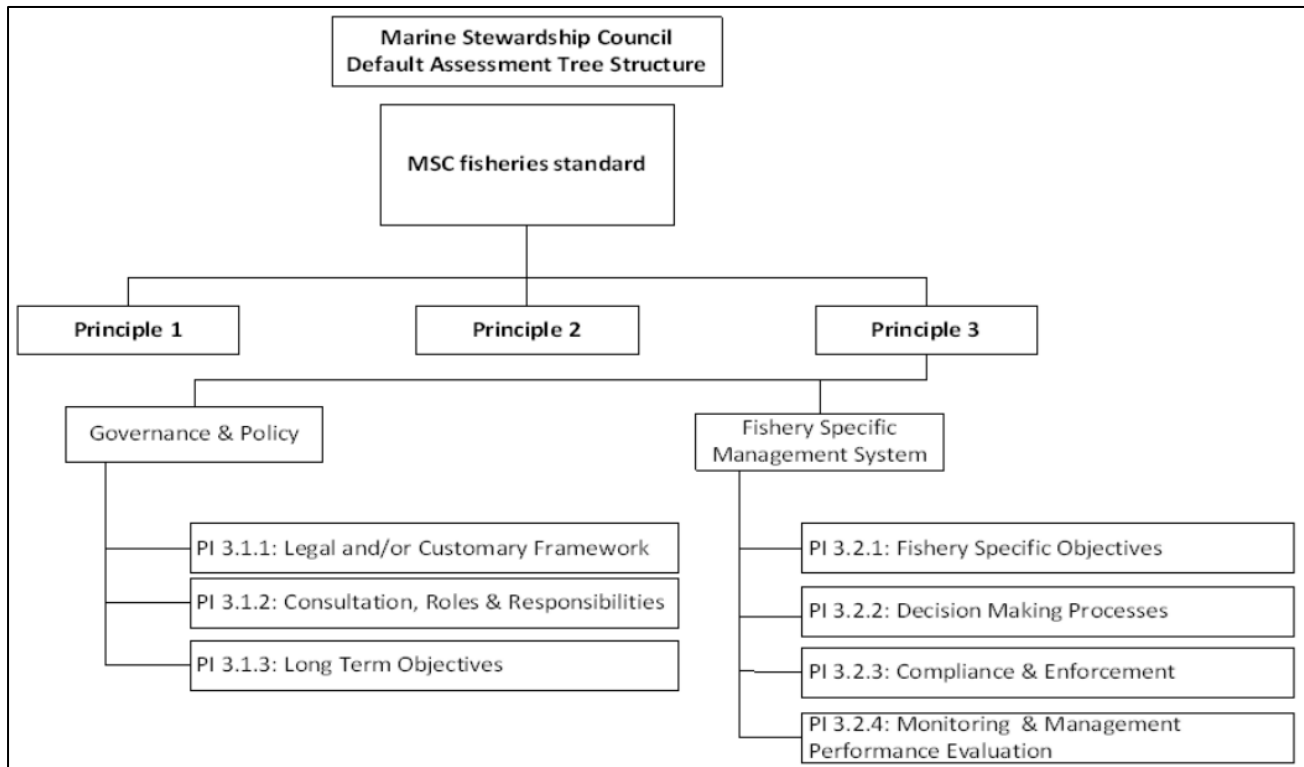
- Breidafjörður Nature Reserve Conservation Area (Serlog)
- Dyrhólaey Nature Reserve (Fridland)
- Flatey Nature Reserve (Fridland)
- Grotta Nature Reserve (Fridland)
- Hamarinn Natural Monument (Natturvaetti Monument)
- Herdísarvík Nature Reserve (Fridland)
- Hornstrandir Nature Reserve (Fridland)
- Hrísey Nature Reserve (Fridland)
- Ingolfshofdi Nature Reserve (Fridland)
- Jökulsárgljúfur National Park
- Melrakkavey Nature Reserve (Fridland)
- Reykjanesfólkvangur Public Recreation Area or Country Park (Fólkvangur)
- Sálhofdi og Sálhofdamýrar Nature Reserve (Fridland)
- Skrudur Nature Reserve (Fridland)
- Stapi og Hellnar Nature Reserve
- Surtsey Nature Reserve (Fridland)
- Varmarosar Nature Reserve (Fridland)
- Vatnsfjörður Nature Reserve (Fridland)

Further, the Coast Guard and the DoF managed and controlled these areas. The Coast Guard has an interpretation centre where the track record of every set carried out by Icelandic vessels can be consulted to enforcement the laws and regulations.

Due to the fishing is carried out with a pelagic gears the interactions with the bottom surface doesn't occur and the impact in the bottom surface is negligible or null. The most important interaction that the fishery has in the ecosystems is the removal of capelin as LTL species which serves as a prey for a wide range of fish, mammals and birds. As some study confirms capelin is important in the diet of cod as well as a number of other fish stocks, marine mammals, and seabirds. Unlike other commercial stocks, adult capelin undertake extensive feeding migrations north into the cold waters of the Denmark Strait and Iceland Sea during summer. Capelin abundance has been oscillating over roughly a decadal period since the 1970s. However the stock status of the species is not overfished and overfishing is not occurring. Some studies suggested that this declined in some areas where the stock is distributed could be due to environmental changes that could affect the patterns of migrations of Capelin but more research projects are needed to confirm this hypothesis.

#### 4.5 Principle Three: Management System Background

Under P3 the CAB has described some aspects of the fishery that are divided into several sections (Figure 37) The chart below shows the PIs evaluated in the fishery under P1 and make easier the understanding of this principle.



**Figure 37. Principle 3 Default Tree Structure. Performance Indicators (PIs) to evaluate under principle 3. Source: MSC FCRV2.0.**

##### 4.5.1 The legal basis and Scope of the management system

The capelin stock (in the Iceland-East Greenland-Jan Mayen area) is a straddling stock. Most of the fishing takes place during the winter season when mature capelin migrates in large schools from their feeding areas in the north to the spawning areas south-west of Iceland. During recent years there has been very little 0 fishing during other seasons and the TAC for the remainder of this year (2016) is zero.

The fishing is managed by agreements between Iceland, Greenland and Norway that detail the catch rule that is to be used to determine the TACs for each year and how the TACs should be shared between the three coastal states. In 2003 they agreed that the catch rule should be that TACs should be equal to the estimated size of the stock minus 400,000 tonnes that should be left to spawn. This catch rule wasn't accepted as precautionary by ICES. In the winter 2014/2015 ICES accepted a new rule proposed by the Marine Research Institute (MFRI) in Iceland as precautionary. This rule takes into account the uncertainty in the acoustic estimates and in the volume of capelin consumed by predators others than humans from the time of the estimation to the spawning time. The coastal states included the new rule into their agreement by a protocol without changing their basic agreement from 2003.<sup>1</sup> There is no date for revision of the new catch rule but the fishery is evaluated each year by MFRI and by ICES.

<sup>1</sup> Personal communication with Jóhann Guðmundsson at the Ministry of Industry and Innovation, MII.

The agreement from 2003 states that Iceland's share in the TAC should be 81%, Greenland's 11% and Norway's 8%. These shares have not been disputed so far.

There are also agreement between Iceland and Norway that allows Norwegian vessels to obtain some additional capelin quotas from the Icelandic share based on some special conditions. This agreement is linked to permits for Icelandic vessels to fish for cod and haddock in the Barent Sea. (See response by the Minister of Industry and Innovation in the Parliament on agreements on fishing rights during the 2010/2011 Parliamentary session, in Icelandic at: <http://www.althingi.is/altext/139/s/0675.html>).

The interest in the capelin fishery is mainly economic, held by those that directly participate in the fishery; i.e. fishers and owners of fishing vessels, buyers of the catch, processors in Iceland, the workers in the processing plants and the customers/consumers. Practically all of the catch is exported. The capelin fishery in Iceland is an important part of the fisheries in Iceland, which, in turn, is the single largest contributor to the country's net foreign exchange earnings. Capelin is caught by large vessels using purse seine and midwater trawl.

Fisheries used to be the main economic foundation of local communities outside of the Reykjavik area. While the relative importance of the fisheries sector in the Icelandic economy has declined and the sector is no longer the backbone of as many towns and villages as it used to be in earlier times, it is still very important to the national economy as well as to the economic health of many communities outside of the Reykjavik area.

The Ministry of Industries and Innovation (MII) is responsible for the management of fisheries in Iceland as well as for the implementation of fisheries legislation, including the issuing of relevant regulations. The Ministry's duties include general administration, long-term planning and relations with other fisheries institutions at the international level. The Minister is responsible for deciding the annual TAC. Before making the decision the Minister must consider the MFRI's advice for the stock.

The Icelandic Fisheries Management Act (no. 116/2006) states (Art. 1) that the authorities should "contribute to the protection of (exploitable stock in Icelandic waters) and their economic exploitation and thereby ensure secure employment and settlement in the country."<sup>2</sup> The Act on the utilization of exploitable marine stocks (no. 57/1996) states (Art. 1) that its aim is to contribute to "sustainable utilization which ensures maximum benefits to the Icelandic nation in the long-run."<sup>3</sup> These Acts make no references to the precautionary principle. The principle is embedded in some of the international conventions to which Iceland is a signatory (e.g. the OSPAR convention and the United Nations Agreement on the implementation of the provisions of the United Nations convention on the Law of the Sea, 10 December 1982, which relates to the conservation and management of straddling fish stocks and highly migratory fish stocks (in force as of 11 December 2001). The precautionary principle is also mentioned in the preface of the European Economic Area (EEA) agreement and is now firmly embedded in EEA law and regulations.<sup>4</sup>

<sup>2</sup> No. 116/2006, accessible (in Icelandic) at <http://www.atvinnuvegaraduneyti.is/media/Skyrslur/Stjorn-fiskveida-2010-endanlegt.pdf>. An English translation is accessible at <http://www.fisheries.is/management/fisheries-management/the-fisheries-management-act/>.

<sup>3</sup> No. 57, June 3 1996, accessible (in Icelandic) at <http://www.atvinnuvegaraduneyti.is/media/Skyrslur/Stjorn-fiskveida-2010-endanlegt.pdf>.

<sup>4</sup> See discussion on the precautionary principle in the proposal for law on main principles of environmental law (Frumvarp til laga um meginreglur umhverfisréttar, þskj. 842 – 566. mál, put forward during the 133. Session of the Althing 2006-2007, <http://www.althingi.is/altext/133/s/0842.html>). This proposal was not passed.

#### 4.5.2 Fishery specific objectives

The Fisheries Management Act of 1990 established the present system of Individual Transferable Quotas (ITQ) for the Icelandic fisheries. The Act stipulates that each year fish quotas shall be allocated to eligible fishing vessels according to their quota shares. The Act does not define a terminal date for the system. In that sense the shares can be considered permanent. On the other hand the shares do not form a property right and can be altered or abolished by the Icelandic legislative assembly, the Althing. The quota shares can be traded and so can the annual quota allocation. There are some restrictions on this trade, e.g. each vessel must catch at least half of its quota allocation each fishing year and there are specified upper limits for the quota holdings of any one company.

This legislation on fishing rights has been tested in courts on many occasions. Two court cases in 1998 and 2000 settled basic disagreements on the foundations of the present system. On December 3rd 1998, the High Court in Iceland ruled that the provision in the Fisheries Management Act allowing the authorities to limit the entry of fishing vessels was unconstitutional as it treated those that had originally got licensing of their fishing vessels (in 1984) differently from later applicants. The High Court ruled that such unequal treatment of Icelandic citizens could only be accepted as a temporary measure justified by some extraordinary conditions. Subsequently, the Act was amended in accordance with this ruling. The amendment opened up the possibility that anyone, who applies for the licensing of a fishing vessel which conforms to a particular standard, can obtain a fishing license. However, a fishing license is not a sufficient condition for commercial fishing of a species which is subject to quota restrictions; for such fishing to be legal some quota must also be registered to the vessel and/or – as currently is possible – the vessel may have a license for Coastal fishing.

The limitations of “the right to catch” set by the Fisheries Management Act were tested in court on the 6 of April 2000 when the High Court ruled that limitations of fish catch is constitutional.<sup>5</sup>

The rights of different fishers to access the resource are clearly codified in the legislation. As with all other legislation in Iceland, the legislation on fisheries management has been developed through legally based, democratic processes where various stakeholder groups were consulted. Between plenary debates (readings) on draft legislation in the Althing, extensive hearings with experts and stakeholders have been conducted by permanent committees of the assembly.

Gradually the rights of different fishers to access the resource have become more homogenous and the total catch has become more predictable. The introduction of Coastal fishing (strandveiðar) in 2009, where small vessels using only hand-line can take part and where there is a common total quota for all vessels in the fishery, introduced some heterogeneity into the system. However, so far the catch allocated to Coastal fishing is small, i.e. 6,000 tonnes in total. Before deciding the total quota for the present fishing year the estimated catch in Coastal fishing was subtracted from the TACs for the relevant species. All permissions to catch capelin are allocated in the quota system this system allows to establish the objectives of the fishery in the legislation. Although, the precautionary approach is not explicitly mentioned in the legislation on fisheries management in Iceland nor has it been introduced in a general form in Icelandic law but it is stated in a number of international agreements that Iceland has signed. The precautionary principle is explicitly referred to by the MFRI, ICES and the MII in relation to the catch rules that have been adopted and to the fisheries management in general.

#### 4.5.3 Decision making- processes

Three public institutions are at the heart of Icelandic fisheries management: the Marine Research Institute (MFRI)<sup>6</sup>, the Directorate of Fisheries (DoF) and the Ministry of Industries and Innovation (MII) formerly the

<sup>5</sup> This ruling is available in Icelandic at <http://www.haestirettur.is/domar?nr=767>.

Ministry of Fisheries and Agriculture). The Coast Guard also has a role in monitoring fishing activities, gears, fishing locations and discarding. Many areas in the waters around Iceland are closed for fishing, mostly because they contain large quantities of juvenile fish, but also for ecological reasons (e.g. to prevent the destruction of corals). Some areas are closed permanently for some fishing while other area closures are temporary. All discarding of catches is explicitly banned by Icelandic law.

The MFRI is responsible for biological research and stock assessments and provides advice on Total Allowable Catches (TACs) to the Ministry. Its stock assessments are based on data from extensive research fishing as well as data on catches, length and age composition and sexual maturity of the fish. The MFRI presents its advice at the end of May/beginning of June each year. The MFRI's stock assessments and advice for many important species are reviewed each year by ICES.

There is extensive cooperation between MFRI and marine research institution in other coastal states in the North Atlantic on pelagic species, including capelin.

The advice from MFRI on capelin in June is basis of the TAC for the summer and autumn season. The advice for the most important season, the winter season from January to March, is based on estimates, using acoustic sonars, of the stock of mature capelin migrating to the spawning areas South-West of Iceland. These estimates are made in December-January and may even be revised later.

The MFRI plays an important role in communicating scientific advice to the fishing industry. This communication takes place through the web, newspapers and meetings with people from the industry, including public meetings. Most of the funding of the MFRI comes from the state budget, but the institute also obtains funds from domestic and international research funds, among them the fund "Verkefnasjóður". This body receives income from the tax on low value catch and from some fines for illegal fishing collected by the Directorate of Fisheries. The estimated funding of MFRI in 2016 amounts to 3,419 million ISK (25 million EUR). Of that sum 54% is estimated to come from the state budget.<sup>7</sup> The number of employees is 165 and it operates two specially equipped research vessels. The MII is responsible for the management of living marine resources in Icelandic waters. The minister is constitutionally responsible to the Althing (Parliament). As fisheries are so important for the economy of Iceland the Althing has a permanent committee on matters related to fisheries and fish processing<sup>8</sup>. This committee discusses all proposed legislation on these matters and can decide to discuss any aspect of the industry's behaviour or any concern that some people may have. It can require that information on the relevant matters be supplied by the MII or the public institutions serving the fishing industry.

#### **4.5.4 The consultation processes**

There is legislation ("Upplýsingalög" or Freedom of Information Act) in Iceland which requires ministers and public institutions to reveal existing information. Members of the Althing can obtain detailed information from the Ministry and public institutions by putting questions to the appropriate minister in the Althing.

<sup>6</sup> In 2015 Althing, the Icelandic Parliament, passed laws establishing a new institution merging the old Marine Research Institute (Hafrannsóknastofnun, website: [www.hafro.is](http://www.hafro.is)) and the much smaller Institute of Freshwater Fisheries (Veiðimálastofnun, website: [www.veidimal.is](http://www.veidimal.is)) in Marine Research Institute – Institute for Oceanic and Fresh Water Research (Hafrannsóknastofnun – rannsóknar- og ráðgjafastofnun hafs og vatna, website: [www.hafogvatn.is](http://www.hafogvatn.is)). This merger became effective 1<sup>st</sup> of July 2016. The new institution has 165 employees, thereof some 20 from the Institute of Freshwater Fisheries and has 2 specially equipped research vessels.

<sup>7</sup> Additional 126.3 million ISK (0.92 m EUR) is allocated for international co-operation and research within international institutions like North Atlantic Marine Mammal Commission (NAMMCO), International Council for the Exploration of the Sea (ICES), Northwest Atlantic Fisheries Organization (NAFO), North-East Atlantic Fisheries Commission (NEAFC), International Commission for the Conservation of the Atlantic Tunas (ICCAT) and International Whaling Commission (IWC).

<sup>8</sup> In 2009 its remit was extended to agriculture and its name was changed to the Althing's Fisheries and Agriculture Committee.



Before making decisions, the minister consults extensively with stakeholder organisations including the Federation of Icelandic Fishing Vessel Owners (Landssamband íslenskra útvegsmanna, LÍÚ), The Federation of Owners of Small Fishing Vessels (Landssamband smábátæigenda), the Federation of Captains and Mates (Farmanna- og fiskimannasamband Íslands, FFSÍ), the Icelandic Union of Marine Engineers and Metal Technicians (Félag vélstjóra og málmteknimanna, VM) and the Federation of Seamen (Sjómannasamband Íslands) as well as organisations of those working in fish processing (in Iceland both fishing and fish processing are frequently carried out within the same company). All laws and regulations are published in real time as they come into effect on the Ministry's website. The Directorate of Fisheries (DoF) has many important roles in fisheries management in Iceland. The DoF licenses fishing vessels, fish processing plants and authorizes harbour scales which are used for weighing all landings of fish. It also monitors the operators of those facilities to ensure that they follow relevant regulations. The DoF gathers information on both catches (including logbook information) from the vessels at sea and information on catches from the authorized harbour scales. This information is sent electronically to the DoF at least once every day and published on the Directorate's website. The website makes available information on the quota positions of every vessel in Iceland, such as its quota allocations for each species and how much it has caught.<sup>9</sup> All trade in quotas and quota shares has to be reported to the DoF.

#### **4.5.5 Monitoring and management**

The DoF monitors fish processing as well as fishing. All sellers of fish must report the name of the purchaser to whom they sold fish as well as the quantity and price of fish they sold to them. Similarly all purchasers of fish must report the name of their supplier, the quantity they purchased and the price paid. The DoF regularly checks if the output of fish products from a fish processing unit is consistent with the reported input of raw fish. Monitoring of the quota system in Iceland is strengthened by the traceability measures required for exports in a country where over 90% of all fish caught is eventually exported in some form.

#### **4.5.6 Compliance and enforcement**

There is no illegal, unreported and unregulated (IUU) fishing in Icelandic waters. All landing of fish from vessels that engage in IUU fishing and the servicing of such vessels is forbidden in Iceland.

In summary, the institutions, their roles and interactions are clearly defined within the three core areas of resource management: (1) The development of the knowledge base, (2) preparation and implementation of regulations, and (3) the enforcing of the regulations. The interactions between the MII, the DoF, the Coast Guard and the MFRI function well. The role of each institution is well defined, with the Ministry taking political responsibility for decisions, and the Directorate performing the technical work at the behest of the Ministry. Decision-making procedures are well established and allow for expeditious and effective interactions. There is an established, tested and proven annual decision-making process, which ultimately results in the setting of regulations for the following year. The compliance with regulations is subject to a rigorous and efficient enforcement system.

Subsidies were abolished in the Icelandic fishing industry in the early 1990s and since 2004 the industry has been paying an annual fee based on estimated profitability of the sector and on the weighted volume of landings.<sup>10</sup> The fishing industry is expected to pay 8.57 b.ISK (63 m.EUR) in fees during 2016.<sup>11</sup> This amount is equal to 5.7% of the value of all landings in 2015.

<sup>9</sup> See DoF's website [www.fiskistofa.is](http://www.fiskistofa.is). Some of the information on this website is also available in English.

<sup>10</sup> The weights are average landing prices during a recent 12-month period before the start of the fishing year.

<sup>11</sup> See the state budget for 2016 available at <https://www.stjornartidindi.is/Advert.aspx?recordID=0f33bd9e-1305-4135-86c9-3e86c59b7d94>.

The Directorate of Fisheries (DoF) is entrusted with the day-to-day administration of fisheries. The DoF is responsible for implementing legislation on fisheries management and it collects and publishes numerical data and other information on fisheries. The DoF issues fishing permits to vessels and licenses scales for weighing landings. It keeps records of quota shares and quotas, including all transfers of quotas and quota shares between vessels. It also checks that vessels do not fish in excess of their quotas.

The DoF is responsible for ensuring that fishers follow regulations on gears, fishing locations and discarding. It also ensures that vessels, provided they are in the quota system, have quotas for the probable catch before leaving harbour. The DoF gets some assistance in monitoring of gear, discarding and fishing locations from the Coast Guard, which also monitors fishing activities of foreign vessels near the Icelandic fisheries zone.

The DoF collects data on fishing and fish catches landed by the Icelandic fleet and monitors compliance with rules on the weighting and recording of catches. Other duties include imposing penalties for illegal catches.

The DoF provides supervision on board fishing vessels and in ports of landing, which involves inspecting the composition of catches, fishing equipment and handling methods. The DoF also issues licenses to processing plants and supervises their production. Processors have to meet specific requirements concerning hygiene, equipment and quality control. Approved inspection bodies are responsible for inspection of hygiene, facilities and in-plant monitoring of production, both in processing establishments on land and on board vessels. Accreditation of inspection bodies is required.

The DoF has the right to demand that inspectors are allowed on board fishing vessels as observers. These observers can demand that the vessel goes to a certain fishing location and that certain gear should be used. Requiring repetition of the fishing procedures of the last fishing trip enables inspectors to compare the catches from the two trips. Comparing the catches of different vessels fishing in the same location and using the same gear is also used for monitoring.

A vessel owner which is found to have acted in breach of regulations gets a warning and a fine. Repeated offenses lead to heavy fines, revocation of the vessel's license to fish and possibly to prison sentences. In 2015 the DoF meted out fines to the sum of 15.8 million ISK (116,000 EUR).<sup>12</sup>

The DoF co-operates with a number of other institutions, including the Icelandic Coast Guard and the Harbour Authorities regarding daily recording of landed catches throughout the country. The Icelandic Coast Guard monitors fishing activities in Icelandic waters, including surveillance of areas closed for fishing and inspection of mesh sizes and other gear related practices.

The DoF and the Coast Guard survey and police the fishing of foreign fishing vessels in the Icelandic EEZ and in those cases where landings of catches take place abroad the DoF cooperates with counterparties in the relevant countries for proper weighing of the catch.

All discarding is explicitly banned by Icelandic laws. However some discarding is known to take place. Discarding in Icelandic fisheries has been estimated on several occasions through co-operative studies by the Marine Research Institute and the Directorate of Fisheries. Data collection is mainly related to cod, haddock, saithe (*Pollachius virens*) and golden redfish (*Sebastes marinus*) in demersal trawl fisheries, and plaice

<sup>12</sup> Directorate of Fisheries' Annual Report 2015 ([http://www.fiskistofa.is/media/arsskyrslur/Fiskistofa\\_arsskyrsla\\_2015.pdf](http://www.fiskistofa.is/media/arsskyrslur/Fiskistofa_arsskyrsla_2015.pdf)) p. 22. In 2015 14 offences were sent to the police. Of 1370 warnings of withdrawals of fishing licences because of fishing in excess of quotas only 8 lead to actual withdrawals as the offenders were able to acquire the quotas that were required within the given time frame. In one case weighing licence was withdrawn. 77 fishing licences were withdrawn because of violations of logbook regulations and 15 licences were withdrawn because the owners didn't pay the resource (catch) tax. In 2015 42 fishing licences were withdrawn because the owners hadn't paid a fine for some offences.

(*Pleuronectes platessa*) in the Danish seine fishery. Sampling for other species, such as wolffish, was not sufficient to warrant a satisfactory estimation of discarding. For each species the discard was estimated by comparing data on length distributions of fish measured at sea and landed catch from the same fishing ground.<sup>13</sup> There is no discarding of capelin and there are no reported cases of slippages in the capelin fishery in Iceland. The monitoring and policing of Icelandic fishing is enhanced and strengthened by the traceability measures required for exports, since over 90% of all catches and practically 100% of capelin catches end up being exported in some form.

There have been several external reviews of the methods that the Marine Research Institute uses in its stock assessments and of the recommendations and advice it gives. The ICES reviews most of the advice annually, including the advice on saithe. There have also been special reviews made by internationally respected experts. There has not been comparable external review of the work of the Directorate of Fisheries or of the Ministry of Industries and Innovation. However, these institutions are subject to regular reviews by the Althingi's committees, especially the permanent committee on fisheries issues. Like other public bodies, these institutions are subjected to scrutiny by The Icelandic National Audit Office (Ríkisendurskoðun). The performance of the institutions involved in fisheries management is scrutinized and intensively debated in Iceland, especially in the many fishing communities.

The MFRI staff publishes its research in peer-reviewed scientific journals. The system of fisheries management is under regular review by the Althingi as well as by local authorities, the fisheries sector and the general public. The management of the Icelandic fisheries and the level of fees paid for fishing rights (quotas) are presently important issues in Icelandic politics. The external review processes have been beneficial to the work of the MFRI. It seems probable that other parts of the fisheries management system in Iceland would also benefit from more external reviews.

#### **4.5.7 Long-term objectives**

MFRI's long term research plan for 2012-2016<sup>14</sup> is in its last year. The plan emphasizes the importance of biological, ecological and environmental research. The need to evaluate long term exploitation of important species is recognised as well as the formulation of harvest rules for as many species as possible. The plan stresses research on the effects of neighbouring waters (Greenland and Faroese) on the fish stocks in Iceland and on the stock structure. It is to be expected that the new institution will produce a new long term research plan.

The search for the capelin and the acoustic estimation has been done in co-operation with the fishing firms involved. These firms have contributed to the research by allowing that their vessels are used without compensation. They share this cost by contributing their vessels in turn.

<sup>13</sup> Pálsson *et al.* (2012), Mæingar á brottkasti þorsks og ýsu 2001-2010, Hafrannsóknir no. 160 and Pálsson *et al.* (2013), Mæingar á brottkasti þorsks og ýsu 2011, Hafrannsóknir no. 167, Marine Research Institute, 2013. Both are accessible at <http://www.hafro.is/Bokasafn/Timarit/fjolr.htm>.

<sup>14</sup> Rannsókn- og starfsáætlun árin 2012-2016, <http://www.hafro.is/images/langtima12-16.pdf>.

## 5 Evaluation Procedure

### 5.1 Harmonised Fishery Assessment

Certification Bodies assessing fisheries that have areas of overlap are required to ensure consistency of outcomes so as not to undermine the integrity of MSC fishery assessments. The FCR provides guidance for harmonisation where a fishery in assessment overlaps with an already certified fishery.

The MSC wishes to discourage overlapping assessments to avoid potential financial, consistency and credibility costs, including:

- fisheries managers, scientists and stakeholders receiving duplicate requests for information
- duplication of costs for a fishery's certification, including that expense incurred by fishery management agencies pre- and post-certification; and
- the possibility of different assessments placing different conditions upon the same fisheries managers and upon different fishery clients.

In this fishery under assessment even there are several fisheries from the same client certified against MSC requirements. Following the FCR V2.0 in the annex PB (section PB2.1) the fishery doesn't required to harmonise because the other ISF fisheries in Iceland are certified against V1.3 with different default tree, therefore MSC defines that "Fisheries using different CR requirements shall not be required to harmonise their default tree".

However, there are 5 fisheries certified, with different target species but some of them with same gears, the table below shows the most relevant results (Table 9):

**Table 9. Harmonization process: scoring of overlapping fisheries and ISF fisheries certified in Iceland**

	Target species	Gear	2.1.1	2.2.1	2.3.1	2.4.1	2.5.1	3.1.1	3.1.4	3.2.1	3.2.4
<b>ISF Iceland Saithe and ling Fishery</b>	Saithe	Bottom trawl, Danish seine, longline, handline, gillnet and nephrops tramps	75	100	80	60	100	95	100	100	100
<b>ISF Iceland Cod Fishery</b>	Atlantic cod	Bottom trawl, Danish seine, longline, handline, gillnet and nephrops tramps	80	80	80	60	100	100	100	100	100
<b>ISF Iceland Haddock Fishery</b>	Cod & haddock	Bottom trawl and seine	>=80	>=80	>=80	>=80	>=80	>=80	>=80	>=80	>=80
<b>ISF Iceland Golden Red fish</b>	Golden Redfish	Bottom trawl, Danish seine, longline, handline, gillnet and nephrops tramps	80	80	80	60	100	100	100	100	100
<b>ISF Norwegian and Iceland herring trawl and Seine</b>	Atlantic Herring	Trawl and seine	90	100	85	100	85	85	100	90	90
<b>ISF Icelandic Haddock Fishery</b>	Haddock	Bottom trawl, seine, longlines, etc	>=80	>=80	>=80	>=80	>80	>=80	>=80	>=80	>=80
<b>ISF Capelin Fishery</b>	Capelin	Mid water trawl and purse seine	100	100	95	100	100	85	NA	100	90

The differences between rationales are due to the different version of the default tree such as 2.1.1 and 2.2.1 that evaluate the non-target species with different methodology and regarding habitat the use of different gears, bottom trawl has interactions with the seabed but pelagic gears are less negative to the bottom surface and therefore get more scoring in these PIs.

Some of them also have recommendations regarding the interactions with ETPs species as Capelin has. Therefore even the harmonization in default trees is not mandatory, the results regarding ETPs species and management systems are very similar.

## **5.2 Previous assessments**

The fishery has not been previously assessed against MSC Principles and Criteria.

## **5.3 Assessment Methodologies**

The MSC Principle and Criteria for Sustainable Fishing Standard sets out the requirements for a certified fishery. The Certification Methodology adopted by the MSC involves the interpretation of these Principles and Criteria into specific Performance Indicators against which the performances of the fishery can be measured according to pre-specified guideposts. A fishery is assessed against three Principles. The default assessment tree developed by the MSC includes 28 Performance Indicators. Principle 1 addresses the need to maintain the target stock at a sustainable level; Principle 2 addresses the need to maintain the ecosystem in which the target stock belongs to; and Principle 3 addresses the need for an effective fishery management system to fulfil Principles 1 and 2 and ensure compliance with national and international regulations.

### **PRINCIPLE 1: Sustainable fish stock**

A fishery must be conducted in a manner that does not lead to overfishing or depletion of the exploited populations, and for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.

### **PRINCIPLE 2: Minimizing environment impact**

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

The intent of this principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.

### **PRINCIPLE 3: Effective management**

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principle 1 and 2, appropriate to the size and scale of the fishery.

Regarding the Operational Criteria that affects direct and indirectly the three principles, the fishing operations shall:

1. make use of fishing gear and practices designed to avoid the capture of non-target species (and non-target size, age, and/or sex of the target species); minimize mortality of this catch where it cannot be avoided, and reduce discards of what cannot be released alive.
2. implement appropriate fishing methods designed to minimize adverse impacts on habitat, especially in critical and sensitive zones such as spawning and nursery areas.
3. not use destructive fishing practices such as fishing with poisons or explosives.
4. minimize operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.
5. be conducted in compliance with the fishery management system and all legal and administrative requirements.
6. assist and co-operate with management authorities in the collection of catch, discard, and other information of importance to effective management of the resources and the fishery.

## **5.4 Evaluation Processes and Techniques**

### **5.4.1 Site Visits**

Initial consultation meetings were held in Reykjavik, Iceland in June 2016. The objectives of the consultation meetings were to collect information and explain the fishery. The consultation meetings were designed to be inclusive of all organizations and representatives of the fishery. However, the consultation plan was designed to strategically capture sufficient information to ensure understanding and confidence with respect to full assessment scoring.

The on-site consultation also served other important functions. These included:

- Responding to questions and comments raised by participants in the fishery at this initial stage in the assessment.
- The client group provided information, documents, and a list of stakeholders as required by SAI Global. This served to allow the assessment team to collect general information on the fisheries, identify information gaps and identify key stakeholders for the information gathering exercise.
- Following the collation of general information on the fishery, a number of meetings with key stakeholders who expressed an interest to meet were scheduled by the team to fill in information gaps and to explore and discuss areas of concern.

Meetings were held in Reykjavik are recorded in



**Table 10.**

**Table 10. Meetings with the following management and scientific organizations of the ISF Iceland Capelin Fishery during June 21-24, 2016.**

Organization	Attendees	Location	Date	Key areas
Ministry of Industries and Innovation	Jóhann Guðmundsson Erna Jónsdóttir	Reykjavik, Iceland	June 21, 2016	Enforcement, TAC, Governance and policy
Client group: ISF	Kristinn Hjálmarsson Erla Kristinsdóttir	Reykjavik, Iceland	June 21, 2016	Catches, fleet, ISF client group characteristics, attained species, traceability, CoC
The Coast Guard	Ásgrímur L. Ásgrímsson	Reykjavik, Iceland	June 22, 2016	Monitoring and control-Surveillance programme
Marine Research Institute	Birkir Bárðarson Ólafur S. Ástþórsson Ásta Guðmundsdóttir	Reykjavik, Iceland	June 22, 2016	Stock Assessment, TAC, models, retained species
NASBO	Halldór Ármannsson	Reykjavik, Iceland	June 23, 2016	TAC and fishing grounds overlapping with small fleet
Vessels Visit	Kristinn Hjálmarsson	Reykjavik, Iceland	June 23, 2016	Fishing operations, interactions with whales, retained species
VSV (Part of client group)	Sindri Viðarsson	Reykjavik, Iceland	June 23, 2016	Traceability, fishing operation
Icelandic Whale Association (IWA)	María Björk Gunnardóttir	Reykjavik, Iceland	June 23, 2016	ETP species, interactions with whales, predation
Directorate of Fisheries	Sonar Guðmundsson Áslaug Eir Hólmgeirsdóttir	Reykjavik, Iceland	June 24, 2016	Surveillance programme, catches report and monitoring

#### 5.4.2 Consultations

Public announcements of the progression of the full assessment were made as follow (Table 11):

**Table 11. Stakeholder consultation process.**

Date	Purpose	Media
10/05/2016	Fishery Enters assessment	Notification on MSC website Direct email/letter
10/05/2016	Assessment Team Nomination	Notification on MSC website
10/05/2016	Assessment Team Confirmation	Notification on MSC website
10/05/2016	Default assessment Tree	Notification on MSC website
16/05/2016	Stakeholders notification: Fishery name change	Notification on MSC website
10/05/2016	Site Visit Scheduled	Notification on MSC website Direct email/letter
23/08/2016	Stakeholders notification: Peer reviewers proposed	Notification on MSC website

#### 5.4.3 Evaluation Techniques

Each PI under each Principle is weighted so that each of the three Principles is equal to one other.

At the Level of the Performance Indicator, the performance of the fishery is assessed as a “score”. In order for the fishery to achieve certification, an overall weighted average score of 80 is necessary for each of the three Principles and no Indicator should score less than 60. Accordingly, 100 represents a theoretically ideal level of performance and 60 a measureable shortfall.

The Scoring Guideposts (SGs) identify the level of performance necessary to achieve 100, 80 (a pass score), and 60 scores for each Performance Indicator.

The scoring methodology is fully explained in the MSC Fisheries Assessment Methodology. It can be summarized as follow:

- Scoring is a qualitative process, involving discussion between team members and arrival at a joint agreed score. Scores should be normally assigned in divisions of 5 points following the 7.10 sections on MSC FCR V2.0
- The only narrative guidance that is available is at 60, 80 and 100 SGs. Intermediate scores must therefore reflect;
  - A failure to meet all the scoring issues specified in a SG.
- The following system should then be used to determine the overall score for the PI from the scores of the different scoring issues, combining elements scores.
- This system combines a primary approach based on the combination of scores achieved by the individual scoring issues (the a) to i) list below):
  - a) Score = 60: all issues meet SG60, and only SG60. Any scoring issues within a PI which fails to reach SG60, represents a failure against the MSC standard and no score shall be assigned.
  - b) 65: all issues meet SG60; a few achieve higher performance, at or exceeding SG80, but most do not meet SG80.
  - c) 70: all issues meet SG60; some achieve higher performance, at or exceeding SG80, but some do not meet SG80 and require intervention action to ensure they get there.
  - d) 75: all issues meet SG60; most achieve higher performance, at or exceeding SG80; only a few fail to achieve SG80 and require intervention action.
  - e) 80: all issues meet SG80.
  - f) 85: all issues meet SG80; a few achieve higher performance, but most do not meet SG100.
  - g) 90: all issues meet SG80; some achieve higher performance at SG100 but some do not.
  - h) 95: all issues meet SG80; most achieve higher performance, at SG100; only a few fail to achieve SG100.
  - i) 100: all issues meet SG100

## 5.5 Traceability

### 5.5.1 Eligibility Date

The CAB shall nominate a date from which product from a certified fishery is sold with the label. The eligibility date should be defined following the MSC requirements and could be:

- c. The date of the certification of the fishery; or
- d. The date when the first Public Comment Draft Report is published.

The amended PCDR has not change in the eligibility date and it is still **December 1<sup>st</sup> 2016**. As it was noted above and in the first PCDR posted, the eligibility date does not change as per MSC FCR 7.6.1.2 “The publication date of the first Public Comment draft Report”.

### 5.5.2 Traceability within the Fishery

All commercial operations are subject to a permit from the Directorate of Fisheries (DoF), and all vessels are required to carry a VMS system, which is monitored 24hours per day by the Coast guard. Therefore, the track record of every set can be consulted. The DoF collects data on fishing and catches landed by the Icelandic fleet and monitors compliance with rules on weighing and recording of catches. All vessels are required to fill out log books to record details of fishing practices such as location, dates, gear and catch quantity. Vessels that process catch at sea fill out log books electronically and send them directly to the DoF. In Iceland, there is an obligation to land all the catches by every fleet. These catches are weighed and reported in Iceland to Port Authorities who are responsible for verify the catches and certified them by licensed operators or processing plants approved for this purpose.

The DoF monitors fish processing as well as fishing. All sellers of fish must report the name of the purchaser to whom they sold fish as well as the quantity and price of fish they sold to them. Similarly all purchasers of fish must report the name of their supplier, the quantity they purchased and the price paid. The DoF regularly checks if the output of fish products from a fish processing unit is consistent with the reported input of raw fish. Monitoring of the quota system in Iceland is strengthened by the traceability measures required for exports in a country where over 90% of all fish caught is eventually exported in some form.

All these information are collected and published in the DoF website and can be consulted, it is public information available for all the stakeholders in the fishery. Fishing by vessels with on-board processing facilities is monitored by weighing landed products in a similar way and converting to catch weight by means yield indices, estimated several time a day by sampling catch and processed products on board. Basic handling of the catch, such as gutting and possibly heading, is commonly conducted by most types of vessels at sea, while further processing and freezing (whole, headed/gutted, fillets) is typically done by the large vessels (trawlers).

The DoF monitors, via the VMS, that trans-shipment of fish is not conducted. Some Icelandic fishery practices export fish direct from vessels, without involvement of domestic processing operations, and typically after being transferred to containers. However, recent law stipulates that any unprocessed fish must be landed and weighed in Icelandic ports prior to export. Un- or semi-processed catch may thus be exported, after landing and weighing, for storing in cold storages and/or processing in facilities in a Third Country, some of which may be subsidiaries of ISF’s shareholders. Given the tight monitoring system operated by DoF, partly via the VMS, the fishing by vessels outside the unit of certification and, thereby, the opportunity of substituting certified fish with non-certified fish, are unlikely. Several member companies of the ISF ehf. have already obtained CoC certification for the processing or trading in MSC certified fish. Table 12 shows the main characteristics in the traceability of this fishery.

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**Table 12. Traceability Factors within the Fishery:**

Traceability Factor	
Potential for non-certified gear/s to be used within the fishery	<i>No, there are only two types of gear used, pelagic trawl and purse seine</i>
Potential for vessels from the UoC to fish outside the UoC or in different geographical areas (on the same trips or different trips)	<i>There is not a possibility. The stock is within the geographical areas in the UoC.</i>
Potential for vessels outside of the UoC or client group fishing the same stock	<i>There is a TAC provided to other vessels from Norway, Greenland. All landings are monitored and logged.</i>
Risks of mixing between certified and non-certified catch during storage, transport, or handling activities (including transport at sea and on land, points of landing, and sales at auction)	Unlikely, all the catches from Capelin will be certified fish
Risks of mixing between certified and non-certified catch during processing activities (at-sea and/or before subsequent Chain of Custody)	Unlikely, all the catches from Capelin will be certified fish
Risks of mixing between certified and non-certified catch during transshipment	Unlikely, all the catches from Capelin will be certified fish
Any other risks of substitution between fish from the UoC (certified catch) and fish from outside this unit (non-certified catch) before subsequent Chain of Custody is required	Unlikely, all the catches from Capelin will be certified fish

## 5.6 Eligibility to Enter Further Chains of Custody

Potential certification will include all registered Icelandic vessels, as well as officially licenced fish auctions, provided these auctions do not take ownership of the catch and/or are not involved in the processing of the catch either as owners of the fish or sub-contractors. List of vessels with valid licence included in the certification and list of client group which are owners of this vessels are shown in the tables (Table 13 and Table 14) below. All of them will have the certification and could sell the fish or product with the MSC label. A total of 30 vessels are included in the certification and ISF group are composed by 44 partners, theirs details can be consulted in the ISF website.

**Table 13. List of vessels targeting Capelin in the year 2015.**

<b>CAPELIN</b>	
<b>Reg. no.</b>	<b>Vessel</b>
155	Lundey NS 14
1062	Kap II VE 7
1293	Birtingur NK 124
1525	Jón Kjartansson SU 111
1610	Ísleifur II VE 336
1742	Kap VE 4
2281	Sighvatur Bjarnason VE 81
2287	Bjarni Ólafsson AK 70
2345	Hoffell II SU 802
2363	Kap VE 41
2388	Ísleifur VE 63
2407	Hákon EA 148
2410	Vilhjelm Þorsteinsson EA 11
2411	Huginn VE 55
2600	Guðmundur VE 29
2618	Jóna Eðvalds SF 200
2643	Júpiter ÞH 363
2699	Aðalsteinn Jónsson SU 11
2772	Álsey VE 2
2780	Ásgrímur Halldórsson SF 250
2812	Heimaey VE 1
2827	Börkur NK 125
2862	Beitir NK 123
2865	Börkur NK 122
2883	Sigurður VE 15
2885	Hoffell SU 80

**Table 14. List of partners who are included in the ISF client group.**

<b>Company</b>	<b>Website</b>
AB Fish ehf	N/A
Akraborg ehf	<a href="http://www.akraborg.is">www.akraborg.is</a>
Bacco ehf	N/A
Bergur-Huginn ehf	N/A
Brim hf	<a href="http://www.brimhf.is">www.brimhf.is</a>
Danica Seafood hf	<a href="http://www.danica.is">www.danica.is</a>
Ferskfiskur ehf	N/A
Fisk Seafood	<a href="http://www.fisk.is">www.fisk.is</a>
Fiskiðjan Bylgja hf	<a href="http://www.bylgja.is">www.bylgja.is</a>
Fiskkaup hf	<a href="http://www.fiskkaup.is">www.fiskkaup.is</a>
Frostfiskur ehf	N/A
HB Grandi hf	<a href="http://www.hbgrandi.is">www.hbgrandi.is</a>
Ice-Co Foods ehf	<a href="http://www.ice-co.com">www.ice-co.com</a>
Ice Frozen Seafood ehf	N/A
Iceland Pelagic ehf	<a href="http://www.icelandpelagic.is">www.icelandpelagic.is</a>
Iceland Seafood ehf	<a href="http://www.icelandseafood.is">www.icelandseafood.is</a>



Company	Website
Iceland Westfjords Seafood ehf	<a href="http://www.iws.is">www.iws.is</a>
Icelandic Group hf	<a href="http://www.icelandic.is">www.icelandic.is</a>
Icelandic Ný-Fiskur hf	<a href="http://www.icelandic.is">www.icelandic.is</a>
Icemar ehf	<a href="http://www.icemar.is">www.icemar.is</a>
Icemark ehf	N/A
Idunn Seafoods ehf	N/A
Iraco ehf	<a href="http://www.iraco.is">www.iraco.is</a>
Íslenska umboðssalan hf	<a href="http://www.isa.is">www.isa.is</a>
Leo Fresh Fish ehf	N/A
Marz sjávarafurðir ehf	<a href="http://www.marz.is">www.marz.is</a>
Merlo Seafood ehf	<a href="http://www.merlo.is">www.merlo.is</a>
Nastar ehf	<a href="http://www.nastar.is">www.nastar.is</a>
Northern Seafood ehf	N/A
Rammi hf	<a href="http://www.rammi.is">www.rammi.is</a>
Rekstrarfélagið Eskja hf	<a href="http://www.eskja.is">www.eskja.is</a>
Royal Iceland hf	<a href="http://www.royaliceland.is">www.royaliceland.is</a>
Samherji hf	<a href="http://www.samherji.is">www.samherji.is</a>
Selhöfði ehf	N/A
Spes ehf	N/A
Skinney-Pinganes hf	<a href="http://www.sth.is">www.sth.is</a>
Stormur Seafood ehf	<a href="http://www.stormurseafood.is">www.stormurseafood.is</a>
Sverrir Björnsson	N/A
Sæmark ehf	<a href="http://www.saemark.is">www.saemark.is</a>
Toppfiskur ehf	<a href="http://www.toppfiskur.is">www.toppfiskur.is</a>
Vignir G. Jónsson hf	<a href="http://www.vignir.is">www.vignir.is</a>
Vinnslutöðin hf	<a href="http://www.vsv.is">www.vsv.is</a>
Vísir hf	<a href="http://www.visirhf.is">www.visirhf.is</a>
Whitelink Seafoods ehf	N/A
Ægir sjávarfang ehf	N/A

Fish from eligible fishing vessels (and included in the client group) whole and/or semi-processed, landed at any officially approved landing site (harbour) and/or sold via (first sale) fish auction and/or kept in cold store facilities in Iceland or in a Third Country, may therefore enter into further certified chain of custody and be eligible to carry the MSC ecolabel, provided these are sold through a registered sharing partner of the fishery certificate, i.e. shareholder of the Iceland Sustainable Fisheries Ltd. Therefore, the point of intended change of ownership of product will be when the product is handled out side the client grouping list and the propriety is not of any shareholder.

Chain of custody will commence as of the first point of sale, change of ownership and/or processing after landing. Auctions that may or may not take possession of the fish and merely serve as facilitators of trade do not need chain of custody certification.

Operators who do not share the certificate but who take ownership of the fish before it is sold to certificate sharers are required to hold MSC Chain of Custody certification. Subcontractors, who do not take ownership of the catch but are involved in the handling of the fish after landing, are required either to be holders of MSC Chain of Custody certification or to be listed as subcontractors on the scope of another MSC Chain of Custody certificate holder.

The Iceland Sustainable Fisheries Ltd. has issued a statement outlining the general terms of a potential extension of the client group for wider sharing of a potential certificate.

#### **5.7 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to Enter Further Chains of Custody**

Not applicable in this fishery.

## 6 Principle Level Scores

The fishery under assessment fulfilled SG80 in every PIs evaluated against the FCR V2.0. Therefore the three principals have met more than 80. Table 15 shows the results for each principle. As it is required in the FCR level scores are reported with one decimal to accurate the score. The two UoAs defined in the fishery, one for every type of gears, have obtained the same scoring therefore, the CAB has fulfilled one table with the overall score for both UoAs.

**Table 15. Final Principle Scores( UoAs 1 and 2\*).**

Principle	Score
Principle 1 – Target Species	87.5
Principle 2 – Ecosystem	92.3
Principle 3 – Management System	92.9

\*The PIs score were all identical for both UoAs so the overall Principles score is also identical.

### 6.1 Summary of PI Level Scores

The summary of each scoring that the CAB has decided to evaluate the fishery against the FCR V2.0 are shown in the table below (Table 16). The PIs scores were identical for both UoAs.

**Table 16. Performance Indicators scoring assigned to the ISF Iceland Fishery in the UoAs 1 and UoAs 2.**

Component	Performance Indicator (PI)		Score
Outcome	1.1.1	Stock status	80
Management	1.2.1	Harvest strategy	95
	1.2.2	Harvest control rules & tools	80
	1.2.3	Information & monitoring	90
	1.2.4	Assessment of stock status	100
Primary species	2.1.1	Outcome	100
	2.1.2	Management strategy	100
	2.1.3	Information/Monitoring	100
Secondary species	2.2.1	Outcome	90
	2.2.2	Management strategy	100
	2.2.3	Information/Monitoring	95
ETP species	2.3.1	Outcome	80
	2.3.2	Management strategy	80
	2.3.3	Information strategy	80
Habitats	2.4.1	Outcome	100
	2.4.2	Management strategy	90
	2.4.3	Information	95
Ecosystem	2.5.1	Outcome	100
	2.5.2	Management	95
	2.5.3	Information	80
Governance and policy	3.1.1	Legal &/or customary framework	85
	3.1.2	Consultation, roles & responsibilities	95
	3.1.3	Long term objectives	100
Fishery specific management system	3.2.1	Fishery specific objectives	100
	3.2.2	Decision making processes	80
	3.2.3	Compliance & enforcement	100
	3.2.4	Monitoring & management performance evaluation	90

## 6.2 Summary of Conditions

No condition has been raised by the assessment team.

## 6.3 Recommendations

On completion of the scoring process, the assessment team has recommended that the ISF Iceland Fishery is eligible to be certified according to the MSC Principles and Criteria for Sustainable Fishing. The CAB wishes to make four recommendations, however the fishery pass more effort should be necessary to comply and get more scoring in P1 and P2.

### Recommendation 1:

#### **1.2.2. – Harvest Control Rules and tools**

There is a potential element of natural mortality which is not fully accounted in the stock assessment and management process. Marine mammal abundance and its coincidence with the seasonal migration and distribution of capelin should be further investigated in particular during the winter spawning migration of capelin. Those investigations should include a thorough investigation of the level of dependence by whales on capelin as a source of food.

If appropriate the results should be incorporated into the existing predation model which currently only includes predation by cod, saithe and haddock.

This investigation should provide a precautionary estimation of natural mortality and help to eliminate areas of uncertainty in the predictive models.

### Recommendation 2:

#### **2.3.3. – ETP species information**

The assessment team found that the fishery does not have a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species. While there are no reports of direct mortality of whales due to the Capelin fleet, injuries by the gear are reported and several studies are carried out to know more about this (Barscan, 2014). Scientists at MFRI have provided comments that there is interaction with whales and Icelandic fisheries. There is a system for reporting interactions and this is reviewed in the scoring rationales for PI 2.5.3 ETP Information. The team is satisfied that the ETP outcomes achieves an 80 score but makes a recommendation to the client to support methods that promote proactive reporting of whale interactions specific to capelin. Regarding seabirds, research into the distribution of the breeding areas and the possible overlap with the fishery could better inform management of these species and support the development of the estimation models.

In support of this, methods to support proactive reporting all interactions, direct and indirect, with ETPs should be considered.

### Recommendation 3:

#### **General recommendation on key LTL species and their relation with ETPs:**

Whilst the assessment modelling procedure on which the Harvest Control Rules are based does take into account the 'main' predators there are elements of known predation on capelin which are not fully considered in the management of this stock.

One element which should be considered within the model is the predation on capelin by seabirds. Organisations such as Birdlife International may have information which could be used in this way. For example, stomach contents analysis of the consumption of capelin by seabirds in the north of Iceland. This could be used together with their knowledge of seabird population numbers to estimate the likely take, and thus the ecosystem requirements of seabirds, of capelin. Investigation into the overlap of seabird populations

with seasonal spatial distribution of capelin would also be useful. Where appropriate, these data could then be considered by the ICES assessment working group for incorporation into the current modelling procedure for cod, haddock and saithe. This would then add a further element of precaution into the annual TAC setting procedure.

The assessment team has documented these overall recommendations in principles 1 and principles 2.

Recommendation 4:

***General recommendation for the fishery regarding LTL species***

The client should liaise with Birdlife International and scientists at the Marine Research Institute in Reykjavik and encourage both parties to address this issue. They should ensure that predation on IGJM capelin by seabirds is properly quantified and if appropriate incorporated into the assessment modelling procedure on which the Harvest Control rules are based.

**6.4 Determination, Formal Conclusion and Agreement**

On completion of the scoring process, the assessment team has provisionally recommended that the ISF capelin fishery is eligible to be certified according to the MSC Principles and Criteria for Sustainable Fishing subject to condition and client action plan outlined in the report.

**6.5 Changes in the fishery prior to and since Pre-Assessment**

No pre-assessment is available.

**6.6 Determination, Formal Conclusion and Agreement**

The Certification Committee of SAI Global has determined that:

The **ISF Iceland Capelin Fishery** is to be awarded certification to the Marine Stewardship Council Sustainable Fishing Standard.

SAI Global hereby publicly announces its intention to certify the Fishery Units and upon issue of a certificate, the client shall have the right to claim the fisheries as a “well managed and sustainable fishery” in accordance with the MSC Principles and Criteria for Sustainable Fishing. Fisheries material thereof is deemed eligible for entry the MSC Chain of Custody according to requirements.

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## 8 Appendix 1 Scoring and Rationales

### 8.1 Appendix 1.1 Performance Indicator Scores and Rationale – Evaluation Tables

#### Principle 1 – Sustainable Target Fish Stocks – Evaluation Tables

##### PI 1.1.1A – Key Lower Trophic Level (LTL) stocks

[NOTE: only use this table for stocks identified as key LTL]

PI 1.1.1 A		The stock is at a level which has a low probability of serious ecosystem impacts		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to ecosystem impairment			
	Guidepost	It is <b>likely</b> that the stock is above the point where serious ecosystem impacts could occur.	It is <b>highly likely</b> that the stock is above the point where serious ecosystem impacts could occur.	There is a <b>high degree of certainty</b> that the stock is above the point where serious ecosystem impacts could occur.
	Met?	Y	Y	N
	Justification	A biomass limit reference point is set at 150,000t which is a precautionary B <sub>loss</sub> , based on observations that the recruitments generated around this limit level (cohorts, 1981, 1982and 1990) were of average strength and that average recruitment did not appear to decline at low SSB over the observed range. In setting this limit level, and managing exploitation, the role of capelin as a key forage species in the Icelandic ecosystem has been taken into account through a predation model which assesses the requirements of the three main demersal predator species, cod, haddock and saithe. The SSB estimated at spawning time in 2016 was 304,000t and it is therefore highly likely (80% probability) that the stock is above a point where serious ecosystem impacts could occur. However the basic biology of this short lived species, the potential for variable recruitment and the unquantified predation by cetaceans and seabirds means that the more rigorous requirements of a high degree of certainty (95% probability) that the stock is above a point where serious ecosystem impacts could occur (SG 100) are not fully met.  Therefore, It is highly likely that the stock is above the point where serious ecosystem impacts could occur and <b>SG 80 is met.</b>		
b	Stock status in relation to ecosystem needs			
	Guidepost		The stock is at or fluctuating around a level consistent with ecosystem needs.	There is a <b>high degree of certainty</b> that the stock has been fluctuating around a level consistent with ecosystem needs or has been above this level over recent years.
	Met?		Y	N
	Justification	The whole ethos in terms of the managment of this short lived species is centered on the precautionary biomass limit reference point. This is the point which dictates and controls the exploitation of the fishery at a maximum sustainable yield. It is important to bear in mind that, irrespective of any exploitation or predation, most individuals of a cohort die, after spawning once, at the age of 3 years. Their basic biology thus dictates that the exploitation has to be carefully managed throughout a fishing season. This is to ensure that a minimum of 150,000t is available to spawn and maintain a sustainable population which satisfies both the ecosystem requirements and a fishery. That careful management takes into account the abundance of juveniles and the ecosystem demands on the capelin stock as a major forage species. Modelling predation by cod, haddock and saithe, and initially setting provisional, intermediate and then a final TAC is based on residual availability of the stock, an escapement strategy to harvest the surplus. This ensures that first and formeost the ecosystem needs and also the biomass limit		

PI 1.1.1 A		The stock is at a level which has a low probability of serious ecosystem impacts	
		<p>level have been satisfied before any exploitation can take place. That careful management strategy has ensured that the SSB has consistently been at over two times the biomass limit level and as high as five times that level in 1996.</p> <p>The success of this strategy satisfies the requirements at SG 80. However because of some uncertainty generated by the basic biology of this short lived species and the inherent difficulty of determining unfished spawning biomass levels, or the total stock biomass, the more rigorous requirements, for a high degree of certainty, at SG 100 are not met.</p> <p>Therefore, the stock is at or fluctuating around a level consistent with ecosystem needs and <b>SG 80 is met.</b></p>	
References		Hamre and Tjelmeland, 1982; Magnússon and Pálsson, 1989; Carscadden, et al. 2001; Gjøsæter, et al. 2002; Vilhjálmsson, 2002; ICES, 2015a; ICES, 2015b; ICES, 2015c; ICES, 2016a; ICES, 2016b	
Stock Status relative to Reference Points			
	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to ecosystem impairment (SIa)	B <sub>lim</sub>	150,000 tonnes	304,000 tonnes
Reference point used in scoring stock relative to ecosystem needs (SIb)	B <sub>lim</sub>	150,000 tonnes	304,000 tonnes
OVERALL PERFORMANCE INDICATOR SCORE:			80
CONDITION NUMBER (if relevant):			NA



### PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe					
Scoring Issue		SG 60		SG 80		SG 100	
a	Rebuilding timeframes						
	Guidepost	A rebuilding timeframe is specified for the stock that is <b>the shorter of 20 years or 2 times its generation time</b> . For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.				The shortest practicable rebuilding timeframe is specified which does not exceed <b>one generation time</b> for the stock.	
	Met?	(Y/N)				(Y/N)	
	Justification	Not applicable					
b	Rebuilding evaluation						
	Guidepost	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.		There is evidence that the rebuilding strategies are rebuilding stocks, <b>or it is likely</b> based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.		There is <b>strong</b> evidence that the rebuilding strategies are rebuilding stocks, <b>or it is highly likely</b> based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.	
	Met?	(Y/N)		(Y/N)		(Y/N)	
	Justification	Not applicable					
References		Hamre and Tjelmeland, 1982; Magnússon and Pálsson, 1989; Carscadden, et al. 2001; Gjøsæter, et al. 2002; Vilhjálmsson, 2002; ICES, 2015a; ICES, 2015b; ICES, 2015c; ICES, 2016a; ICES, 2016b					
OVERALL PERFORMANCE INDICATOR SCORE:						NA	
CONDITION NUMBER (if relevant):							

### PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guidepost	The harvest strategy is <b>expected</b> to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy <b>work together</b> towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is <b>designed</b> to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	Y	Y	Y
	Justification	There is no formal management plan for this stock. The more familiar fishing mortality based harvest strategy is inappropriate for this type of fishery harvesting a short lived species with a vital ecosystem role as an important forage species. For IGJM capelin the most important element underpinning the harvest strategy is to leave enough mature fish to ensure adequate recruitment levels for subsequent years. The strategy has to take into account not only the impact of the fishery but also predation on all age groups. This is achieved by the use of a complex predation model to estimate the requirements of the three main demersal predators on capelin, cod, haddock and saithe. The status of the stock is assessed acoustically with up to four surveys throughout the autumn and winter every year. The results of each assessment are analysed and used to determine initial, intermediate and final TACs once the ecosystem and minimum spawning biomass levels have been satisfied. In that way the strategy is responsive to stock status and clearly designed to achieve the stock management objectives for a key lower trophic level species.  The precautionary TAC setting procedure is clearly designed to only harvest the surplus once the ecosystem and subsequent spawning stock needs have been satisfied. Therefore, The harvest strategy is responsive to the state of the stock and is <b>designed</b> to achieve stock management objectives reflected in PI 1.1.1 SG80 and <b>SG 100 is met</b> .		
b	Harvest strategy evaluation			
	Guidepost	The harvest strategy is <b>likely</b> to work based on prior experience or plausible argument.	The harvest strategy may not have been fully <b>tested</b> but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been <b>fully evaluated</b> and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	Y	Y	N
	Justification	This harvest strategy is considered by ICES to be precautionary. The permitted exploitation level is determined annually and adjusted throughout the fishing season with initial, intermediate and final TACs. Harvesting the surplus in this way is clearly secondary to the ecosystem needs for capelin as an important forage species. This is achieved through the predation model and careful acoustic monitoring of stock status before any exploitation is sanctioned. The current level of SSB at over two times a biomass limit level and average recruitment over the past two years provides evidence that the strategy is achieving its		

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
		<p>objectives. Some elements of the harvest strategy, including defining a biomass limit level, have only been operational for a short time and are not yet fully evaluated. Once the new harvest control rule has been operational for a few years ICES recommends that assumptions and practical operation should be evaluated. Furthermore there is an unquantified degree of predation on capelin by whales.</p> <p>Although this is seasonal and not considered to be significant it would nevertheless be useful if this element of predation could be further investigated and if necessary incorporated into the existing predation model as an additional element of natural mortality. This has been made the subject of a recommendation. Therefore the requirements at SG 100 are not yet met and at the moment, the harvest strategy may not have been fully <b>tested</b> but evidence exists that it is achieving its objectives and <b>SG 80 is met</b>.</p>		
c	Harvest strategy monitoring			
	Guidepost	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Y		
	Justification	The status of the stock is monitored acoustically by a series of surveys to determine the abundance and biomass of the immature and mature elements of the stock. These surveys, which determine the level of permitted exploitation, are designed to maintain an adequate abundance of spawners after ecosystem needs have been satisfied. Therefore, Monitoring is in place that is expected to determine whether the harvest strategy is working and <b>SG 60 is met</b> .		
d	Harvest strategy review			
	Guidepost			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Y
	Justification	The most recent benchmark workshop on Icelandic stocks, in 2015, reviewed the harvest strategy for this stock and introduced some changes in the way that initial and final TACs are determined. The success of the strategy is also kept under annual review at the ICES assessment working group dealing with all the stocks in this area. Therefore, the harvest strategy is periodically reviewed and improved as necessary and <b>SG 100 is met</b> .		
e	Shark finning			
	Guidepost	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.	There is a <b>high degree of certainty</b> that shark finning is not taking place.
	Met?	Not relevant	Not relevant	Not relevant

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
	Justification	Not applicable		
f	Review of alternative measures			
	Guidepost	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	Not scored	Not scored	Not scored
	Justification	There is not unwanted catches in the fishery. Following the FCR SA2.4.8 the assessment team has concluded that this issue should not need be scored because of the obligation of landing and discard ban in Iceland. There is no unwanted catches of the target species.		
References		Hamre and Tjelmeland, 1982; Gjøsæter, et al. 2002 ICES, 2015a; ICES, 2015b; ICES, 2016a; ICES, 2016b		
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				NA

**PI 1.2.2 – Harvest control rules and tools**

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	HCRs design and application			
	<b>Guidepost</b>	<b>Generally understood</b> HCRs are in place <b>or available</b> that are <b>expected</b> to reduce the exploitation rate as the point of recruitment (PRI) is approached.	<b>Well defined</b> HCRs are <b>in place</b> that <b>ensure</b> that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock <b>fluctuating around</b> a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock <b>fluctuating at or above</b> a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, <b>most</b> of the time.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>The current strategy is based on harvesting surplus production once the ecosystem requirements and minimum spawning stock levels have been satisfied. This is achieved in a precautionary way by assessing stock status acoustically with a series of surveys throughout the autumn and winter periods. These quantitative surveys assess the abundance of juveniles (1-2yrs old) and adults which will spawn in that fishing season. The preliminary and intermediate TACs are very precautionary and based on the numbers of juveniles assessed during the autumn surveys. A precautionary abundance level has to be met before any harvesting is permitted. Even, as in the 2015 autumn surveys, if immature capelin abundance levels are assessed as low because of poor survey coverage, no preliminary TAC is granted. When juvenile abundance is very high on these surveys a trigger level is set to restrict the initial and intermediate TAC to 400,000t.</p> <p>The eventual surplus fishable biomass for the season is based on the January acoustic survey taking into account catches taken before that survey, subtracting the biomass limit (the minimum biomass to be left to spawn) and also subtracting 150Kt for predation. This final TAC is set at the catch which will generate a SSB which has a 95% probability of being above the biomass limit level of 150Kt.</p> <p>There are other harvest control rules in place to further protect the ecological role of the stock and permit a sustainable harvest of the surplus production. These include the facility to quickly close areas where there is a high abundance of juveniles (1-2yrs old) as assessed by on board observers. There is a legal requirement to carry these inspectors when fishing in certain designated areas. There are also restricted areas where pelagic trawling is not permitted in order to avoid disturbance of capelin shoals.</p> <p>This whole strategy, backed by the harvest control rules to set the TAC, is considered by ICES to be precautionary. These well defined and practised rules are expected to keep the stock fluctuating around a target level consistent with ecosystem needs. Therefore, <b>well defined</b> HCRs are <b>in place</b> that <b>ensure</b> that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock <b>fluctuating around</b> a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs and <b>SG 80 is met</b>.</p>		

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
b	HCRs robustness to uncertainty			
	Guidepost		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a <b>wide</b> range of uncertainties including the ecological role of the stock, and there is <b>evidence</b> that the HCRs are robust to the main uncertainties.
	Met?		Y	N
	Justification	The main uncertainty in relation to the harvest control rules is the reliability of the acoustic surveys which dictate the level of surplus production available for the fishery. These surveys, in particular the winter surveys, are carried out in a hostile environment and survey coverage can often be affected by adverse weather and ice conditions. Such conditions affect the reliability of the acoustic measurements through reduction in survey coverage and dispersal of capelin aggregations. All these important parameters are measured with coefficients of variation and are evaluated and used accordingly. The requirements at SG 80 are therefore met.  However, the assessment team did not consider that current practice takes account of a wide range of uncertainty (SG 100). For example the ecosystem role of cetaceans could be impacting on the surplus production available for harvesting and more data is needed on the seasonal coincidence of their distributions with capelin aggregations. We have made this the subject of a recommendation also related to PI 1.2.3. Therefore, the HCRs are likely to be robust to the main uncertainties and <b>SG 80 is met</b> .		
c	HCRs evaluation			
	Guidepost	There is <b>some evidence</b> that tools used <b>or available</b> to implement HCRs are appropriate and effective in controlling exploitation.	<b>Available evidence indicates</b> that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	Y	Y	N
	Justification	The predation model used to quantify the ecosystem requirements in relation to capelin as an important forage species is well established. Available evidence, in the form of the status of dependent demersal stocks; cod, haddock and saithe, suggest that this ecological measure is effective.  Their specific status in 2015 of each species is detailed below. <ul style="list-style-type: none"><li>• <b>Saithe:</b> SSB is currently at 139kt which is above the average (1980 to 2014) and well above the biomass trigger and limit levels. (65kt and 61kt respectively).</li><li>• <b>Haddock:</b> SSB in 2015 was 78,319kt and has been below the long term mean of 99,792kt since 2011. However it is still well above the biomass limit level of 45kt.</li><li>• <b>Cod:</b> SSB in 2015 was 547kt the highest in the time series for 50 years and well above the biomass limit level of 45kt.</li></ul> The incorporation of the predation model into the management of the fishery and the overarching requirement to leave a minimum abundance of mature fish for spawning, results in a fishable quantity of surplus production. The fishery is then very strictly controlled by in season TAC adjustments to ensure that the resource is not over exploited. Examination of TAC compliance over the past thirty years shows that the final agreed TAC is never exceeded and in many years the landings are below the TAC. The success of this		



PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place	
		<p>element of the harvest control rules is the result of rigorous enforcement of on board log books, designated landings ports, on board fisheries inspectors and inspection of actual landings. For an example in 2015 an inspector was present at 19.8% of all pelagic landings. This provides sufficient evidence that the requirements at SG 80 are fully met.</p> <p>However, some elements of the harvest control rules are new in particular the model used to set the initial TAC which is heavily dependent on a reliable autumn acoustic survey estimate of the abundance of immature fish. In the meantime the team considers that the more rigorous requirements at SG 100 for all the evidence to 'clearly show' is not met. Therefore, <b>available evidence indicates</b> that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs and <b>SG 80 is met.</b></p>	
References		ICES, 2015a; ICES, 2015b; ICES, 2016a; ICES, 2016b	
OVERALL PERFORMANCE INDICATOR SCORE:			80
CONDITION NUMBER (if relevant):			NA

### PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guidepost	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Y	Y	Y
	Justification	<p>The basic biology of capelin over its wide distribution range in the cold arctic and subarctic waters of the North Atlantic and North Pacific is well described. The capelin which are the subject of this assessment occur in the Iceland, East Greenland and Jan Mayen area and are clearly identified as a separate stock (IGJM stock).</p> <p>The basic biology of the species in this area is well known and described providing a raft of fundamental knowledge which is used in support of the harvest strategy. The species is known to be short lived with a high natural mortality after spawning at 3-4 yrs old, with close to 100% of the males dying and most of the females as well. This is vital information in support of the harvest strategy which, as a priority, addresses the ecological role of this important forage species.</p> <p>Knowledge of the seasonal distribution, feeding and spawning migrations is well documented and significant changes in migration routes have been noted in recent years. This fundamental knowledge base firmly underpins all the regulations to provide a sustainable fishery whilst successfully addressing the important ecological role of the capelin stock in this area.</p> <p>There is also a wide range of environmental data collected over many years by the Marine Research Institute Reykjavik, and by other countries, related to the oceanography of the Icelandic coastal and the Iceland Greenland shelf areas. Some but not all of these data are directly related to fisheries. The information data base for this area and for this species is considered to be comprehensive and the requirements at <b>SG 100 are fully met.</b></p>		
b	Monitoring			
	Guidepost	Stock abundance and UoA removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are <b>regularly monitored at a level of accuracy and coverage consistent with the harvest control rule</b> , and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	<b>All information</b> required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent <b>uncertainties</b> in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	Y	Y	N

PI 1.2.3		Relevant information is collected to support the harvest strategy	
c	Justification	<p>Total catch and landings data are adequately monitored and controlled through designated landing port legislation. No vessels are permitted to take part in the fishery without a licence and available quota. Discarding is banned in Icelandic waters and there are arrangement in place in the purse seine fishery for occasional excess catch to be transferred to a neighbouring vessel. The landings data are considered to be a fair reflection of the actual catch. However in 2015 the ICES working group reported that biological sampling from commercial catches is not considered to be adequate, an issue which will be addressed with a reccomendation.</p> <p>The team was afforded live access to the national fisheries monitoring system during the site visit. The level of monitoring and surveillance was considered by the team to be exceptionally good with 24 hour screen monitored surveillance of all fishing activities.</p> <p>Information on the dependence of cetaceans on capelin and their seasonal coincidence need to be addressed and is an area of uncertainty in relation to the management of this fishery and the lower trophic level status of capelin. The ICES working group particularly identified the need for further information on predator/prey relationships and how SSB estimates from autumn and winter surveys should be weighted when the final TAC is defined. As a consequence the requirements at SG 100 are not fully met. Some of these issues are also mentioned at PI 1.2.2 and will be the subject of a recommendation related to both performance indicators.</p> <p>Therefore, stock abundance and UoA removals are <b>regularly monitored at a level of accuracy and coverage consistent with the harvest control rule</b>, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule and <b>SG 80 is met</b>.</p>	
	Comprehensiveness of information		
	Guidepost		There is good information on all other fishery removals from the stock.
	Met?		Y
	Justification	<p>A small occassional by-catch of capelin may occur in some other pelagic fisheries such as the herring and mackerel fisheries. These incidental catches are not common occurrences in fisheries targeting shoaling species. If and when they do occur the catches must be landed and recorded against the species TAC. All discarding is banned in Icelandic waters and the penalties for non compliance are severe.</p> <p>Therefore, there is good information on all other fishery removals from the stock and <b>SG 80 is met</b>.</p>	
References		Carscadden et al, 2001; Carscadden et al, 2013; Carscadden and Vilhjálmsson, 2002; Gjøsæter, et al. 2002; Hafro, 2014; Hamre, and Tjelmeland, 1982; ICES, 2015a; ICES, 2015b; ICES, 2016b; Muus and Dahlstrom, 1974; Vilhjálmsson, 1994; Vilhjálmsson, 2002.	
OVERALL PERFORMANCE INDICATOR SCORE:			90
CONDITION NUMBER (if relevant):			NA

#### PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guidepost		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		Y	Y
	Justification	<p>The nature of this short lived shoaling species dictates that annual stock assessment using a traditional age based population analysis modelled approach is inappropriate. The nature of the fishery also requires contemporaneous data on abundance in order to successfully manage rational exploitation in line with the ecosystem role of this important forage species. As a consequence the capelin stock in the Iceland, East Greenland and Jan Mayen area has been assessed entirely by annual acoustic surveys since 1978. There are usually four surveys each year, two in the autumn (September - December and two in the winter (January – February). These surveys produce abundance estimates of immature (1-2yr olds) and maturing and mature fish (3-4 yrs old). The surveys are mainly carried out on a research vessel with sophisticated and well calibrated sonar equipment and technical expertise to run them. Some commercial vessels have occasionally taken part using calibrated equipment and scientists to operate the gear and interpret the results.</p> <p>The results of the acoustic surveys are available very quickly and are then fed directly into the management of the stock. This fully meets the requirements at both SG 80 and SG 100.</p> <p>Therefore, the assessment takes into account the major features relevant to the biology of the species and the nature of the UoA and <b>SG 100 is met.</b></p>		
b	Assessment approach			
	Guidepost	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	Y	Y	
	Justification	<p>The stock assessment produces abundance estimates in two formats essential for the management of the stock. The immature portion of the stock, assessed in the autumn surveys is presented as a numerical abundance. This information is then used directly via a regression to determine an initial TAC for the fishing season 15 to 18 months later. The mature stock abundance is a biomass estimate which is used to determine stock status in relation to a biomass limit level (150,000t).</p> <p>This is the minimum SSB level which must be left to spawn taking into account the ecosystem requirements of predation by cod, haddock and saithe. The biomass limit level has been appropriately estimated as B loss based on observations that the recruitments generated around this value (cohorts,1981, 1982 and 1990) were of average strength and that average recruitment did not appear to decline at low SSB over the observed range.</p>		

PI 1.2.4		There is an adequate assessment of the stock status		
		Therefore, The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated and <b>SG 80 is met.</b>		
c	Uncertainty in the assessment			
	Guidepost	The assessment <b>identifies major sources</b> of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a <b>probabilistic</b> way.
	Met?	Y	Y	Y
	Justification	<p>The main uncertainty in the assessment is the reliability of the acoustic surveys. Uncertainty is generated when survey coverage is reduced, which can occur for a variety of reasons. Most commonly adverse weather affects coverage but vessel operational problems have also affected coverage in some seasons. In erring on the side of precaution no attempt is made to interpolate statistically for unsampled areas and the actual acoustic survey results area accepted. Using the 2015/16 surveys as an example,the early autumn survey was affected by bad weather. The report noted that the estimates of the immature and mature biomass were considered to be minimum estimates (likely underestimates). The late autumn survey was also affected by poor weather and ice conditions which bably affected survey coverage. As a result the survey estimate was not used for the intermediate TAC advice.</p> <p>The first winter survey had no problems but the report did comment that the observed pattern of movement of capelin during the survey may have led to an overestimate of stock size. In the absence of a reliable estimate from the late autumn survey this survey was used to set the final TAC. In view of the problems encountered on the autumn the Iceland fishing industry funded a second winter survey. Ironically this survey was also blighted by poor weather and this survey estimate was not used for TAC advice.</p> <p>However, sometimes the weather consitions are not the best for estimating survey, the example of one seasons stock assessment surveys provides sufficient evidence to support the requirements at SG 80. The estimate of the mature biomass left to spawn (the biomass limit level of 150,000t) is estimated with 95% probability of not being below that level, therefore the CAB has information to confirm that the assessment takes into account uncertainty and is evaluating stock status relative to reference points in a <b>probabilistic</b> way and <b>SG 100 is met.</b></p>		
d	Evaluation of assessment			
	Guidepost			The assessment has been tested and shown to be robust.  Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			Y
	Justification	<p>The only real test for this assessment is the ongoing status of the spawning stock in relation to supporting ecosystem needs and a viable fishery. The acoustic survey method has been used for the IGJM capelin stock since 1978. During conversation between the CAB and MFRI it was concluded that the assessment method was tested by ICES - see ICES 2015 report. Report of the Benchmark Workshop on Icelandic Stocks (WKICE), 2015. ICES had external advisors to review the work during the process of making that report before approved by ACOM. Furthermore, ICES review the assessment annually by the NWWG group, advisory</p>		

PI 1.2.4		There is an adequate assessment of the stock status		
		drafting group and thereafter it is approved by ACOM and there appears to be the assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored and <b>SG 100 is met.</b>		
e	Peer review of assessment			
	Guidepost		The assessment of stock status is subject to peer review.	The assessment has been <b>internally and externally</b> peer reviewed.
	Met?		Y	Y
	Justification	Before the results of the assessment by the ICES assessment working group are released into the public domain they are reviewed by an independent group of scientists within appointed by ICES to form the Advisory Committee on Management (ACOM). Only when endorsed by ACOM are the results of the assessment released in the form of advice on stock status and the future management of the fishery. A similar process is followed for the periodic Benchmark Workshops which examine all the data inputs and methodology and endorse any proposed changes in either the assessment to TAC setting procedures.  Furthermore, ICES review the assessment annually by the NWWG group, advisory drafting group and thereafter it is approved by ACOM. Therefore, the assessment has been <b>internally and externally</b> peer reviewed.		
References		ICES, 2015a; ICES, 2015b; ICES, 2015c; ICES, 2016a; ICES, 2016b; Vilhjalmsson, 1994. Pers. communications MFRI-June 2016		
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				NA



## Principle 2 – Environmental Impact of Fishing – Evaluation Tables

### PI 2.1.1 – Primary species outcome. UoA 1 (Purse Seine) and UoA 2 (Midwater pelagic trawl)

PI 2.1.1	The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.		
Scoring Issue	SG 60	SG 80	SG 100
a	Main primary species stock status		
Guidepost	<p>Main primary species are <b>likely</b> to be above the PRI</p> <p>OR</p> <p>If the species is below the PRI, the UoA has measures in place that are <b>expected</b> to ensure that the UoA does not hinder recovery and rebuilding.</p>	<p>Main primary species are <b>highly likely</b> to be above the PRI</p> <p>OR</p> <p>If the species is below the PRI, there is either <b>evidence of recovery</b> or a demonstrably effective strategy in place <b>between all MSC UoAs which categorise this species as main</b>, to ensure that they collectively do not hinder recovery and rebuilding.</p>	<p>There is a <b>high degree of certainty</b> that main primary species are above the PRI <b>and are</b> fluctuating around a level consistent with MSY.</p>
Met?	Y	Y	Y
Justification	<p>Capelin fishery is very clean and the presence of retained species is not too high. The Directorate of Fisheries (DoF) makes easy the consultation of the total composition of catches by vessels which are included in both UoAs.</p> <p>The assessment team has decided to evaluate both UoAs in the same tables because the composition of catches in each gear is practically the same, no differences are described. All the species identify in the fishery are retained by both gears and the % of catches does not show differences.</p> <p>Non-target species represent a low percentage of total catch. However, only 13 species are retained by the fishery. Eleven of them are primary species but no main primary species are identified in the fishery.</p> <p>The percentage of catches of all of them are less than 5% as it shown in the table:</p>		

PI 2.1.1		The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.																																																																											
		<table><thead><tr><th>Species</th><th>Catches (kg)</th><th>Catches (tonnes)</th><th>% Total</th></tr></thead><tbody><tr><td>Capelin</td><td>1,948,686,000</td><td>1,948,686</td><td>99.9870%</td></tr><tr><td>Dealfish</td><td>2</td><td>0</td><td>0.0000%</td></tr><tr><td>Turbot</td><td>2</td><td>0</td><td>0.0000%</td></tr><tr><td>Greenland Halibut</td><td>6</td><td>0</td><td>0.0000%</td></tr><tr><td>Monkfish</td><td>14</td><td>0</td><td>0.0000%</td></tr><tr><td>Atlantic wolffish</td><td>19</td><td>0</td><td>0.0000%</td></tr><tr><td>Blue Whiting</td><td>71</td><td>0</td><td>0.0000%</td></tr><tr><td>Redfish</td><td>116</td><td>0</td><td>0.0000%</td></tr><tr><td>Plaice</td><td>140</td><td>0</td><td>0.0000%</td></tr><tr><td>Lumpfish</td><td>1,335</td><td>1</td><td>0.0001%</td></tr><tr><td>Herring</td><td>403</td><td>0</td><td>0.0000%</td></tr><tr><td>Saithe</td><td>5,782</td><td>6</td><td>0.0003%</td></tr><tr><td>Haddock</td><td>8,310</td><td>8</td><td>0.0004%</td></tr><tr><td>Cod</td><td>236,403</td><td>236</td><td>0.0121%</td></tr><tr><td colspan="4"></td></tr><tr><td>Total retained catches</td><td>1,948,938,603</td><td>1,948,939</td><td>100.0000%</td></tr><tr><td>Total retained non-target</td><td>252,603</td><td>253</td><td>0.0130%</td></tr></tbody></table> <p>Because of there is no main species described in the fishery as seen in the table, the <b>SG 100 is fully met</b> by default.</p>	Species	Catches (kg)	Catches (tonnes)	% Total	Capelin	1,948,686,000	1,948,686	99.9870%	Dealfish	2	0	0.0000%	Turbot	2	0	0.0000%	Greenland Halibut	6	0	0.0000%	Monkfish	14	0	0.0000%	Atlantic wolffish	19	0	0.0000%	Blue Whiting	71	0	0.0000%	Redfish	116	0	0.0000%	Plaice	140	0	0.0000%	Lumpfish	1,335	1	0.0001%	Herring	403	0	0.0000%	Saithe	5,782	6	0.0003%	Haddock	8,310	8	0.0004%	Cod	236,403	236	0.0121%					Total retained catches	1,948,938,603	1,948,939	100.0000%	Total retained non-target	252,603	253	0.0130%			
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b	Minor primary species stock status																																																																												
	Guidepost			Minor primary species are highly likely to be above the PRI  OR  If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species																																																																									
	Met?			Y (all the species)																																																																									
	Justification	As the assessment team has explained in the issue a, the composton of the catches between gears do not have significant differences.  In the two UoAs evaluated, 11 primary especies are identified, all of them minor primary species as it was mentioned in the issue a.  More information of each species stock status to define that they are below the PRI are provided in the section linked  Primary Species (0). A summary to understand that they are higly likely above the PRI is described as follows by species.  The species classified as minor primary species are listed bellow: <ul style="list-style-type: none"><li>- Cod (<i>Gadus morhua</i> Linnaeus, 1758 )</li><li>- Haddock (<i>Melanogrammus aeglefinus</i> Linnaeus, 1758 )</li><li>- Saithe(<i>Pollachius virens</i> Linnaeus, 1758)</li><li>- Herring (<i>Cuplea harengus</i> Linnaeus, 1758)</li></ul>																																																																											

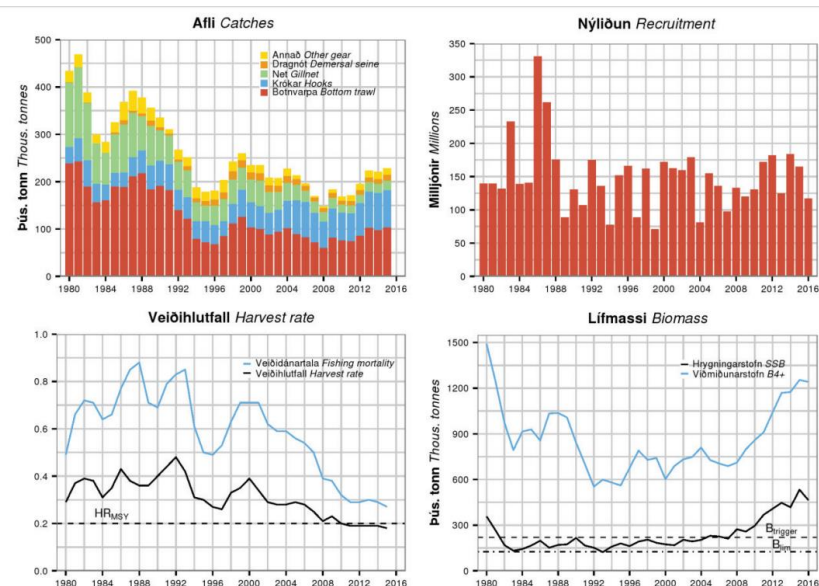
PI 2.1.1

The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.

- Lumpfish (*Cyclopterus lumpus* Linnaeus, 1758 )
- Greenland Halibut [*Reinhardtius hippoglossoides* (Walbaum, 1792) ]
- Monkfish (*Lophius piscatorius* Linnaeus, 1758 )
- Wolfish (*Anarhichas lupus* Linnaeus, 1758 )
- Blue whiting [*Micromesistius poutassou* (Risso, 1827)]
- Redfish [*Sebastes norvegicus* (Ascanius, 1772)]
- Plaice (*Pleuronectes platessa* Linnaeus, 1758 )

**Cod-** The catches of cod during the last four years by Capelin fishery was 236,403 kg representing 0.086% of the total catches in the fishery. The total catches of cod last year were estimated at 221 thousand tonnes. Therefore 0.11% of cod catches came from Capelin fishery.

The last assessment published in the ICES website and Directorate of Fisheries shows that the stock status of cod are fluctuating around MSY. Overfished or overfishing is not occurring as it could be observed in the figures.



The Figures represent: 1 top left catches per gear and year: 2 top right recruitment per year: 3 bottom left Harvest rate and mortality and 4 bottom right biomass per year.

In the figures the assesment team observes that biomass index shows an increase in the last seven years, mostly due to increase in abundance of older cod. The reference biomass has increased in recent years and it is now larger than observed in the last three decades. The spawning stock is increasing and it is the larger data since the early 1960s. During the last decade, the harvest rate has declined from 34–40% to around 20% and the fishing mortality from above 0.7 in 2000 to 0.3 in 2014. Recruitment during this period has been around two thirds of the long-term average. The decrease in harvest rate, imposed by management action, has hence been the main reason for the increase in stock size (Nytjastofnar sjávar 2014/2015 og aflahorfur 2015/2016). For these facts, ICES reviewed the HCRs and determinated that are in accordance with the precautionary approach. Therefore, cod stock status highly likely to be above the PRI and **SG 100 is met**.

PI 2.1.1	The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.
	<p><b>Haddock-</b> The catches by purse-seine or midwater pelagic trawl represent less than 1 % of the total catches. Regarding the Satus of Marine Stock published by hafro the TAC in last year was less than the year before and growth has increased since then. Growth in 2014 is estimated above average and faster than predicted last year. Mean weight at age in March 2015 is close to or above the average since 1985 for all age groups. The last report from MFRI shows that SSB has decreased in recent years but is above MGT <math>B_{trigger}</math>. (Figure 19). The TAC estimated for 2016 was higer than the year before then, haddock stock status is highly likely to be above the PRI and <b>SG 100 is met.</b></p> <p><b>Saithe-</b> In 2014, landings of saithe were 46,000t, compared to 58,000t in 2013. The catches decreased following the precautionary approach. The TAC for the quota year 2014/2015 was set according to the harvest control rule (HCR) at 58,000t. Following the advice of MFRI and to ensure the conservation of the stock the studies show that short-term projections based on the HCR indicate that the reference biomass at the beginning of 2016 was around 238,000 t. According to the HCR, the saithe TAC for the quota year 2015/2016 was 55,000t less than the year before, even though the stock is not overfished and overfishing is not occurring. Stock size has increased in recent years and the SSB is now close to the average of 1980–2015. Recruitment in 2009–2015 was relatively constant and about 20% higher than the average. Harvest rate in 2015 was below <math>HR_{MSY}</math>, (Figure 20). Then, saithe stock status is highly likely to be above the PRI and <b>SG 100 is met.</b></p> <p><b>Herring-</b> The Assesemt Team has evaluated two stock the herring defined in the study area due to there is no confirmation of which one the catches come from.</p> <p>The first one is the stocks of the Icelandic Herring spawning. Landings of Icelandic summer-spawning herring during the fishing season 2014/2015 amounted to 95,000 t but the TAC was set at 83,000 t. The difference is because of transfer of quota between years. The main part of the stock overwintered in offshore areas west of Iceland instead of inshore areas in Breiðafjörður as it did for the seven preceding years. The spawning stock biomass is estimated 342,000t in the year 2015, significantly lower than in the 2014 assessment. A very small 2011 year class entering the spawning stock is the main reason for the decline in SSB althoght the SSB is still above the <math>B_{trigger}</math> and the <math>B_{lim}</math> (Figure 22). The Assessment Team can conclude that the stock is above PRI and the UoAs do not hinder the stock status because the catches of both stocks of herring are estimated at 0,2% and <b>SG 100 is met.</b></p> <p>The second stock of Hering is the Atlanto-ScandianHerring (AS); The stock is estimated to be below <math>B_{trigger}</math> (<math>B_{pa}</math>) in 2014 but is above the <math>B_{lim}</math>. Recruitment was estimated at low level since 2004. The 2013 year class is estimated to be close to the average recruitment of 1998–2012. Fishing mortality in 2014 was below <math>F_{pa}</math> and <math>F_{MSY}</math> and the management plan target <math>F</math> (From ICES advice 2015b) (Figure 23). Therefore, the Assessment Team can conclude that the stock is above PRI and the UoAs do not hinder the stock status because the catches of both stocks of herring are estimated at 0,2% and <b>SG 100 is met.</b></p> <p><b>Lumpfish-</b> In 2014, about 4,000t of female lumpfish were landed in Iceland, which is 1,500 t below the average landings of the period 1971–2014. Effort and number of licenses have decreased in recent years. After several years of decline, the biomass index has increased over the past two years. The female biomass index decreased between 2006 and 2013, but has increased since then. The male biomass index in 2016 has increased from 2015 and has now risen above the average of the reference period 1985–2011.</p> <p>The target <math>F_{proxy}</math> value was originally set at 0.75, based on the mean <math>F_{proxy}</math> in 1985–2011</p>

PI 2.1.1	The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.
	<p>(Figure 21). The basis of the MFRI advice is to keep Fproxy at or below the average from the reference period (1985–2011) therefore, MFRI recommends an initial TAC of 2,040 t for the 2015/2016 quota year. Then, lumpfish stock status is highly likely to be above the PRI and <b>SG 100 is met</b>.</p> <p><b>Greenland Halibut-</b> In 2014, approximately 21,000t of Greenland halibut were landed from the East Greenland, Iceland, and Faroese waters. Biomass indices from combined surveys in Icelandic and Greenlandic waters have been increasing in recent years and are close to the high levels observed in 1998–2001. The main aspects of the stock status are that the fishing mortality has decreased in recent years but is above <math>F_{MSY}</math> and the Biomass is slowly increasing (Figure 24). Therefore, ICES and MFRI recommend that effort should be reduced to a level corresponding to the long-term maximum sustainable yield to keep the increasing indices. Then, green halibut stock status is highly likely to be above the PRI and <b>SG 100 is met</b>.</p> <p><b>Monkfish-</b> In 2014, about 1,200t of monkfish were landed from Icelandic waters. The catches have been declining since 2009 when they reached a maximum of 4,100 t. Survey indices since 2012 have shown poor recruitment for year classes 2008–2014. Due to the decreasing recruitment, the fishable stock is expected to decline in the coming years. The biomass index was high in 2005–2011 compared to previous years, but has since then decreased substantially. Juvenile indices show poor recruitment for year classes 2008–2014. Fproxy was stable when the stock peaked, but has reduced in the last few years (Figure 25). MFRI recommends that the catches be no more than 1000 t in the quota year 2015/2016. Even the assessment team cannot confirm the stock is below PRI, the catches come from Capelin fishery are insignificant and are estimated at 0,0007%, then the CAB can confirm that the UoAs doesn't hinder the stock and <b>SG 100 is met</b>.</p> <p><b>Atlantic wolffish-</b> Landings of Atlantic wolffish in 2014 were about 7,300 t, the lowest landings since before 1950. The index of fishable biomass is above average but recruitment indices are at historically low levels. The fishable part of the stock has been decreasing since 2006 and is not expected to increase much in the coming years, since recruitment to the fishable stock will be low. MFRI recommends a TAC of no more than 800 t for the quota year 2015/2016, based on <math>F_{max}=0.29</math>, in the latest report of stock status, fishing mortality has declined since 2009 and is now below <math>F_{MSY}</math> (Figure 26). In addition, MFRI recommends a continued closure of the major spawning area off West Iceland during the spawning and incubation season in autumn and winter, then even the CAB cannot confirm the stock is below PRI, the catches come from Capelin fishery and the UoAs under evaluation don't hinder the recovery of the fishable stock because the catches are negligible and are estimated at 0,0009 % and <b>SG 100 is met</b>.</p> <p><b>Blue whiting-</b> International landings of blue whiting in the Northeast Atlantic in 2014 are estimated at around 1.2 million t, of which Icelandic landings were around 183 thousand t. Due to poor recruitment of the year classes 2005–2008, the spawning stock declined to about 2.9 million in 2010. Since then, recruitment has been close to the longterm average, which in combination with low fishing mortalities has led to an increase in the spawning stock biomass, to about 5.7 million in 2015. Fishing mortality (F) has increased from a historical low in 2011 to above <math>F_{MSY}</math> in 2014. SSB increased from 2010 to 2014 and is above <math>MSY</math> trigger (Figure 27). For that reason, ICES recommended a catch quota not exceeding 840 thousand tonnes in 2015. ICES are working to keep the recruitment increasing,</p>

PI 2.1.1		The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.
		<p>however, the assessment team can confirm that the catches come from the Capelin fishery are negligible regarding the total catches and do not hinder the stock. Then, there is evidence that the UoA does not hinder the stock status of this minor primary species and <b>SG 100 is met.</b></p> <p><b>Redfish-</b> In 2014, the Icelandic government adopted a formal management plan for the golden red- fish fishery in East-Greenland/Iceland/Faroes area. ICES has evaluated this management and it will be adopted during the year. The management plan is based on a HCR of <math>F_{MSY,9-19} = 0.097</math>, reducing linearly if the spawning stock is estimated below 220,000t (Btrigger), so it complied with the precautionary approach. Fishing mortality since 2010 has been estimated to be around FMSY. Spawning-stock biomass (SSB) has steadily increased for the past 20 years and is well above MSY Btrigger ( Figure 28). According to the HCR, the golden redfish TAC for the quota year 2015/2016 was 51,000t for the EastGreenland/Iceland/Faroes area. Then, redfish stock status is highly likely to be above the PRI and <b>SG 100 is met.</b></p> <p><b>Plaice-</b> In 2014, about 600 t of plaice were landed. Survey biomass indices show the biomass is increased in recent years since year 2000. Stock assessment indicates a decrease in fishing mortality since 1996. Fishing mortality has declined since 1997 and is at an all-time low, while biomass has slowly increased since 2000. Recruitment has been slow but steady since 1994. (Figure 29). Therefore, MFRI recommends that the catch should not exceed 6,500 t in the quota year 2015/2016, and that regulations regarding area closures on spawning grounds remain in effect. Complaining with these recommendations the plaice stock status is highly likely to be above the PRI and <b>SG 100 is met.</b></p>
<b>References</b>		<p><a href="http://www.hafro.is/Astand/2016/english/cod_2016.pdf">http://www.hafro.is/Astand/2016/english/cod_2016.pdf</a></p> <p>ICES, 2009, Report of the Ad hoc Group on Icelandic Cod HCR Evaluation (AGICOD), ICES CM 2009/ACOM:56.</p> <p>(<a href="http://www.hafro.is/images/HCR_Evaluations/iCod_eval_2009.pdf">http://www.hafro.is/images/HCR_Evaluations/iCod_eval_2009.pdf</a>) H. Björnsson &amp; Hjörleifsson, 2014, Athugun á aflareglu fyrir íslenskan þorsk. Hafrannsóknastofnun. (<a href="http://www.hafro.is/images/HCR_Evaluations/iCod_endurskodun_a_aflareglu_2014.pdf">http://www.hafro.is/images/HCR_Evaluations/iCod_endurskodun_a_aflareglu_2014.pdf</a>)</p> <p>ICES. 2016. Report of the North-Western Working Group (NWWG), 27 April–4 May, 2016, ICES Headquarters, Copenhagen. ICES CM 2016/ACOM:08. (Skýrslu má nálgast frá: <a href="http://www.ices.dk/community/groups/Pages/NWWG.aspx">http://www.ices.dk/community/groups/Pages/NWWG.aspx</a>)</p> <p>English summary of the State of Marine Stocks in Icelandic Waters 2014/2015 and Prospects for the Quota Year 2015/2016- Nytjastofnar sjávar 2014/2015 og aflahorfur 2015/2016</p>
<b>Score element 1 (Cod)</b>		<b>100</b>
<b>Score element 2 (Haddock)</b>		<b>100</b>
<b>Score element 3 (Saithe)</b>		<b>100</b>
<b>Score element 4 (Herring)</b>		<b>100</b>
<b>Score element 5 (Lumpfish)</b>		<b>100</b>
<b>Score element 6 (Greenland Halibut)</b>		<b>100</b>
<b>Score element 7 (Monkfish)</b>		<b>100</b>
<b>Score element 8 (Wolfish)</b>		<b>100</b>
<b>Score element 9 (Blue whiting)</b>		<b>100</b>



<b>PI 2.1.1</b>	<b>The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.</b>	
<b>Score element 10 (Redfish)</b>		<b>100</b>
<b>Score element 11 (Plaice)</b>		<b>100</b>
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>NA</b>

**PI 2.1.2 – Primary species management strategy - UoA 1 and UoA 2**

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guidepost	There are <b>measures</b> in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to above the point where recruitment would be impaired.	There is a <b>partial strategy</b> in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the point where recruitment would be impaired.	There is a <b>strategy</b> in place for the UoA for managing main and minor primary species.
	Met?	Y	Y	Y (all the species listed)
	Justification	<p>There are no main primary species in the fishery therefore for default the fishery meets SG 80 in this issue.</p> <p>Until 1983 the main measures to control the catches and the pressure on species was made with effort limitations. This measures had proved unsuccessful when the cod stock was in decline. Then, Iceland’s national parliament, adopted a management system of individual transferable quotas (ITQs) for individual vessels. The present comprehensive fisheries management system is still based on ITQs. The quotas represent shares in the national total allowable catch (TAC). They are permanent, perfectly divisible and fairly freely transferable. The objectives are, according to the Fisheries Management Act, to promote the conservation and efficient utilisation of the marine resources and then to ensure the sustainability of the fisheries while emphasising the economic benefits of the fisheries sector. Translating this management system to primary species, each vessels targeting Capelin need quota to land other retained species (non-target), therefore all the non target species must be recorded, landed and reported to DoF. All the species landing must be reported and an obligations of landing is implemented in the fishery.</p> <p>The catch limitation system is based on the catch share allocated to individual vessels. Each vessel is allocated a certain share of the total allowable catch (TAC) of the relevant species. The catch limit of each vessel during the fishing year is thus determined on basis of the TAC of the relevant species and the vessel’s share in the total catch. In addition to the ITQ system, Icelandic fisheries management includes many other management measures such as area restrictions and fishing gear restrictions to ensure the fishery is targeting the Capelin and other catches are reduced.</p> <p>Therefore, there is a strategy in place for the UoAs for managing minor primary species (no main primary species have been described) and <b>SG 100 is met</b> in each species evaluated in this PI.</p>		
b	Management strategy evaluation			
	Guidepost	The measures are considered <b>likely</b> to work, based on plausible	There is some <b>objective basis for confidence</b> that the measures/partial	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work,

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
		argument (e.g., general experience, theory or comparison with similar fisheries/species).	strategy will work, based on some information directly about the fishery and/or species involved.	based on information directly about the fishery and/or species involved.
	Met?	Y	Y	Y (all the species listed)
	Justification	<p>For all the primary species retained by the fishery, the management system implementation is working. The obligation of landing all catches and the control by TAC is supervised by the the Directorate of Fisheries (DoF). All the catches landed are reported and the Icelandic law has a system where the catches in port are weighted and all the species landed are checked.</p> <p>Effective control and enforcement are inseparable part of the responsible fisheries management. The DoF monitors Icelandic fisheries closely to ensure that all rules are being followed.</p> <p>Scientific research is essential for successful management. The Marine Research Institute carries out wide ranging and extensive research on the status and productivity of the commercial stocks, and long-term research on the marine environment and the ecosystem around Iceland. The results of this research are the foundations of the advice on sustainable catch level of the fish stocks then every year the MFRI gives advices to the Minister to establish the quotas and to report the status of each species and if the strategy implemented for its management is working succesfully. Also, the stock assessments are a type of testing support and therefore, overfished and overfishing is not happening in any primary species.</p> <p>The assessment team can say that testing supports high confidence that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved and <b>SG 100 is met</b> for all the primary species identified in the Capelin fishery.</p>		
c	Management strategy implementation			
	Guidepost		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a).
	Met?		Y	Y
	Justification	<p>The fishery under assessment is a clean fishery, as the results from DoF has showed. The percentage of catches of other non-target species is very low. That is consequence of the strategy implemented in the fishery to avoid other species,it can be confirmed the strategy is working.</p> <p>The system established, allows to reduce the catches of primary species because the fleet needs to have a quota to landing non-target species and some measures for the fulfillment of the obligations of landing are in place.</p> <p>The enforcement of these regulations are very hard in Icelandic fisheries. All the vessels involved in the fishery have to report catch quotas and catches. This work is done in</p>		

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
		the Fisheries Directorate’s central data base which is accessible to any stakeholder. The system has a high transparency and the availability of the data is ensured. Therefore, there is a clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue a and <b>SG 100 is met</b> for all the primary species identified in the Capelin fishery.		
d	Shark finning			
	Guidepost	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.	There is a <b>high degree of certainty</b> that shark finning is not taking place.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	There are no sharks in the composition of non target species.		
e	Review of alternative measures			
	Guidepost	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	Not score	Not score	Not score
	Justification	Unwanted catches do not occur in the fishery under assessment. The fishery is very clean and the primary species are negligible. When determining what is ‘negligible’ the MSC does not specify a set cut-off; following this criteria the team considers the significance of the catch in relation the proportion of the unwanted catch as part of the total catch, and then the % is very low. Therefore, this issue is not scored in the fishery under assesment.		
References		The fisheries management Act. No 116, 10 August 2006. Ministry of Fisheries and Agriculture. Statement on responsible fisheries in Iceland, 2006. Information Centre of Icelandic Ministry of Fisheries and Agriculture. www.fisheries.is /www.fiskistofa.is		
Score element 1 (Cod)				100
Score element 2 (Haddock)				100
Score element 3 (Saithe)				100
Score element 4 (Herring)				100
Score element 5 (Lumpfish)				100
Score element 6 (Greenland Halibut)				100
Score element 7 (Monkfish)				100
Score element 8 (Wolfish)				100
Score element 9 (Blue whiting)				100
Score element 10 (Redfish)				100
Score element 11 (Plaice)				100
OVERALL PERFORMANCE INDICATOR SCORE:				100

PI 2.1.2	There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.
CONDITION NUMBER (if relevant):	NA

**PI 2.1.3 – Primary species information - UoA 1 and UoA 2**

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guidepost	Qualitative information is <b>adequate to estimate</b> the impact of the UoA on the main primary species with respect to status.  OR  If RBF is used to score PI 2.1.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is <b>adequate to assess</b> the impact of the UoA on the main primary species with respect to status.  OR  If RBF is used to score PI 2.1.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is <b>adequate to assess with a high degree of certainty</b> the impact of the UoA on main primary species with respect to status.
	Met?	Y	Y	Y
	Justification	There are no primary main species in the fishery. There are enough quantitative information to evaluate the effect of the fishery in the stock of all non-target species.  As the CAB explained in the table 2.1.1 and 2.1.2 the Icelandic fisheries have a well defined management plan. A system of TACs are implemented and these TACs are, and have been in the past, set up to limit fishing activity and try to decrease, in most of cases, the mortality.  The official catch statistics (logbook information) is collected by the national authorities to complete the DoF data base. Therefore, as no main primary species are reported the assessment team can confirm that quantitative information is available and is <b>adequate to assess with a high degree of certainty</b> the impact of the UoA on main primary species with respect to status and <b>SG 100 is met.</b>		
	Information adequacy for assessment of impact on minor primary species			
b	Guidepost			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			Y (all the species listed)
	Justification	The minor primary species reported herein are 11 species. As the assessment team has explained above, the catches of these species are minimal and no higher than 0.3 % in any case. These percentage of catches is negligible and doesn't hinder the status of the stock of the species listed in the assessment of this fishery.  The DoF through the Fisheries Management Act perform the duties to guarantee the information is adequate. In the Art. 18 of this Act explains how all the catches must be		



PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
		<p>reported and inspectors must ensure and supervise the landing, weighing, processing, export, etc.</p> <p>All these quantitative data are available in hafro website (<a href="http://www.hafro.is/">http://www.hafro.is/</a>) and it's published the assessment of each species in the State of Marine Species book in Iceland by year. Therefore, some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status and <b>SG 100 is met</b> for all the minor primary species defined in the fishery.</p>		
c	Information adequacy for management strategy			
	Guidepost	Information is adequate to support <b>measures</b> to manage <b>main</b> primary species.	Information is adequate to support a <b>partial strategy</b> to manage <b>main</b> Primary species.	Information is adequate to support a <b>strategy</b> to manage <b>all</b> primary species, and evaluate with a <b>high degree of certainty</b> whether the strategy is achieving its objective.
	Met?	Y	Y	Y
	Justification	<p>Following the criteria used by Guion et.al 2011 to evaluate if the quantitative and qualitative information must be consider accurate and adequate to assess one studies, the information must be come from 3 different sources. Data triangulation is particularly well suited for information given the different stakeholder as it happens in a fishery under evaluation.</p> <p>Therefore the assessment team has the information of stock assessment from ICES, the report and advice from MFRI and the data available in the Directorate of Fisheries and Ministry. The Article 17 and 18 of the Fisheries Management Act describe the Surveillance programme.</p> <p>The coast guard supervises that these strategies are in place and the vessels are complying with. The roles of Coast Guard can be consulted in this document Act on the Icelandic Coast Guard No. 52, June 14<sup>th</sup> 2006 and it is explained how the Coast guard is involved in the fishery law enforcement. Therefore, the strategy implemented in the assessment for all the primary species achieve the objective and the fishery doesn't hinder the management of these species. Therefore, information is adequate to support a <b>strategy</b> to manage <b>all</b> primary species, and evaluate with a <b>high degree of certainty</b> whether the strategy is achieving its objective and <b>SG 100 is met</b>.</p>		
References		<p><a href="http://www.hafro.is/Astand/2016/english/cod_2016.pdf">http://www.hafro.is/Astand/2016/english/cod_2016.pdf</a></p> <p><a href="http://www.hafro.is">www.hafro.is</a></p> <p>State of marine stock in Iceland. Nytjastofnar sjávar 2014/2015 og aflahorfur 2015/2016.</p> <p>Guion L.A., Diehl D.E., and McDonald, D. 2011. Triangulation: Establishing the Validity of Qualitative Studies. Institute of Food and Agricultural Sciences, University of Florida.</p> <p>Act on the Icelandic Coast Guard No. 52, June 14<sup>th</sup> 2006. Ministry of Interior. Iceland</p> <p>The Fisheries Management Act No 116, August 10<sup>th</sup> 2006. Ministry of Industries and Innovation . Iceland</p>		
Score element 1 (Cod)				100
Score element 2 (Haddock)				100
Score element 3 (Saithe)				100

<b>PI 2.1.3</b>	<b>Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species</b>	
Score element 4 (Herring-either stock)		<b>100</b>
Score element 5 (Lumpfish)		<b>100</b>
Score element 6 (Greenland Halibut)		<b>100</b>
Score element 7 (Monkfish)		<b>100</b>
Score element 8 (Atlantic Wolfish)		<b>100</b>
Score element 9 (Blue whiting)		<b>100</b>
Score element 10 (Redfish)		<b>100</b>
Score element 11 (Plaice)		<b>100</b>
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>NA</b>

**PI 2.2.1 – Secondary species outcome. - UoA 1 and UoA 2**

PI 2.2.1		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.		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guidepost	Main Secondary species are <b>likely</b> to be within biologically based limits.  OR  If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are <b>highly likely</b> to be above biologically based limits  OR  If below biologically based limits, there is either <b>evidence of recovery</b> or a <b>demonstrably effective partial strategy</b> in place such that the UoA does not hinder recovery and rebuilding.  AND  Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that also have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.	There is a <b>high degree of certainty</b> that main secondary species are within biologically based limits.
	Met?	Y	Y	Y
	Justification	There is no main secondary species in the fishery. The total composition of catch was analized by the assessment team and only three species were identified as secondary species in the fishery.  All these species are representing of less than 0.005 % of catches. Therefore the catches are negligible and all the species have been classified as minor in this fishery.  Therefore, there is a <b>high degree of certainty</b> that the fishery doesn't hinder main secondary species and <b>SG 100 is met</b> for default because of there is no main species in the fishery.		
b	Minor secondary species stock status			
	Guidepost			Minor secondary species are highly likely to be above biologically based limits.

PI 2.2.1		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.		
				OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			Y (Dealfish) Y (Turbot) N (Grey Skate)
	Justification	<p>The catches of Capelin fishery were analyzed in the table <b>Table 4</b> and as it has explained there is no higher catches because the fishery is clean. As the assessment team has explained in the primary species, the composition of catches between UoA doesn't perform differences and as it shown in the DoF data base the species and % are the same in both UoAs, therefore the assessment team will analyzed the secondary species in the same tables to make readable the report and don't repeat the information.</p> <p>Three species were identified as minor secondary species with catches far less than 5 % of catches. The species identified are listed below:</p> <ul style="list-style-type: none"> <li>- Dealfish [<i>Trachipterus arcticus</i>, (Brünnich, 1788)]</li> <li>- Turbot [<i>Scophthalmus maximus</i> (Linnaeus, 1758)]</li> <li>- Grey skate [<i>Dipturus batis</i> (Linnaeus, 1758)]</li> </ul> <p>The percentage of catches of all species was: 0.0001%.</p> <p>Information about the stock status of these species is available in the Icelandic Fisheries form Ministry of Fisheries and Agriculture website (<a href="http://www.fisheries.is">http://www.fisheries.is</a>). Therefore, although these species have not TAC established, all the catches must be landed and the assessment team can confirm that the catches are insignificant.</p> <p>Last WK2015 from ICES defined that no reference points and no stock assessments are developed for these species but the programme to reduce the bycatch contribute to decrease the catches of these species that are taken mainly as bycatch. Recent studies from MFRI have shown that the catches of grey skate are decreasing over the years but the assessment team cannot confirm that grey skate is highly likely above the limits, in some ICES areas catching or holding are forbidden. Therefore, Grey skate <b>cannot reach SG 1000 and SG 80 is met</b>.</p> <p>As can be consulted in the DoF website, the catches come from the Capelin fishery (UoAs), and minor secondary species, Dealfish and Turbot, are highly likely to be above biologically based limits then <b>SG 100 is met</b> for these minor secondary species.</p> <p>The overall scoring of this issue <b>cannot reach SG 100</b>.</p>		
References		<a href="http://www.fisheries.is">http://www.fisheries.is</a> The Fisheries Management Act No 116, August 10 <sup>th</sup> 2006. Ministry of Industries and Innovation . Iceland		
Score element 1 (Dealfish)				100

<b>PI 2.2.1</b>	<b>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.</b>	
<b>Score element 2 (Turbot)</b>		<b>100</b>
<b>Score element 3 (Skate)</b>		<b>80</b>
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>90</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>NA</b>

**PI 2.2.2 – Secondary species management strategy - UoA 1 and UoA 2**

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guidepost	There are <b>measures</b> in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a <b>partial strategy</b> in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a <b>strategy</b> in place for the UoA for managing main and minor secondary species.
	Met?	Y	Y	Y
	Justification	There are no main secondary species identified in the Capelin fishery. Further, the strategy in place to control the species retained by the fishery is the obligations of landing, discard ban and the control established at port. As the assessment team mentioned above, the coast guard is in charge to oversee that any illegal activity takes place, such as discarding species. On the other hand, the landings are controlled at ports with inspections to verify the elogbook and the final landing sample.  Therefore, all the cathes are reported to the DoF and after that to MFRI. The % of cathes of each fishery is known. Therefore, the catches come from UoAs are known by the measure of reporting all the non-target species retained, main and minor, species must be recorded.  On the other hand, the fisheries targeting Grey Skate are closed and for that reason the catches has been decreasing over the years. Therefore, there is a strategy in place for the UoA for managing main and minor secondary species and <b>SG 100 is met.</b>		
b	Management strategy evaluation			
	Guidepost	The measures are considered <b>likely</b> to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is <b>some objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	Y	Y	Y
	Justification	The obligation of landing is a well measures to control the impact of the fisheries in the retained species. This obligation, as the assessment team has described, is controlled by the DoF, the Coast Guard and inspectors at port.  There are several measures to support that the startegy is working. The Coast Guard monitors fishing activities, gears, fishing locations and discarding. Many areas in the waters around Iceland are closed for fishing, mostly because they contain large quantities of		



PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.			
		<p>juvenile fish, but also for ecological reasons (e.g. to prevent the destruction of corals). Some areas are closed permanently for some fishing while other closures of concrete areas, are temporary. All discarding of catches is explicitly banned by Icelandic law and is controlled by inspections at sea and on port. The logbook which is mandatory in Icelandic vessels, records all the catches and also it's an effective measures. Grey skate cannot be target in any fisheries.</p> <p>Therefore, there is information directly from the UoAs that shows the fishery addressed the objectives established in strategy.</p> <p>Therefore, <b>testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved regarding turbot and dealfish and <b>SG 100 is reach</b>.</p>			
c	Management strategy implementation				
	Guidepost		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).	
	Met?		Y	Y	
	Justification	As it was explained above, there is some evidence that the strategy of landing and control the catches works to minimize the retained species which are not the target species.			
d	Shark finning				
	Guidepost	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.	There is a <b>high degree of certainty</b> that shark finning is not taking place.	
	Met?	Not relevant	Not relevant	Not relevant	
	Justification	Not relevant			
e	Review of alternative measures to minimise mortality of unwanted catch				
	Guidepost	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of main secondary species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of main secondary species and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of all secondary species, and they are implemented, as appropriate.	
	Met?	Not score	Not score	Not score	
	Justification	No unwanted catches of secondary species are occurring in the fishery. The fishery is very clean and the minor secondary species are negligible. When determining what is 'negligible' the MSC does not specify a set cut-off; following this criteria the assessment team has considered the significance of the catch in relation the proportion of the unwanted catch as part of the total catch, and the percentage is very low. Therefore this issue is not relevant to this fishery under assesment.			

<b>PI 2.2.2</b>	<b>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.</b>		
<b>References</b>	<a href="http://www.fisheries.is">http://www.fisheries.is</a> The Fisheries Management Act No 116, August 10 <sup>th</sup> 2006. Ministry of Industries and Innovation . Iceland		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>			<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>			<b>NA</b>

**PI 2.2.3 – Secondary species information - UoA 1 and UoA 2**

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guidepost	Qualitative information is <b>adequate to estimate</b> the impact of the UoA on the main secondary species with respect to status.  OR  <b>If RBF is used to score PI 2.2.1 for the UoA:</b>  Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and <b>adequate to assess</b> the impact of the UoA on main secondary species with respect to status.  OR  <b>If RBF is used to score PI 2.2.1 for the UoA:</b>  Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and <b>adequate to assess with a high degree of certainty</b> the impact of the UoA on main secondary species with respect to status.
	Met?	Y	Y	Y
	Justification	No main secondary species in the fishery were identified and there are enough quantitative information to evaluate the effect of the fishery in the stock. Therefore with the quantitative data available the assessment team can conclude that there is not main secondary species and <b>SG 100 is met</b> for default.		
b	Information adequacy for assessment of impacts on minor secondary species			
	Guidepost			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			Y (Turbot) Y (Dealfish) N (Grey Skate)
	Justification	The minor secondary species reported herein are 3 species. As the assessment team has explained above the catches of these species are minimal and no higher than 0.003 %.  The DoF through the Fisheries Management Act perform the duties to guarantee the information is adequate. In the Art. 18 of this Act explains how all the catches must be reported and inspectors must ensure and supervise the landing, weighing, processing, export, etc. All these quantitative data are available in hafro website (www.hafro.is) and used to published the assessment of each species in the State of Marine Species book in Iceland ny year. These data are also used to evaluate the impact of the fisheries in Icelandic ecosystem.  Therefore, some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status and <b>SG 100 is met</b> for two species Dealfish		

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.		
		and Turbot. Grey Skate cannot reach SG 100 because of the stock statis is not well known and <b>SG 80 is met.</b>		
c	Information adequacy for management strategy			
	Guidepost	Information is adequate to support <b>measures</b> to manage <b>main</b> secondary species.	Information is adequate to support a <b>partial strategy</b> to manage <b>main</b> secondary species.	Information is adequate to support a <b>strategy</b> to manage <b>all</b> secondary species, and <b>evaluate</b> with a <b>high degree of certainty</b> whether the strategy is <b>achieving its objective</b> .
	Met?	Y	Y	Y (all the species)
	Justification	The coast guard supervises that these strategies are in place and the vessels are complining with. The roles of Coast Guard can be consulted in this document Act on the Icelandic Coast Guard No. 52, June 14th 2006 and it is explained how the Coast guard is involved in the fishery law enforcement. Therefore, the strategy implemented in the assessment for all the secondary species, achieves the objective and the fishery doesn't hinder the management of these species.  Therefore, information is adequate to support a <b>strategy</b> to manage <b>all</b> secondary species, and evaluate with a <b>high degree of certainty</b> whether the strategy is achieving its objective and <b>SG 100 is met</b> for the minor secondary species described herein.		
References		State of marine stock in Iceland. Nytjastofnar sjávar 2014/2015 og aflahorfur 2015/2016. Guion L.A., Diehl D.E., and McDonald, D. 2011. Triangulation: Establishing the Validity of Qualitative Studies. Institute of Food and Agricultural Sciences, University of Florida. Act on the Icelandic Coast Guard No. 52, June 14 <sup>th</sup> 2006. Ministry of Interior. Iceland The Fisheries Management Act No 116, August 10 <sup>th</sup> 2006. Ministry of Industries and Innovation . Iceland www.hafro.is		
Scoring element 1 (Dealfish)				100
Scoring element 2 (Turbot)				100
Scoring element 3 (Grey Skate)				90
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				NA

**PI 2.3.1 – ETP species outcome. - UoA 1 and UoA 2**

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guidepost	Where national and/or international requirements set limits for ETP species, the effects of the UoA on the population/stock are known and <b>likely</b> to be within these limits.	Where national and/or international requirements set limits for ETP species, the <b>combined effects of the MSC UoAs</b> on the population/stock are known and <b>highly likely</b> to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a <b>high degree of certainty</b> that the <b>combined effects of the MSC UoAs</b> are within these limits.
	Met?	Y	Y	N
	Justification	<p>The minke whales are common in Iceland and there is a national limits established to monitor the effects in the population. MFRI advices annual catches of no more than 224 common minke whales on the Icelandic continental shelf in 2016–2018.</p> <p>The legislation in Iceland regarding ETPs species is regulated by the Icelandic legislation (557/2007) who states to complete the logbook where any interaction or catch of birds or other endangered species must be reported to DoF. On the other hand, mammals are regulated by the Fisheries Management Act and Nature Conservation Act. no. 47/1971. Further, in Iceland, whaling is controlled by the International Whaling Commission (IWC) and the North-Atlantic Marine Mammal Commission (NAMMCO).</p> <p>The Vessels in Iceland are not obligated to have e-logbook to report the catthes. However, the obligations to land all the catches and be reported in the first point of land provides with quantitative data. All these data are reported to DoF. In DoF website the cacthes of whales can be consulted. MFRI realizes every year the stock assessments of Minke whales, this species has a domestic use in Iceland.</p> <p>Regarding the MFRI report the abundance of common minke whales increased up to 2001, but decreased thereafter. This change likely represents changes in distribution within the Central North Atlantic stock area as a result of changed distribution of important prey species such as sandeel and capelin. Even the distribution has changed and this species prey on Capelin the whales killed by Capelin fleet are negligible. The interactions are known but catches come from capelin fishery are not registered.</p> <p>Last report published by IUCN the stock of Minke whales and Humpback whales seem based on the recent rates of increase, unlikely that it is below the threshold (50% of the 1940 level) that would qualify the species for inclusion in the Vulnerable category under criteria. The species are therefore listed as Least Concern. Furthermore, the whaling is carried out by specific fleet, the International Whaling Commission (IWC) has reported the whaling from Iceland but there is not catches from the fishery under assessment.</p> <p>Although there is no catches from Capelin fishery, the cumulative impact in other UoAs such as: ISF Norwegian &amp; Icelandic herring trawl and seine, ISF Iceland Cod, ISF Iceland golden redfish, ISF Iceland haddock, ISF Iceland saithe and ling, ISF Iceland mackerel, and ISF Greenland halibut, must be considered and therefore <b>SG 100 is not fully met</b> but the <b>combined effects of the MSC UoAs</b> on the population/stock are known and <b>highly likely</b> to be within these limits and .</p>		
b	Direct effects			

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
	<b>Guidepost</b>	Known direct effects of the UoA are likely to not <b>hinder recovery</b> of ETP species.	Known direct effects of the UoA are <b>highly likely</b> to not <b>hinder recovery</b> of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>The rest of the ETP species are evaluated in this issue because there are no catches from Capelin fishery. The list of species evaluated is:</p> <ul style="list-style-type: none"> <li>– Belugas</li> <li>– Blainville's</li> <li>– Blue whale</li> <li>– Bottlenose</li> <li>– Bowhead whales</li> <li>– Common or harbour seals</li> <li>– Cuvier's beaked whales</li> <li>– Fin whale</li> <li>– Grey seals</li> <li>– Grey whale</li> <li>– Harbour porpoises</li> <li>– Humpback whale</li> <li>– Killer whale</li> <li>– Long-finned pilot whale</li> <li>– Northern right whale</li> <li>– Sei whale</li> <li>– Sowerby's</li> <li>– Sperm whales</li> <li>– White-beaked dolphin</li> <li>– Atlantic Puffin</li> <li>– Kittiwake</li> <li>– Brunnich Guillemot</li> <li>– Common Guillemot</li> <li>– Razorbill</li> <li>– Fulmar</li> </ul> <p>The direct effects caused by the fishery are known because no species may be impacted by the fishery and there are not any protected species under Icelandic legislation. The rationale is provided for both gears used in the assessment. Both gears have low level of interaction with ETPs and the same species are identified and no changes are detected by gears in the terms of species that have been identified.</p> <p>In personal interviews with members of the crew, the assessment team gathered information regarding the interaction with ETPs, they confirmed that the vessels do not have catches of seabirds and interactions are not reported. With whales, they have some</p>		

PI 2.3.1	The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species
	<p>entanglement but normally they avoid the areas, then it is not very common.</p> <p>According to MFRI and DoF, stakeholders along with client fishery skippers, encounters between the fishery and ETP species are exceptionally rare and this is consistent with the findings of other MSC certified fisheries in Iceland such as Herring fishery or Saithe fishery with danish seine.</p> <p>Through ongoing observer programmes in pelagic trawl, ONGs programmes and diversives researches, there is a growing body of evidence to support the understanding that pelagic trawl fisheries have few encounters with protected species that result in direct mortality of protected species. In addition Icelandic legislation (557/2007) states that all fishing vessels must keep a fishery logbook. Birds and Mammals that are caught in fishing gear are to be reported and recorded in the fishery logbook. That is returned to the DoF once a month. These reports are then sent onto the MFRI where the information is used for scientific work.</p> <p>Accordingly, the fishery is highly unlikely to create unacceptable impacts for any ETP populations. This is corroborated by the MFRI, DoF and material published by ICES (SGBYC, WGMME) as well as general understanding of the ETP species footprint of pelagic trawl and purse seine fisheries.</p> <p>Evidence supplied by the Icelandic Authorities have no reports of seabirds being captured - and suggest that it is highly unlikely that they get captured in the purse seine or midwater trawl. Captains have informed the authorities that this type of bird capture has never occurred and it was mentioned above.</p> <p>As it is reported by NGOs such as AWI, interactions may occur but these do not necessarily always lead to mortality of affected individuals. The interactions with humpback and the purse seine are identified by the skypers and other research or sighting programmes. The populations of humpbak is increased in the last years, consequently the interactions with humpback have also increased in last fishing season. Studies are carry out to know the relationship between the increasement in the number of humpback specimens and the interactions (Barsan, 2014).</p> <p>Evidence supplied by the Icelandic Authorities has no records of whales ever being captured by pelagic trawls. However, the interactions with the purse-seine happen and depends the populations of humpback these interactions may increase. If a purse seine boat does capture a whale the captain is instructed to release the net and catch of fish. The use of sonar makes this possible interaction very easy to avoid and if a whale is caught the boat will make every effort to open the gear and allow it to swim out unhurt.</p> <p>Furthermore, to avoid this types of interactions, there is a research project starting next winter which will be carried out with pingers and it will try to describe how the whales react to these acoustic methods. The project will be carried out by the Husavik Research Center.</p> <p>Further, with the obligation of landing (discards ban) the vessels have to report any catches as the assessment team has explained in the primary species section. Every month the logbook is reported to DoF and must be consulted. In the DoF website it can be checked that since January 2013 just two vessels have captured dolphins, besides these vessels do</p>



PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species	
		<p>not target capelin, and any whales were captured or reported by Capelin fleet.</p> <p>The assessment team has evidences that catches of ETPs species come from Capelin fishery are negligible, however the interactions should be reported and more effort to know how these interactions could affect the specimens entangled and how they could avoid the presence of whales are needed and it will be a recommendations in the assessment.</p> <p>Also, more information regarding seabird could be useful to reduce the lack of information in the models. Then, the assessment team can support that known direct effects of the UoA are <b>highly likely</b> to not <b>hinder recovery</b> of ETP species and <b>SG 80 is met</b> but the <b>SG 100 is not fully meet</b>.</p>	
c	Indirect effects		
	Guidepost	Indirect effects have been considered and are thought to be <b>highly likely</b> to not create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?	Y	N
	Justification	<p>Indirect effects could be defined as depletion of the target species, which could be a key food source for some species or through physical disturbance when the whales or other ETPs are entangled in the nets. There is some studies to describe the entanglement of whales, and other countries as USA, Australia or New Zeland have management plan to trackle the entanglement.</p> <p>Regarding the role of Capelin as LTL species and its relation with the feeding habit of whales and seabirds, it is highly unlikely that the fisheries reduce the capelin stocks to a point where it would adversely affect ETP populations. Stefánsson et al. (1997) studied the interactions between cetaceans and some fish species (mainly capelin and krill) in Icelandic waters. The results indicate that both minke and humpback whales may have significant direct impact on the status of the capelin stock. The effects of fin whale predation on the capelin stock seems less significant unless such consumption occurs outside the sampled area, which is considered quite possible.</p> <p>The assessment team has concerns regarding the introduction of how whales and seabirds prey on capelin in the prediction models to understand well how important is the role of the capelin as LTL in the whales populations. Although studies show that the decrease in the seabird population are due to several causes and thoses causes of population shift and range changes can rarely be confidently attributed to a single source (Gaston et.al, 2011) , the assessment team encourage to develop more effort to work closely NGOs to preserve the areas where the population of seabirds are more frequent could support more accuracy in the estimation models and increase the ecosystem approach.</p> <p>Therefore, even if the directs impacts are negligible and also the indirects impacts cannot confirm to have high impacts in ETPs populations, there is a lack of information regarding how the capelin could affect the feeding patterns of whales and seabird such as kittiwake or puffin (section 4.4.3). At the same time, more effort to know how humpbacks are affected by the interactions with the nets in the purse seine fishery when the specimens try to avoid or get away from the gears should be carried out.</p>	

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species
		Therefore, the assessment team cannot conclude that there is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETPs species and <b>SG 100 is not met</b> . Indirect effects, including feeding habits, have been considered and are thought to be <b>highly likely</b> to be within acceptable limits and <b>SG 80 is met</b> .
<b>References</b>	Stefánsson et al. 1997 Pike et al. (2007, 2009a & 2010) Basran, C. 2014 Bertulli, C.G et al. 2011 Víkingsson et al. 2009 Icelandic Fisheries Report 2007. ( <a href="http://www.fisheriesiceland.is">www.fisheriesiceland.is</a> ) NAMMCO North Atlantic Marine Mammal Commission. 2004. Report of the Working Group on minke and fin whales. In: NAMMCO Annual Report 2003, NAMMCO, Tromsø, pp.197-229. NAMMCO 2015. Report of the 22nd meeting of the Scientific Committee. North Atlantic Marine Mammal Commission. 194 bls. IWC 2015. Report of the Scientific Committee. San Diego, California 22. May – 3. June, 2015. 115 bls. Gaston, A. J. 2011. Arctic seabirds: Diversity, populations, trends, and causes. Pages 147–160 in R. T. Watson, T. J. Cade, M. Fuller, G. Hunt, and E. Potapov (Eds.). Gyrfalcons and Ptarmigan in a Changing World, Volume I.	
	<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>	
<b>CONDITION NUMBER (if relevant):</b>		<b>80</b>
		<b>NA</b>

**PI 2.3.2 – ETP species management strategy. - UoA 1 and UoA 2**

PI 2.3.2	<p>The UoA has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> <li>• meet national and international requirements;</li> <li>• ensure the UoA does not hinder recovery of ETP species.</li> </ul> <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.</p>		
Scoring Issue	SG 60	SG 80	SG 100
<b>a</b>	Management strategy in place (national and international requirements)		
	<b>Guidepost</b>	There are <b>measures</b> in place that minimise the UoA-related mortality of ETP species, and are expected to be <b>highly likely to achieve</b> national and international requirements for the protection of ETP species.	There is a <b>strategy</b> in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be <b>highly likely to achieve</b> national and international requirements for the protection of ETP species.
	<b>Met?</b>	Y	N
	<b>Justification</b>	<p>The impact that the pelagic fisheries, either purse seine or midwater pelagic trawl, have on ETP species are negligible. The fishing operation itself can be considered as a strategy to minimize impact on whales and it shown in the DoF databse the catches of minke whales and skate are insignificant. However, where limited information is available the assessment team needs to be more precautionary. Considering the information available for this fishery as follows: expert opinion and results of research project from scientific institutions in Iceland (MFRI); published literature in relation to Capelin fishery and ETPs species in the area; information from the fishery (skippers); information from NGOs and information from different committees such as UNEP, DoF, CMS and NAMMCO with which Iceland has agreement and has been involved in the decision making process of these committees regarding different issues to protect ETP species.</p> <p>In NAMMCO the catches of minke whales coming from the Icelandic fleet can be seen and the catches are not from capelin vessel as it was confirmed by personal communication with the skippers during the site visit and that verified with the data form DoF that there are no catches of minke whales or other species of whales reported herein, in the ETP section 4.4.3.</p> <p>The NGO AWI has some quantitative data from sightings and an University Research project has been undertaken with short term eyewitness from skippers in Icelandinc waters, even the assessment team is not sure if all the data are fom the UoAs, the number of interactions within the fishery was low, therefore the mortality is negligible.</p> <p>In addition to the above, Iceland has an active programme of cetacean stock assessment carried out by MFRI to improve the skills about the mammals populations within Icelandic waters. Iceland is a member of NAMMCO - the North Atlantic Marine Mammal Commission, an international body for cooperation on the conservation, management and study of marine mammals in the North Atlantic, as the assessment team mentioned above and It has been involved in some decision making process to establish protected areas. Through regional cooperation, the member countries of NAMMCO aim to strengthen and further develop effective conservation and management measures for marine mammals. These measures can be considered as strategies to minimize the mortality of ETPs.</p>	

PI 2.3.2		The UoA has in place precautionary management strategies designed to: <ul style="list-style-type: none"><li>• meet national and international requirements;</li><li>• ensure the UoA does not hinder recovery of ETP species.</li></ul> Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.	
		<p>Personal communications with the skippers has shown that the bycatch of seabirds is also negligible. The fishery itself is a measures to avoid the catches of seabirds.</p> <p>The assessment team, following the MSC guideline considers that to determinate a comprehensive statategy in place the fishery needs more effort in respect of getting data from observer programmes or other technologies and independent research programmes. Some research projects are in place but it would be necessary a higer level of involvement from the fishery under assessment to report any type of interactions with ETPs even they are unfrequent.</p> <p>Therefore, for all the species reported herein as ETPs, the fishery <b>does not fully meet SG 100</b>, because it does not have a comprehensive strategy in place, as it defined by the FCR of MSC and needs more effort in getting data with a higher level of verifiability. The estimation models should include the predation of seabirds and mamals to develop a well management plan with an ecosystem approach.</p> <p>To get SG 80, there are agreements in place to protect ETPs species. The mortality, coming from the activities of the fleet under assessment, is negligible.</p> <p>To conclude, there is a <b>strategy</b> in place for managing the UoA’s impact on ETP species, including measures to minimise mortality, which is designed to be <b>highly likely to achieve</b> national and international requirements for the protection of ETP species and <b>SG 80 is met</b>.</p>	
b		Management strategy in place (alternative)	
	Guidepost	There are <b>measures</b> in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a <b>strategy</b> in place that is expected to ensure the UoA does not hinder the recovery of ETP species.
	Met?	Not relevant	Not relevant
	Justification	Not relevant, there are no national or international agreements in place for protection of ETPs, therefore the issue was scored above for all the ETPs species reported in this report.	
c		Management strategy evaluation	
	Guidepost	The measures are <b>considered likely</b> to work, based on <b>plausible argument</b> (e.g. general experience, theory or comparison with similar fisheries/species).	There is an <b>objective basis for confidence</b> that the measures/strategy will work, based on <b>information</b> directly about the fishery and/or the species involved.
	Met?	Y	N
	Justification	There is general knowledge regarding the low interactions that the pelagic fisheries have with the ETPs species listed herein.	

PI 2.3.2		The UoA has in place precautionary management strategies designed to: <ul style="list-style-type: none"><li>• meet national and international requirements;</li><li>• ensure the UoA does not hinder recovery of ETP species.</li></ul> Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.	
		<p>As it has been explained above, there are several scientific studies on whales in Icelandic waters and their interactions with the fishery. There is collaboration between the fleet targeting Capelin and some research project carries out by the University of Iceland's research center in Húsavík and the interviews with the skippers gave the assessment team some information regarding how the fleet avoids whale interactions.</p> <p>For example, some published studies (Pike et al. 2010 and Barsan, C. 2014) show how the populations of humpback are increasing in the last years. These measures in place of the fishery are considered an appropriate strategy in conjunction with Iceland's participation in overall cetacean management through NAMMCO and commitment to monitoring status of some key marine mammals populations in Icelandic waters.</p> <p>The assessment team can confirm that some vessels are collaborating with several research projects and the interviews with the skippers allowed the assessment team to determine that the fleet avoids whale interactions and when an entanglement happens the whale's mortality are very rare. Normally the fishery doesn't hinder the recovery of those species.</p> <p>The indirect impacts that the fishery could have in the seabird populations are studied. E.g. Birdlife, 2015 report has shown that over the past 20 years, the feeding habit of puffin has changed and it is not just for one causes. The fishery can affect the availability of preys but in most cases the changes in the seabird population are due to different reasons. The relationship between summer feeding seabirds and the fishery is further complicated by the fact that only small quantities of capelin are fished during the summer and some of the capelin stock may be out of reach for breeding Icelandic seabirds (Vilhjalmsson, 1994). So, their role in trophic relationships needs further study.</p> <p>Therefore, as the assessment team mentioned in issue a, the data available must be considered as lower bias to meet SG 100 and for this reason it is not fully met, more data coming directly from the fishery should be available. However, the assessment team is aware that enough data are available to meet SG 80 and there is an <b>objective basis for confidence</b> that the measures/strategy will work, based on <b>information</b> directly about the fishery and/or the species involved and <b>SG 80 is fully met</b>.</p>	
d	Management strategy implementation		
	Guidepost		<p>There is some <b>evidence</b> that the measures/strategy is being implemented successfully.</p> <p>There is <b>clear evidence</b> that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b).</p>
	Met?	Y	N
	Justification	There is evidence that the strategy is implemented and there are patterns in how the fleet manages the interactions with the whales, the interviews with the skippers let the assessment team know that the fleet avoids the interactions and when an entanglement happens the mortality of the whales is very rare, almost negligible. IFFO RS Iceland Capelin Assessment 2014 report has shown that 1 or 2 humpback whales are captured per year by	

PI 2.3.2		The UoA has in place precautionary management strategies designed to: <ul style="list-style-type: none"><li>• meet national and international requirements;</li><li>• ensure the UoA does not hinder recovery of ETP species.</li></ul> Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.	
		<p>the entire capelin fishery , for that reason the fishery is not a risk for the recovery of the whales.</p> <p>Furthermore, regarding the possible risk caused on seabird populutions, it's noted that the fishery takes place during the winter when Capelin is adult. A study carried out by Lilliendahl,k. &amp; Solmundsson,J.,1997, has reported that the seabirds prey on capelin when they are juveniles and the porcentage of capelin in diet are higher during the summer, that suggests the overlapping with the fishery is not frequent.</p> <p>The assessment team has concluded that there is evidence that the measures/strategy is being implemented successfully and <b>SG 80 is met.</b></p> <p>Because of at some stage in the fishery, interactions with marine mamals has been reported and the assessment team consider relevant for the management of the fishery(it was expressed as recommendations in the fishery), include more data of predation in the estimated models, it cannot be considered that there is a clear evidence, for all the ETPs reported in this fishery, that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b) and <b>SG 100 is not fully met.</b></p>	
e	Review of alternative measures to minimize mortality of ETP species		
	Guidepost	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.
	Met?	Y	N
	Justification	<p>Populations of several marine mammals species are stable or increasing in Icelandic waters as MFRI and some publications (Pike et al., 2010 and Barsan, C., 2014) suggested in recent years. However, there are few reports (mainly anecdotal) of encounters with ETP species in the capelin fishery. Capture in purse seine gear is possible as it was explained above, but it is considered unlikely that this will result in mortality, although scar studies (Barsan, C. 2014) have being carried out to know more about the impact of these interactions. The metods of fishing lets opportunities to release animals which are not in immediate danger of drowning.</p> <p>Furthermore the studies carried out by the Husavik University and different non-governmental organizations such as AWI or Birdlife, there are agreements between Iceland and other countries involved in the Convention for the Portection of the Marine Environment of the North-East Atlantic (OSPAR convention) and the participation in the NAMMCO commission must be considered as a regular review of the startegy implemented to protect the ETPs species. Besides, MFRI caries out the stock status of the whales with limit set up and they manage the ecosystem around Iceland, and also, it should be considered as a regular review. However, there is not a established biannual review in the UoAs.</p>	

PI 2.3.2		<p>The UoA has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"><li>• meet national and international requirements;</li><li>• ensure the UoA does not hinder recovery of ETP species.</li></ul> <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.</p>
		<p>The assessment team can say that there is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate and <b>SG 80 is met</b>.</p>
References		<p>NAMMCO 2016 <a href="http://www.ospar.org/">http://www.ospar.org/</a> Pike et al. 2010 Barsan, C. 2014 Birdlife, 2015 Lilliendahl, K. and Solmundsson, J. 1997.</p>
OVERALL PERFORMANCE INDICATOR SCORE:		80
CONDITION NUMBER (if relevant):		NA



**PI 2.3.3 – ETP species information. - UoA 1 and UoA 2**

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: <ul style="list-style-type: none"><li>• Information for the development of the management strategy;</li><li>• Information to assess the effectiveness of the management strategy; and</li><li>• Information to determine the outcome status of ETP species.</li></ul>		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guidepost	Qualitative information is <b>adequate to estimate</b> the UoA related mortality on ETP species.  OR  If RBF is used to score PI 2.3.1 for the UoA:  Qualitative information is <b>adequate to estimate productivity and susceptibility</b> attributes for ETP species.	Some quantitative information is <b>adequate to assess</b> the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species.  OR  If RBF is used to score PI 2.3.1 for the UoA:  Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.	Quantitative information is available to assess with a high degree of certainty the <b>magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status</b> of ETP species.
	Met?	Y	Y	N
	Justification	There is sufficient information available to allow the fishery, related mortality, to be quantitatively assessed for all affected species reported in this assessment. Although, the fishery must be proactive to recopilate quantitative data, the information from different sources shows that the mortality of ETPs species caused by Capelin fishery is negligible. Catches data are routinely reported whilst, reporting of interactions with ETPs is not mandatory. However, there is sufficient understanding of the species involved, their distribution, population status and susceptibility to bycatch in purse seine and midwater trawl gears to make a quantitative estimation of mortality within capelin fishery.  Therefore, even though, the fishery needs more effort to get quantitative data to develop the estimated models taking into account all the predation, the assessment team cannot confirm that <b>SG 100 is fully met</b> .  Moreover, the assessment team assures that some quantitative information is <b>adequate to assess</b> the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species and <b>SG 80 is met</b> .		
b	Information adequacy for management strategy			
	Guidepost	Information is adequate to support <b>measures</b> to manage the impacts on ETP species.	Information is adequate to measure trends and support a <b>strategy</b> to manage impacts on ETP species.	Information is adequate to support a <b>comprehensive strategy</b> to manage impacts, minimize mortality and injury of ETP species, and evaluate with a <b>high degree of certainty</b> whether a strategy is achieving its objectives.

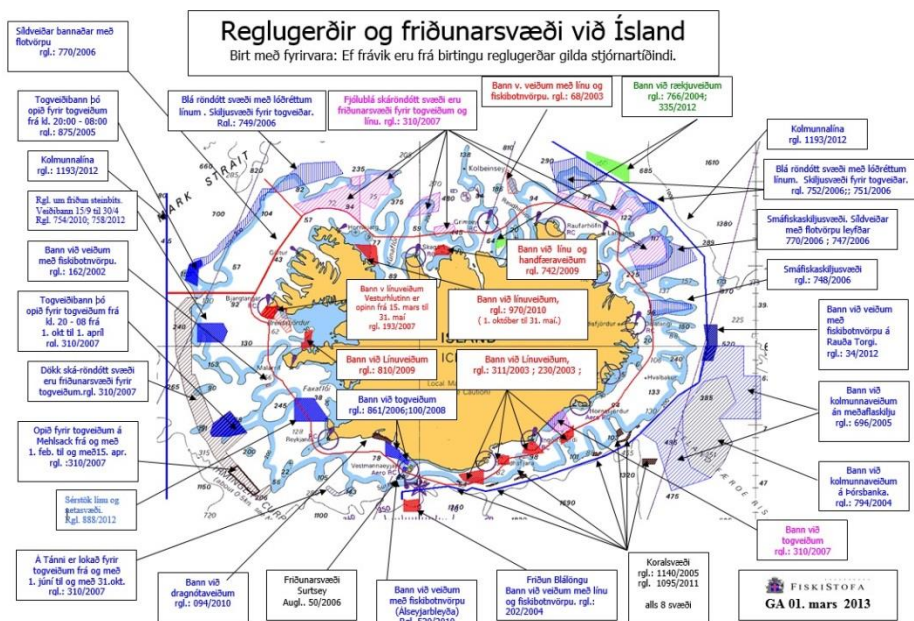
PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: <ul style="list-style-type: none"><li>• Information for the development of the management strategy;</li><li>• Information to assess the effectiveness of the management strategy; and</li><li>• Information to determine the outcome status of ETP species.</li></ul>		
	Met?	Y	Y	N
	Justification	<p>NAMMCO is a forum for the presentation of diverse and useful data from all signatory parties (Iceland included) and the reports of the annual meeting provide useful information that supports the management of ETPs species in the North Atlantic.</p> <p>Hoyt et al. 2011, suggested for the protection of the Northeast Atlantic marine environment which requires signatories to identify marine species and areas in need of protection; OSPAR convention needs countries signed and Iceland is one of them which has been involved in the decision making process.</p> <p>Population status of some ETPs species are monitored and periodic abundance estimates are made by MFRI and reported through NAMMCO. Research on population structure and behaviour by the aid of photoidentification and skin biopsy sampling are also in developing. At the MFRI these techniques have been applied in research on killer whales since 1981 and humpback whales and blue whales since 1990. Research on harbour porpoises and white-beaked dolphins that have drowned in fishing gear (bycatch). This includes studies on feeding ecology, reproduction, age composition, population genetics and energetics. Monitoring and biological sampling of cetaceans that have stranded or beached on the coast of Iceland and the Coast Guard onto the surveillance programme is in charge to control any capture or damage occurring by the fleet.</p> <p>Information is scarce on feeding ecology of most of the species regularly occurring in Icelandic waters, information on biomass and residence time gives indications of total consumption by cetaceans and seabirds in Icelandic waters, and possible effects on the yield of commercially important fish species.</p> <p>Some studies such as Víkingsson et al.1994, suggests seasonal variation in the distribution of marine mammals in coastal Icelandic waters and shift in the distribution patterns caused by changes in the distribution of prey fish and other environmental factors hard to explain.</p> <p>Information from MFRI and NAMMCO in each annual report is very useful to know the stock status of marine mammals present in Iceland water and whether any change in the behaviour is happening. Studies on distribution of seabirds and their overlapping with the fisheries are useful to evaluate the indirect impacts that the fishery could have in ETPs species. There are studies that show that puffin and kittiwake prey more in herring and sandeel in the North Sea (Cury, P.M., et al. 2011) while other studies show that Puffin and kittiwake prey on capelin in the northeast and north west of Iceland during the summer and capelin represents around 25% of the diet in puffin and 15 % in kittiwake (Lilliendahl, K. and Solmundsson, J. 1997) notwithstanding the fishing grounds are not common in these areas and the fishing season is during the winter.</p> <p>The assessment team can confirm that there is information available of ETPs species reported in this assessment, although more quantitative information is needed regarding predation models and the role of capelin in populations of seabirds and marine mammals, for that reason the assessment team determines that <b>SG 100 is not fully met.</b></p>		

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: <ul style="list-style-type: none"><li>• Information for the development of the management strategy;</li><li>• Information to assess the effectiveness of the management strategy; and</li><li>• Information to determine the outcome status of ETP species.</li></ul>
		However, the obligation of landing all the catches provides information of the catches directly from the fleet and the other measures and studies detailed above are adequate to measure trends and support a <b>strategy</b> to manage impacts on ETP species and therefore, <b>SG 80 is met.</b>
References		<p><a href="http://www.fisheries.is/main-species/marine-mammals/">http://www.fisheries.is/main-species/marine-mammals/</a> Anon, 2008. Report of the meeting of the management committee for cetaceans. North Atlantic Marine Mammal Commission (NAMMCO). <a href="http://www.nammco.no/webcronize/images/Nammco/927.pdf">http://www.nammco.no/webcronize/images/Nammco/927.pdf</a> Marine Research Institute. Cetacean web pages <a href="http://www.hafro.is/undir_eng.php?ID=15&amp;REF=2">http://www.hafro.is/undir_eng.php?ID=15&amp;REF=2</a> Stefánsson, G., Víkingsson et al.2009 Lilliendahl, K. and Solmundsson, J. 1997 Cury, P.M., et al. 2011</p>
OVERALL PERFORMANCE INDICATOR SCORE:		80
CONDITION NUMBER (if relevant):		NA

**PI 2.4.1 – Habitats outcome. - UoA 1 and UoA 2**

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates.		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guidepost	The UoA is <b>unlikely</b> to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is <b>highly unlikely</b> to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	Y	Y	Y
	Justification	<p>Pelagic trawl gear and purse seine gears are not designed to contact the seabed and then they do not impact with the bottom surface being less erosive than other gears. Therefore these gear types are designed to fish in pelagic habitats an any interaction happening with the seafloor is exceptional.</p> <p>As it is explained by Vilhjálmsson et al. (2002), Capelin has a pelagic distribution and it aggregated in shoals between 0-700 meters but usually is located up to 200 m (<a href="http://www.fishbase.org/summary/252">http://www.fishbase.org/summary/252</a>), then when the fishery targets capelin the fishing operation occurs in this range of depth and the interactions with the seabed is almost impossible, the fishing activity is localized at some point in the water column above the seabed.</p> <p>Capelin is a pelagic species which mature individuals move inshore in large schools to spawn. In the spring large spawning shoals migrate toward the coasts and during its lifecycle has migrations to north areas but normally is above the seabed where they feed on a variety of copepods and carry out large migrations in pursuit of zooplankton aggregations.</p> <p>Capelin is most abundant in areas of open water as pelagic species, Capelin is most efficiently caught using mid-water trawls or purse seines, which are used to fish the upper layers of the water column. Then, 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 and <b>SG 100 is met.</b></p>		
b	VME habitat status			
	Guidepost	The UoA is <b>unlikely</b> to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is <b>highly unlikely</b> to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	Met?	Y	Y	Y
	Justification	<p>The fishery does not have any interactions with VMEs. Furthermore, any protected area in Iceland is identified and represented in a map to make easy its localization. The Coast Guard takes into account these areas in their control programme and they monitor any activity in these areas to comply with the law. The map below represents the different areas classified in Icelandic waters. No overlapping between fishing grounds and VMEs is noted. Therefore <b>SG 100 is met.</b></p>		

**PI 2.4.1** The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates.



<b>c</b>	<b>Minor habitat status</b>		
	<b>Guidepost</b>		There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	<b>Met?</b>		Y
	<b>Justification</b>	As it was explained above no VMEs are found and also no minor habitats are damaged.  The pelagic fisheries, either purse seine and midwater trawl, operate in the water column and many studies show how the pelagic fisheries do not hinder the habitat. Some studies, detailed in the reference list below, conclude that the impact of the gears in the habitat depends on the time of contact with the bottom surface and at the same time it might vary depends the substrate and characteristics of the sea bed. <b>SG 100 is met.</b>	

<b>References</b>	ICES Advice 2008, Book 2 <a href="http://www.fishbase.org">http://www.fishbase.org</a> Vilhjálmsón, H. and Sigurjónsson, J. 2002. Capelin of the Iceland-East Greenland-Jan Mayen area: biology, exploitation and management. Marine Research Institute, P. O. Box 121 Reykjavik, Iceland. Vilhjálmsón, H. 2002. Capelin ( <i>Mallotus villosus</i> ) in the Iceland-East Greenland-Jan Mayen ecosystem. ICES Journal of Marine Science 59: 870-883.
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<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>	<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>	<b>NA</b>

**PI 2.4.2 – Habitats management strategy. - UoA 1 and UoA 2**

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guidepost	There are <b>measures</b> in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a <b>partial strategy</b> in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a <b>strategy</b> in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	Y	Y	Y
	Justification	<p>Capelin lives in mid-water during its whole lifecycle. Fishing operations target the discrete shoals in mid-water, normally well above the seabed. The midwater pelagic trawl fishery seeks to actively avoid contact with the seabed in order not to damage expensive fishing gear. In fact, many measures that minimise fishing gear/seabed interaction are in place such as: the use of electronics devices depth sounders, sonar and trawl position monitoring systems to control the position o the gear and how is operating during the set.</p> <p>There is a widely information and mapping regarding the closed areas and the kind of substrate in each grounds to allow fishing activities without damage the gears. Other measure is the prohibition on fishing with trawls within 12nm of the coast in many areas of Iceland where the most vulnerable areas of seabed (deep sea coral reefs) are.</p> <p>There are different type of closed areas to fishing activity, some of them are close to avoid the juveniles catches or because the habitat might be damaged or both. The information is review by MFRI and DoF and the updates on the mapping are shared with the fishermen and they are monitoring by the Coast Guard, then they have enough information for preventing harm on habitats. Therefore, there is a <b>strategy</b> in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats and <b>SG 100 is met.</b></p>		
b	Management strategy evaluation			
	Guidepost	The measures are <b>considered likely</b> to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some <b>objective basis for confidence</b> that the measures/partial strategy will work, based on <b>information directly about the UoA and/or habitats</b> involved.	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on <b>information directly about the UoA and/or habitats</b> involved.
	Met?	Y	Y	N
	Justification	<p>The gears evaluated under this report are well defined by FAO and they are well-known , some studies show how the pelagic fisheries have less effect on habitat than other gears. Regarding the habitats the assessment team has information directly from the fishery to evaluate that the UoAs do not hinder the habitat. Accordinly the Icelandic Fisheries management plan, every vessels bigger than 6GT, have an electronical logbook and every set is tracked.</p> <p>The DoF and the Coast Guard can monitor the track record of every fishing activity, then it is well known where and how the fleet is working. Then there is accurate information on the spatial location and timing of the fishery.</p>		



PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.		
		Further information regarding benthic habitats is available through on-going research in Icelandic waters carried out by MFRI as well as through OSPAR. Therefore, there is some <b>objective basis for confidence</b> that the measures/partial strategy will work, based on <b>information directly about the UoA and/or habitats</b> involved and <b>SG 80 is met</b> . However, the assessment team cannot insure if any testing is carried out by the UoAs or on the other hand they are developed by national or international bodies and SG 100 is not met.		
c	Management strategy implementation			
	Guidepost		There is <b>some quantitative evidence</b> that the measures/partial strategy is being implemented successfully.	There is <b>clear quantitative evidence</b> that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	Met?		Y	Y
	Justification	The gears employed in the UoAs are well defined and both are pelagic gears. The fishing gear used in this fishery is not suitable for situations where the gear would routinely touch the seabed and then it is almost negligible that the fishery hinder the habitats. Quantitative data are available with the track record. Every set come from Capelin fishery might be checked in the DoF and as the CAB explained above, the coast guard is in charge in the to control the fleet is not doing any violations of the law as could be any fishing activity in a vulnerable or closed area. Therefore, there is <b>clear quantitative evidence</b> that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue a and <b>SG 100 is met</b> .		
d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
	Guidepost	There is <b>qualitative evidence</b> that the UoA complies with its management requirements to protect VMEs.	There is <b>some quantitative evidence</b> that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is <b>clear quantitative evidence</b> that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	Met?	Y	Y	N
	Justification	Capelin fishery has no impact in VMEs because as it was explained above is a pelagic fishery with no contact with the seabed and there are masures to control the fishing grounds and the vessels activities. However, whilst there is full VMS coverage of all gear types under assessment, there is not clear quantitative evidence that this, or any other similar MSC UoAs (ISF Norwegian & Icelandic herring trawl and seine, ISF Iceland Cod, ISF Iceland golden redfish, ISF Iceland haddock, ISF Iceland saithe and ling, ISF Iceland mackerel, and ISF Greenland halibut), fully complies with both its management requirements and with protection measures afforded to VMEs, and therefore <b>SG 100 is not fully met</b> .		
References		ICES Advice 2008, Book 2 1 www.fisheries.is <a href="http://www.fao.org/fishery/geartype/search/en">http://www.fao.org/fishery/geartype/search/en</a>		
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant):				NA



### PI 2.4.3 – Habitats information. - UoA 1 and UoA 2

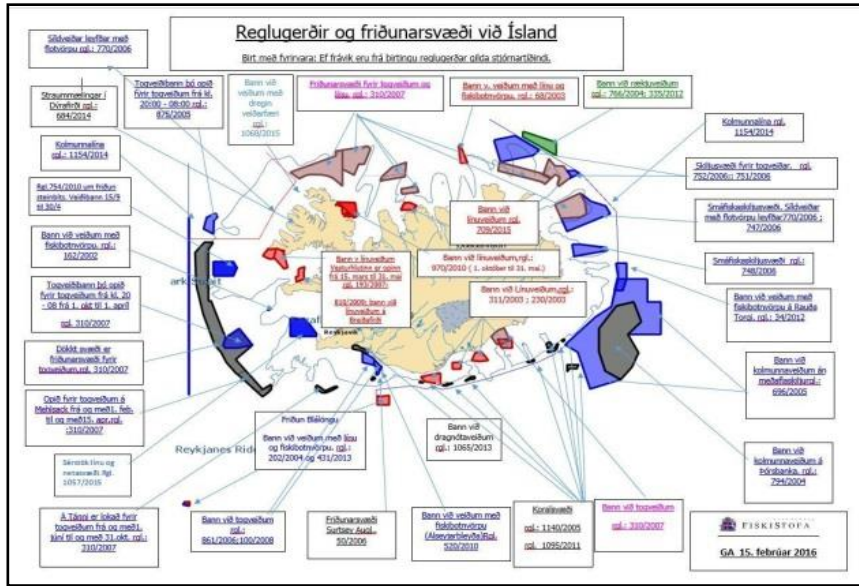
PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guidepost	<p>The types and distribution of the main habitats are <b>broadly understood</b>.</p> <p>OR</p> <p>If CSA is used to score PI 2.4.1 for the UoA:</p> <p>Qualitative information is adequate to estimate the types and distribution of the main habitats.</p>	<p>The nature, distribution and <b>vulnerability</b> of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA.</p> <p>OR</p> <p>If CSA is used to score PI 2.4.1 for the UoA:</p> <p>Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.</p>	<p>The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.</p>
	Met?	Y	Y	Y
	Justification	<p>The distribution of habitat types is available from various surveys and studies (OSPAR, MFR and BiolCE) - and the information is improved upon with on-going research (Ocean 2025).</p> <p>Mapping for the area in which the fishery operates is available in the DoF and different areas are classified and identify in the maps which also are available for the fleet as it's shown in the figure.</p>		
				

Figure. Mapping of the different areas around the grounds in Icelandic waters.

Mapping of vulnerable seabed habitats, such as *Lophelia pertusa* reefs, carbonate mounds and burrowing megafauna can be accessed on <http://www.ospar.org>.

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.		
		Therefore, the distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats and <b>SG 100 is met.</b>		
b	Information adequacy for assessment of impacts			
	Guidepost	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear.  OR  If CSA is used to score PI 2.4.1 for the UoA:  Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear.  OR  If CSA is used to score PI 2.4.1 for the UoA:  Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.
	Met?	Y	Y	Y
	Justification	As it was explained above, the pelagic gears do not have physical impact in the habitats, the gears operate in the water column and the interactions with the bottom surface don't occur, therefore, physical impacts are not identified in these UoAs. There are no known impacts of the fishing gear on the pelagic habitat.  Further, the vessels have different device to avoid the interactions with the seabed because it would involve a high cost to repair the gears then the skippers realize the fishing activity on the grounds they have the certain that the contact with the sea floor doesn't happen. Therefore, the physical impacts of the gear on all habitats have been quantified fully and <b>SG 100 is reach.</b>		
	Monitoring			
c	Guidepost		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in habitat distributions over time are measured.
	Met?		Y	N
	Justification	The information is reviewed by DoF and some surveys that the MFRI carried out but they are not led at the benthic habitat level. Therefore, the information is not specific enough to identify the changes. OSPAR carried out studies to improve the knowledge and the distribution of sensitive areas but more studies aimed at habitat and environmental factor that could affect the grounds fishing should be carried out.  However, sufficient data continue to be collected to detect any increase in risk to habitat, through ongoing stock status monitoring, catch recording and spatial and temporal operation of the fishery and <b>SG 80 is met.</b>		
	References	www.ospar.org		

PI 2.4.3	Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.	
	www.fisheries.is	
OVERALL PERFORMANCE INDICATOR SCORE:		95
CONDITION NUMBER (if relevant):		NA

**PI 2.5.1 – Ecosystem outcome. - UoA 1 and UoA 2**

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	Ecosystem status			
	<b>Guidepost</b>	The UoA is <b>unlikely</b> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is <b>highly unlikely</b> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is <b>evidence</b> that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	<p>There is a good level of Knowledge regarding the ecosystems in Iceland. The area where the Capelin fishery takes place is well define and many studies are in place (Gudmundsdottir, A., et al. 2013, O. K. Palsson et al. 2012, Vilhjálmsson, H., et al. 2002).</p> <p>These studies show the main environmental characteristics of the area where capelin fishery takes place. The ecological importance of capelin and the large capelin fishery that has taken place in this area since the early 1970s has generated intensive research and monitoring of the state of capelin stocks since the mid-1960s (Vilhjálmsson, H., et al. 2002).</p> <p>The studies show that changes in the environmental conditions as could the increament in the temperature has generated shift in the trends of ecosystems patterns and then recent changes in migration and distribution of capelin are described, the spatial pattern of capelin indicated northward displacement of 0-group capelin and westward displacement of older capelin in recent years (Palsson, O.K., et al. 2012). All the changes in the patterns of distribution cannot be explained by enrirovental changes and could affect the distribution of other species which prey on capelin. Research studies have been carried out in the area to know more about this changes in the patterns.</p> <p>One of the most important interaction that the fishery has in the ecosystems is the removal of capelin as LTL species which serves as a prey for a wide range of fish, mammals and birds. As some study confirms capelin is important in the diet of cod as well as a number of other fish stocks, marine mammals, and seabirds. Unlike other commercial stocks, adult capelin undertake extensive feeding migrations north into the cold waters of the Denmark Strait and Iceland Sea during summer. Capelin abundance has been oscillating over roughly a decadal period since the 1970s, producing a yield of &gt;1600 Kt at the most recent peak. In recent years the stock size of capelin has decreased from about 2000 Kt in 1996/97 to about 1000 Kt in 2006/07 (Anon., 2007).</p> <p>The available data suggest some warming in recent years. In the absence of other relevant, environmental factors, it is concluded that the large change in capelin distribution seems to have resulted from a rather modest warming in the Iceland Sea, which displaced the capelin stock into the western and southwestern waters of the Iceland Sea, i.e. East Greenland waters and the Denmark Strait. Corresponding spatial changes in the prey species of capelin can neither be ruled out nor verified because of a lack of long-term zooplankton data (Palsson, O. K., et al. 2012). Then, more studies should</p>		

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.
		<p>be carried out to know how the changes in capelin could be affected the distribution of the species which prey on this stock. More effort to know how the marine mammals and seabirds prey on capelin are also needed and should be included in the predition models. However, there is no study consulted that can prove with evidences that the fishery causes an irreversible harm. As it was also explained in the ETP section. In the early 80's when Capelin was around the limit, the population of species which prey on capelin showed a good stock status and higher values of biomass. After that, in early 2000, when some populations of seabirds has showed a decrease (Birdlife 2015), Capelin has reported a stable fluctuation around Blim (ICES 2016), further the landings of capelin have been decreasing over the last years. Therefore, the assessment team believes that the rationale to meet SG 100 can be justified. Therefore, there is <b>evidence</b> that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function and <b>SG 100 is met.</b></p>
References		<p>Astthorsson, O.S., Vilhjalmsen, H. 2002. Icelandic shelf LME: Decadal assessment and resource sustainability. Pp. 219-249 in Sherman, K. and H.R. Skjoldal. Large marine ecosystems of the North Atlantic. Elsevier Press. Amsterdam.</p> <p>Astthorsson OS, Gislason A, Jonsson, S. 2007. Climate variability and the Icelandic marine ecosystem. Deep-Sea Res Part II 54:2456–2477</p> <p>Palsson, O' K., Gislason, A., Guðfinnsson, H. G., Gunnarsson, B., O'lafsdóttir, S. R., Petursdottir, H., Sveinbjörnsson, S., Thorisson, K., and Valdimarsson, H. 2012. Ecosystem structure in the Iceland Sea and recent changes to the capelin (<i>Mallotus villosus</i>) population. – ICES Journal of Marine Science, 69: 1242–1254.</p> <p>H. Vilhjálmsson and J. Sigurjónsson: Capelin of the Iceland-East Greenland-Jan Mayen area: biology, exploitation and management. 2002. Marine Research Institute, P. O. Box 121 Reykjavik, Iceland.</p> <p>ICES Advice 2008, Book 2</p> <p>ICES Capelin Stcok Status 2016</p> <p>Birdlife International, Annual report 2015</p>
OVERALL PERFORMANCE INDICATOR SCORE:		100
CONDITION NUMBER (if relevant):		NA

**PI 2.5.2 – Ecosystem management strategy. - UoA 1 and UoA 2**

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guidepost	There are <b>measures</b> in place, if necessary which take into account the <b>potential impacts</b> of the fishery on key elements of the ecosystem.	There is a <b>partial strategy</b> in place, if necessary, which takes into account <b>available information and is expected to restrain impacts</b> of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a <b>strategy</b> that consists of a <b>plan</b> , in place which contains measures to <b>address all main impacts of the UoA</b> on the ecosystem, and at least some of these measures are in place.
	Met?	Y	Y	Y
	Justification	In last decade, the recommendations from ICES and other management bodies is the ecosystem approach to manage the fisheries. Since the early 1990s Iceland has increased focus on and consideration of the ecosystem approach to managing exploited populations of living aquatic resources. A broad range of regulatory measures in place within Iceland and which aim to limit adverse effects of fishing on the marine ecosystem. This strategy includes all the measures the assessment team has cited in the rationale above such as; ITQs systems, monitoring programme and surveillance, obligations of landing, control size, closed areas, surveys to monitor the stock status, collaboration of the industry with research project, scientific advice, etc. Indeed all these measure constitutes a plan in place to control the impact of the fishery in the ecosystem.  The information is public and can be consulted in the website of each body working on the management plan. Therefore there is a <b>strategy</b> that consists of a <b>plan</b> , in place which contains measures to <b>address all main impacts of the UoA</b> on the ecosystem, and at least some of these measures are in place and <b>SG 100 is met.</b>		
b	Management strategy evaluation			
	Guidepost	The <b>measures</b> are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ ecosystems).	There is <b>some objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the UoA and/or ecosystem involved
	Met?	Y	Y	N
	Justification	The strategy in place has relevant information regarding the stock status, fleet composition, catfish composition, sensible areas for fishing and all these data are available and many research studies (cited above PI 2.5.1) are carried out to improve the knowledge about role of capelin in the icelandic ecosystems. The results of these studies have shown that the strategy works and the preocatnary apporach is in place to protect the ecosystem. However more data of the interactions with the ETPs species should be reported to support that the fishery doesn't hinder the stock status of these species, therefore SG 100 cannot be reach but there is <b>some objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved and <b>SG 80 is met.</b>		
c	Management strategy implementation			

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.		
	<b>Guidepost</b>		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
	<b>Met?</b>		Y	Y
	<b>Justification</b>	<p>The principal potential risk or impact of the fishery is depletion of the capelin stocks, which are important prey species. The stock biomass for the stock has been significantly above precautionary and limits reference points for in recent years and this is considered likely to prevent serious or irreversible indirect harm through depletion of key prey species. In addition, there are other low trophic level stocks in Iceland waters through which energy can be transferred to higher levels, such as herring, mackerel and blue whiting which are monitored and evaluated every year as capelin stocks by MFRI and ICES.</p> <p>After the site visit and the meetings held with the stakeholders, the assessment team has clear evidence that all the measures to management the fishery described herein are complied by the fleet and as the coast guard reported in its interviewed no violations of the law came from capelin fishery. These information also can be consulted and it's open access. Therefore, there is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) and <b>SG 100 is met</b>.</p>		
<b>References</b>		<p>Palsson, O' K., Gislason, A., Guðfinnsson, H. G., Gunnarsson, B., O'lafsdóttir, S. R., Petursdóttir, H., Sveinbjörnsson, S., Thorisson, K., and Valdimarsson, H. 2012. Ecosystem structure in the Iceland Sea and recent changes to the capelin (<i>Mallotus villosus</i>) population. – ICES Journal of Marine Science, 69: 1242–1254.</p> <p>H. Vilhjálmsson and J. Sigurjónsson: Capelin of the Iceland-East Greenland-Jan Mayen area: biology, exploitation and management. 2002. Marine Research Institute, P. O. Box 121 Reykjavik, Iceland.</p> <p>ICES Advice 2008, Book 2</p> <p><a href="http://www.fisheries.is">www.fisheries.is</a></p> <p><a href="http://www.hafro.is">www.hafro.is</a></p> <p><a href="http://www.fiskistofa.is">www.fiskistofa.is</a></p>		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>95</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>NA</b>



**PI 2.5.3 – Ecosystem information. - UoA 1 and UoA 2**

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guidepost	Information is adequate to <b>identify</b> the key elements of the ecosystem.	Information is adequate to <b>broadly understand</b> the key elements of the ecosystem.	
	Met?	Y	Y	
	Justification	There is adequate information available that allows for a broad understanding of the key elements marine ecosystem (including phytoplankton, zooplankton fish, seabirds, marine mammals and environmental elements such as ocean temperature, currents, salinity), of study area as the assessment team has described above.  All the information cited is open access and can be consulted by any stakeholder. The information is enough to undersatnd the fishery and its interactions with the key elements of the ecosyetsm. Even though more effort to include the mortality that the whales and seabirds cause with preying on capelin must be realized. Therefore, information is adequate to <b>broadly understand</b> the key elements of the ecosystem and <b>SG 80 is met.</b>		
b	Investigation of UoA impacts			
	Guidepost	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but <b>have not been investigated</b> in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and <b>some have been investigated in detail.</b>	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and <b>have been investigated in detail.</b>
	Met?	Y	Y	N
	Justification	The impacts that the fishery may be originated on the ecosystems are well defined if it referred to environmental factors or physical harms. More effort to know the feeding habit of some species of seabirds and mammals which prey on capelin must be carried out. This fact could be a lack of information regarding the ecosystem trophic levels and must be investigated in details, then <b>SG 100 is not fully met.</b>  However, as the assessment team has mentioned, studies regarding the ecosystem structure and its recent changes are carried out and the skills are increasing. Therefore, main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and <b>some have been investigated in detail</b> and <b>SG 80 is met.</b>		
c	Understanding of component functions			
	Guidepost		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are <b>known.</b>	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are <b>understood.</b>
	Met?		Y	N
	Justification	The understanding about the fishery is well defined and the impacts in P1 and P2 are well known even more effort to include the predation of the whale and seabirds on capelin are		

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.			
		<p>needed.</p> <p>The capelin biology is well defined. There are many research realized about this species in Icelandic waters. Some studies have shown that studies of the ecology of fish species in Iceland have mostly been limited to capelin historically the largest fish stock in the area. Extensive acoustic surveys were conducted in the Iceland Sea in the 1980s and 1990s through Icelandic and Norwegian research efforts, with the aim of analysing the life history and catch potential of capelin, as well as linkages to hydrographic conditions (Vilhjalmsson, 1994, 2002). The main patterns in capelin behaviour and migrations were relatively clear during the 1980s and early 1990s, with environmental factors as important determinants in interannual variability of life-history traits, and fluctuating, though largely predictable, stock trends (Vilhjalmsson, 1994).</p> <p>Then, a comprehensive research is available and main functions of Principle 1 and 2 components are understood in terms of providing ecosystem services and the impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats, however the lack of information in prediction models regarding the feeding habits of some ETPs species shows that more accuracy is needed in the models. Therefore, SG is not fully met since the main functions of these components ae not fully <b>understood</b>, but the main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are <b>known</b> and <b>SG 80 is met</b>.</p>			
d	Information relevance				
	Guidepost		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components <b>and elements</b> to allow the main consequences for the ecosystem to be inferred.	
	Met?		Y	N	
	Justification	As it mentioned above a comprehensive research of capelin is available, adequate information and understanding regarding retained species , ETPs and impacts of the fishery can be consulted and most of them are open access. The information and the transparency in the fishery is in place and easy to get.			
		All the stakeholders interviewed during the site visit agreed that the surveillance programme works correctly and the information is reported monthly and it has been demonstrated that ecosystem consequences are low and more effort to avoid lack of information in some issues are been conducted, due to this lack of information SG 100 is not fully met but adequate information is available on the impacts of the UoAs on these components to allow some of the main consequences for the ecosystem to be inferred and <b>SG 80 is met</b> .			
e	Monitoring				
	Guidepost		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.	
	Met?		Y	N	
	Justification	The surveillance programme reviews all the information regarding the capelin fishery. The fisheries management plan force the fleet to report monthly al the catches and any			

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.
		<p>violations of the law is reported by the coast guard to DoF. There are several inspection programmes which controlling the obligation that the fleet targeting capelin has.</p> <p>Data are regularly presented, reviewed and considered in a variety of ICES working groups, as well as within more specific research projects. All the information is also available for MFRI advice. Then, the assessment team insures that the information collected makes a good background of the fishery and it's supposed it will continue into the future.</p> <p>Therefore, the assessment considers the that current quantities and quality of data available are sufficient to allow for detection of an increase in risk to any ecosystem components but effort to gather information with an ecosystem approach is needed and <b>SG 100 is not fully met</b>, however, adequate data continue to be collected to detect any increase in risk level and <b>SG 80 is met</b>.</p>
3		<p>Palsson, O' K., Gislason, A., Guðfinnsson, H. G., Gunnarsson, B., O'lafsdóttir, S. R., Petursdóttir, H., Sveinbjörnsson, S., Thorisson, K., and Valdimarsson, H. 2012. Ecosystem structure in the Iceland Sea and recent changes to the capelin (<i>Mallotus villosus</i>) population. – ICES Journal of Marine Science, 69: 1242–1254.</p> <p>H. Vilhjálmsson and J. Sigurjónsson: Capelin of the Iceland-East Greenland-Jan Mayen area: biology, exploitation and management. 2002. Marine Research Institute, P. O. Box 121 Reykjavik, Iceland.</p> <p>ICES Advice 2008, Book 2</p> <p><a href="http://www.fisheries.is">www.fisheries.is</a></p> <p><a href="http://www.hafro.is">www.hafro.is</a></p> <p><a href="http://www.fiskistofa.is">www.fiskistofa.is</a></p> <p><a href="http://www.lhg.is">www.lhg.is</a></p>
OVERALL PERFORMANCE INDICATOR SCORE:		80
CONDITION NUMBER (if relevant):		NA

### Principle 3 – Effective Management – Evaluation Tables

#### PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: <ul style="list-style-type: none"><li>• Is capable of delivering sustainability in the UoA(s); and</li><li>• Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li><li>• Incorporates an appropriate dispute resolution framework.</li></ul>		
Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guidepost	There is an effective national legal system <b>and a framework for cooperation</b> with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and <b>organised and effective cooperation</b> with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and <b>binding procedures governing cooperation with other parties</b> which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	Y	Y	Y
	Justification	There have been effective international agreement between Iceland, Greenland and Norway since 2003 on the catch rule for deciding the TACs each year and on the shares of each coastal state in the TAC.  All commercial fishing in Iceland is subject to a management system that is obliged by law to aim for the “sustainable utilization (of the stock) which ensures in the long run maximum benefits for the Icelandic nation.” There is no illegal, unreported and unregulated (IUU) fishing in the Icelandic EEZ. All landings of fish from vessels that engage in IUU fishing is forbidden, as is the servicing of such vessels. There are no controversial exemptions to international agreements.  Fisheries in Iceland are subject to a comprehensive regulatory framework. The management system is demonstrably compliant with national legislation, and has a clear legal basis. Secondary legislation providing for regulations and enforcement provisions has been built on overarching fisheries laws. The Ministry of Industries and Innovation, which manages all fisheries in the Icelandic EEZ, is obliged to deal with concerns from those active in the fishery as well as other interested parties.  The coastal states involved in the fishing of capelin have been able to renew their agreement each year since 2003 but the agreement is not binding for more than one year. Therefore, there is an effective national legal system and <b>binding procedures governing cooperation with other parties</b> which delivers management outcomes consistent with MSC Principles 1 and 2 and <b>SG 100 is met.</b>		
b	Resolution of disputes			
	Guidepost	The management system incorporates or is subject by law to a <b>mechanism</b> for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a <b>transparent mechanism</b> for the resolution of legal disputes which is <b>considered to be effective</b> in dealing with most issues and that is appropriate to the	The management system incorporates or is subject by law to a <b>transparent mechanism</b> for the resolution of legal disputes that is appropriate to the context of the fishery and has been <b>tested and proven</b>

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: <ul style="list-style-type: none"><li>• Is capable of delivering sustainability in the UoA(s); and</li><li>• Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li><li>• Incorporates an appropriate dispute resolution framework.</li></ul>		
			context of the UoA.	to be effective.
	Met?	Y	Y	N
	Justification	<p>Disputes within the capelin fishery in Iceland can be resolved in the first instance by negotiations within the system. Some issues can be solved with the help of the Directorate of Fisheries or the Ministry of Industries and Innovation. Further disputes can be resolved through the courts. These mechanisms are transparent, tested and proven to be effective. The proceedings of the courts in Iceland are open to the public and the rulings have to be explained and are public documents. Any Icelandic citizen or organization can take legal action to the high court in Iceland and ultimately to the Council of Europe Court. This system meets the requirement of a <u>transparent mechanism</u> for the resolution of legal disputes and it has been tested and <u>proven to be effective</u>.</p> <p>The international cooperation in the capelin fishery has been effective since 2003 but given the many instances of partial break-down of similar agreements on fishing of pelagic species in the North Atlantic between coastal states within the framework of NEAFC this cannot be said to be proven to be effective. Therefore, the management system incorporates or is subject by law to a <b>transparent mechanism</b> for the resolution of legal disputes which is <b>considered to be effective</b> in dealing with most issues and that is appropriate to the context of the UoA and SG 80 is met.</p>		
c	Respect for rights			
	Guidepost	The management system has a mechanism to <b>generally respect</b> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to <b>observe</b> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to <b>formally commit</b> to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	Y	Y	N
	Justification	<p>The management system in Iceland is comprehensive and encompasses all fishing in Icelandic waters and those participating in it. Management is considered to be consistent with the cultural context, scale and intensity of the fishery. The access rights of different fishers are clearly codified in the legislation. As with all other legislation in Iceland, the legislation on fisheries management has been developed through a legally based, democratic process where various stakeholder groups are consulted and given ample opportunity to protect their interests and argue their points of view and interests. In most cases the management system tries to avoid legal disputes. It implements binding judicial decisions arising from legal challenges in a fairly rapid manner. This was e.g. the case when the high court ruled in 1998 that the ban on the licensing of a fishing vessel without removal from the fleet of vessels of equal capacity was unconstitutional.</p> <p>Icelandic legislation allows all citizens to fish in Icelandic waters providing that fishing is for their own consumption. Therefore, the management system has a mechanism to observe</p>		

PI 3.1.1		<p>The management system exists within an appropriate legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"><li>• Is capable of delivering sustainability in the UoA(s); and</li><li>• Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li><li>• Incorporates an appropriate dispute resolution framework.</li></ul>
		<p>the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2 and <b>SG 80 is met.</b></p>
References		<p><b>Anonymous 1996.</b> Act on the utilisation of exploitable marine stocks, no. 57/1996, accessible in the file <a href="http://www.atvinnuvegaraduneyti.is/media/Skyrslur/Stjorn-fiskveida-2010-endanlegt.pdf">http://www.atvinnuvegaraduneyti.is/media/Skyrslur/Stjorn-fiskveida-2010-endanlegt.pdf</a>.</p> <p><b>Anonymous 2006.</b> Fisheries Management Act no. 116/2006, an English translation is accessible at <a href="http://www.fisheries.is/management/fisheries-management/the-fisheries-management-act/">http://www.fisheries.is/management/fisheries-management/the-fisheries-management-act/</a>.</p> <p><b>Anonymous 2006.</b> <a href="http://www.fisheries.is/main-species/pelagic-fishes/capelin/">http://www.fisheries.is/main-species/pelagic-fishes/capelin/</a>.</p>
OVERALL PERFORMANCE INDICATOR SCORE:		85
CONDITION NUMBER (if relevant):		NA

### PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2	The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring Issue	SG 60	SG 80	SG 100
a	Roles and responsibilities		
Guidepost	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>generally understood</b> .	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>explicitly defined and well understood for key areas</b> of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>explicitly defined and well understood for all areas</b> of responsibility and interaction.
Met?	Y	Y	Y
Justification	The legal framework for fisheries management in Iceland explicitly defines the role of organisations and individuals in the management process. The Ministry of Industries and Innovation (MII, formerly the Ministry of Fisheries and Agriculture) issues regulations that further define these roles. Some of the consultation process is organized by the MII and some comes through stakeholder initiative. Roles of stakeholders, such as fishermen’s organisations and/or research institutes have defined roles within the management system. These roles are well understood and respected for all areas of responsibility and interaction, therefore, organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>explicitly defined and well understood for all areas</b> of responsibility and interaction and <b>SG 100 is met</b> .		
b	Consultation processes		
Guidepost	The management system includes consultation processes that <b>obtain relevant information</b> from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that <b>regularly seek and accept</b> relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that <b>regularly seek and accept</b> relevant information, including local knowledge. The management system demonstrates consideration of the information and <b>explains how it is used or not used</b> .
Met?	Y	Y	Y
Justification	The management system in Iceland includes a comprehensive consultative process where stakeholders are invited to have their say regarding regulations and the regulatory approach. The organisations of those working in the fishing sector, IcelandicThe FisheriesFederation of Icelandic Fishing Vessel Owners (Landssamband íslenskra útvegsmannaSamtök fyrirtækja í sjávarútvegi, SFSLÍÚ), National Association of Small BoatThe Federation of Owners of Small Fishing Vessels (Landssamband smábátæigenda, LS), the Federation of Captains and Mates (Farmanna- og fiskimannasamband Íslands, FFSÍ), the Icelandic Union of Marine Engineers and Metal Technicians (Félag vélstjóra og málmþæknumanna, VM) and the Federation of Seamen (Sjómannasamband Íslands), as well as organisations of those working in fish processing (in Iceland fishing and fish processing are frequently conducted within the same company), organise discussions on various aspects of the fisheries management system. The leaders of those organisations meet for regular consultations with the MII, the Althing’s Permanent Committee on Fisheries and Agriculture and with individual members of the		



PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties			
		<p>Althing. A number of local authorities take a strong interest in matters related to fisheries management and regulations. Icelandic law mandates that hearings are held when new legislation is prepared for fishing management. This process allows the fishing industry and other stakeholders (including NGOs) to influence new legislation. Thus the management system regularly seeks and accepts relevant information, including local knowledge and explains to some extent how it is used or not used.</p> <p>There are many examples of the use of stakeholders’ inputs, mostly from fishers. This includes logbook and catch data from the fishers to discussion with fishers in preparations for design of research fishing. Unfortunately it is also necessary to explain to fishers that claim there is much more fish in the sea than the MFRI estimates are probably exaggerations, possibly based on unusually good fishing in some specific area. Therefore, The management system includes consultation processes that <b>regularly seek and accept</b> relevant information, including local knowledge. The management system demonstrates consideration of the information and <b>explains how it is used or not used</b> and <b>SG 100 is met</b>.</p>			
c	Participation				
	Guidepost		The consultation process <b>provides opportunity</b> for all interested and affected parties to be involved.	The consultation process provides <b>opportunity and encouragement</b> for all interested and affected parties to be involved, and <b>facilitates</b> their effective engagement.	
	Met?		Y	N	
	Justification	The consultation process <u>provides an opportunity</u> for all interested parties to affect new regulation and fishing management legislation, but some stakeholders will claim that they do not get much <u>encouragement</u> from the authorities and SG 100 is not reach. In some cases this claim is justified and therefore The consultation process <b>provides opportunity</b> for all interested and affected parties to be involved. <b>SG 80 is met</b> .			
References		Information on Parliament Standing Committees procedures (applies to the Fisheries and Agriculture Committee): <a href="http://www.althingi.is/pdf/Althingi2010_english.pdf">http://www.althingi.is/pdf/Althingi2010_english.pdf</a> . Statement by the minister of fisheries 15. April 2009: <a href="http://www.fiskifrettir.is/frett/6857/?q=samr%C3%A1%C3%B0">http://www.fiskifrettir.is/frett/6857/?q=samr%C3%A1%C3%B0</a> . Annual consultation meeting on the status of the cod stock (MFRI and fisheries stakeholders): <a href="http://www.hafro.is/undir.php?ID=19&amp;REF=3&amp;fID=11886&amp;nanar=1">http://www.hafro.is/undir.php?ID=19&amp;REF=3&amp;fID=11886&amp;nanar=1</a>			
OVERALL PERFORMANCE INDICATOR SCORE:					95
CONDITION NUMBER (if relevant):					NA

### PI 3.1.3 – Long term objectives

<b>PI 3.1.3</b>		<b>The management policy has clear long-term objectives to guide decision-making that are consistent with MSC fisheries standard, and incorporates the precautionary approach.</b>		
<b>Scoring Issue</b>		SG 60	SG 80	SG 100
<b>a</b>	<b>Objectives</b>			
	<b>Guidepost</b>	Long-term objectives to guide decision-making, consistent with the MSC fisheries standard and the precautionary approach, are <b>implicit</b> within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach are <b>explicit</b> within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach, are <b>explicit</b> within <b>and required by</b> management policy.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	<p><b>Clear long-term overall goals for fisheries management are set out in legislation.</b> These objectives include sustainable management, maximizing benefits to the nation and efficiency. Environmental objectives are in place and observed, e.g. in relation to protection of coral reefs and geographically defined sea-based management plans. Ecological quality objectives are also developed through the OSPAR cooperation, to which Iceland is a contracting party, but fully developed plans to measure environmental performance are not yet in place.</p> <p>The precautionary approach is not explicitly mentioned in the legislation on fisheries management in Iceland nor has it been introduced in a general form in Icelandic law but it is stated in a number of international agreements that Iceland has signed. The precautionary principle is explicitly referred to by the MFRI, ICES and the MII in relation to the catch rules that have been adopted and to the fisheries management in general. Then, Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach, are <b>explicit</b> within <b>and required by</b> management policy and <b>SG 100 is met.</b></p>		
<b>References</b>		<p>On the status of the precautionary principle in Icelandi see:  <a href="http://www.ust.is/umhverfisstofnun/umraedan/grein/2012/03/30/Varudarreglan/">http://www.ust.is/umhverfisstofnun/umraedan/grein/2012/03/30/Varudarreglan/</a> </p>		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>NA</b>

### PI 3.2.1– Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guidepost	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <b>implicit</b> within the fishery-specific management system.	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <b>explicit</b> within the fishery-specific management system.	Well defined and measurable short and long-term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system.
	Met?	Y	Y	Y
	Justification	<p>The first article of the Act on Fisheries Management states that "The exploitable marine stocks of the Icelandic fishing banks are the common property of the Icelandic nation. The objective of this Act is to promote their conservation and efficient utilization, thereby ensuring stable employment and settlement throughout Iceland.</p> <p>The objective of the management plan for capelin to maintain the exploitation rate at the rate which is consistent with the precautionary approach. This objectives is defined in a measurable way by the reference points against which the stock is assessed on an annual basis.</p> <p>Iceland has ratified a number of conventions on species protection and management, 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 if issues are identified relating to ETP species, a number of mechanisms have been developed to detect and reduce impacts. These objectives are attained through various restrictions on gear and area closures to protect vulnerable habitats and juvenile fish. The management of golden redfish includes measures relevant to the effects the fishery has on the ecosystem.</p> <p>The biological reference points used in the setting of the TAC for target and main retained species are explicit and consistent with the outcomes expressed by MSC's Principle 1 and 2. In relation to Principle 2 specifically, most of the main retained species have management plans, and for species of low commercial importance, a key objective is to eliminate discarding in order to ensure that catches and stocks can be monitored and that incentives are in place to fish selectively. Therefore, <b>well defined and measurable short and long-term objectives</b>, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system and <b>SG 100 is met</b>.</p>		
References		<p>Statement by the Minister published on the government sponsored website <a href="http://www.fisheries.is">www.fisheries.is</a>, <a href="http://www.fisheries.is/management/government-policy/responsible-fisheries/nr/62">http://www.fisheries.is/management/government-policy/responsible-fisheries/nr/62</a></p> <p><b>Anonymous 1996.</b> Act on the utilisation of exploitable marine stocks, no. 57/1996, accessible in the file <a href="http://www.atvinnuvegaraduneyti.is/media/Skyrslur/Stjorn-fiskveida-2010-endanlegt.pdf">http://www.atvinnuvegaraduneyti.is/media/Skyrslur/Stjorn-fiskveida-2010-endanlegt.pdf</a>.</p> <p><b>Anonymous 2006.</b> Fisheries Management Act no. 116/2006, an English translation is accessible at <a href="http://www.fisheries.is/management/fisheries-management/the-fisheries-management-act/">http://www.fisheries.is/management/fisheries-management/the-fisheries-management-act/</a>.</p> <p><b>Anonymous.</b> The section on capelin on MII's website (information centre) at</p>		

PI 3.2.1	The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.	
	<a href="http://www.fisheries.is/main-species/pelagic-fishes/capelin/">http://www.fisheries.is/main-species/pelagic-fishes/capelin/</a> . <b>Anonymous 2010.</b> Reply of the Minister for Fisheries and Agriculture to a question about catches outside the catch quota system, the Althing 2009-2010, document no. 638 – issue no. 323, accessible in Icelandic at <a href="http://www.althingi.is/-altext/138/s/0638.html">http://www.althingi.is/-altext/138/s/0638.html</a> . <b>Anonymous 2012.</b> Regulations on the management of fisheries during the 2012/2013 quota year, accessible in the file <a href="http://www.stjornartidindi.is/DocumentActions.aspx?ActionType=Open&amp;documentID=18c25ccf-e993-4c1e-b868-696cb675bf78">http://www.stjornartidindi.is/DocumentActions.aspx?ActionType=Open&amp;documentID=18c25ccf-e993-4c1e-b868-696cb675bf78</a> . <b>Icelandic Ministry of Fisheries.</b> State of Marine Stocks in Icelandic Waters 2015/2016 – Prospects for the Quota Year 2016/2017, MFRI's publication no. 163, accessible on MFRI's website at: <a href="http://www.hafro.is/Astand/2016/fjolrit_185.pdf">http://www.hafro.is/Astand/2016/fjolrit_185.pdf</a> .	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>NA</b>

### PI 3.2.2 – Decision-making processes

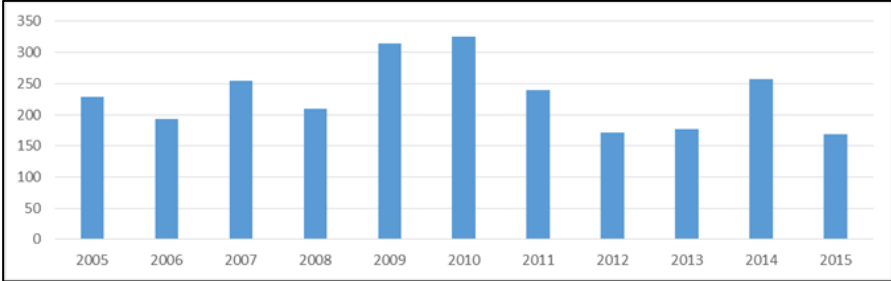
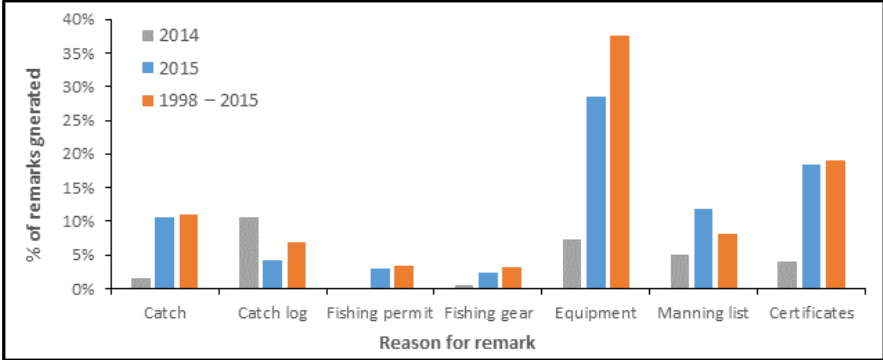
PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guidepost	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are <b>established</b> decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	Y	Y	
	Justification	The setting of a TAC for the capelin fishery uses a management plan, reference points and strategies that have been tested and found to meet the requirements of the precautionary principle. It is based on research work done by the Marine Research Institute in Iceland and ICES. This work is subjected to review by ICES as is most of the work done by the MFRI. The decision-making processes are transparent and timely. MFRI's advice is given to the Minister, who informs and consults with organizations of vessel owners and crew.  Gear regulations and area closures are used to obtain objectives concerning bycatch and catch of juveniles and objectives concerning the ecosystem. On April 4 2014 the Ministry of Environment announced that the Icelandic government had sent to the OSPAR convention declaration of <u>five more coral conservation areas</u> bringing the total number to 14. Therefore, there are <b>established</b> decision-making processes that result in measures and strategies to achieve the fishery-specific objectives and <b>SG 80 is met</b> .		
b	Responsiveness of decision-making processes			
	Guidepost	Decision-making processes respond to <b>serious issues</b> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to <b>serious and other important issues</b> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to <b>all issues</b> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	Y	Y	N
	Justification	The decision-making processes respond in a transparent, timely and adaptive manner to serious and other important issues identified via relevant research, monitoring, evaluation and consultation. Management plans have been developed in working groups where the industry and unions of the crew have their representatives. These plans are partly reviewed each year through the stock assessments and the advice provided by MFRI and ICES each year. In those cases where a management plan has been found to be faulty, like the original management plan for cod from 1995 they have been reviewed (cod in 2004) and subsequently the minister has adopted a new management plan (for cod in 2007).  Decision-making processes respond to all issues of major importance which have been identified in relevant research, but it is difficult to contend that it has responded to all issues in a timely manner therefore it responds to <b>serious and other important issues</b> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions and <b>SG 80 is met</b> .		

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.	
c	Use of precautionary approach		
	Guidepost		Decision-making processes use the precautionary approach and are based on best available information.
	Met?		Y
	Justification	The managers of the stock (the Ministry and the Minister) are obliged to consult the Marine Research Institute before deciding the TAC (or the effort quota) each year. This institute provides the best available information about the state of the stock. The precautionary approach is not formally part of the decision-making process, but the objectives set by law and the reference points and management strategy respects the basic principles of the precautionary approach. The recent implementation of the management plan should mean that this process is now more explicit (e.g. TAC will no longer be set exceeding MFRI advice, even by a small amount). Therefore, decision-making processes use the precautionary approach and are based on best available information and <b>SG 80 is met.</b>	
d	Accountability and transparency of management system and decision-making process		
	Guidepost	Some information on the fishery's performance and management action is generally available on request to stakeholders.	<b>Information on the fishery's performance and management action is available on request,</b> and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	Y	N
	Justification	The management system will respond to findings and recommendations emerging from research, monitoring, evaluation and review activity. It will explain their decisions to fishermen's organizations, individual fishermen and the general public and scientists will note if important findings or recommendations are ignored.  There is legislation (upplýsingalög, Freedom of Information Act) in Iceland requiring ministers and public institutions to reveal existing information or reasons for certain decisions being taken. Members of the Althing can obtain detailed information from the Ministry and public institutions by putting questions to the appropriate minister in the Althing. Both the public and fishers have access to such information through the political process and local parliamentarians. This would apply to NGOs, which, however, have not been active in fisheries issues in Iceland.  There is formal reporting on MFRI advice and fishery performance. However, there is no formal reporting on the response of the management system to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. Therefore, <b>information on the fishery's performance and management action is available on request,</b> and explanations are provided for any actions or lack of action associated with	

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.		
		findings and relevant recommendations emerging from research, monitoring, evaluation and review activity and <b>SG 80 is met.</b>		
e	Approach to disputes			
	Guidepost	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Y	Y	N
	Justification	There are several examples where authorities have attempted to comply in a timely fashion with binding judicial decisions arising from legal challenges. The most noteworthy and important is the case when the Supreme Court in 1998 found special licensing of fishing vessels that were allowed to fish in the Icelandic EEZ to be unconstitutional.  Perhaps the management system does not always act proactively enough to avoid legal disputes. Therefore, The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges and <b>SG 80 is met.</b>		
References		NEAFC’s website at <a href="http://www.neafc.org/coastalstatemeetings">http://www.neafc.org/coastalstatemeetings</a> . Iceland’s High Court’s rulein at <a href="http://www.haestirettur.is/domar?nr=767">http://www.haestirettur.is/domar?nr=767</a>		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				NA



### PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guidepost	Monitoring, control and surveillance <b>mechanisms</b> exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance <b>system</b> has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A <b>comprehensive</b> monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Y	Y	Y
	Justification	<p>For the fishing of capelin by Icelandic vessels there exists a comprehensive monitoring, control and surveillance system. This system has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.</p> <p>A comprehensive monitoring, control and surveillance system is in place, with inspections at sea and at landing sites.</p> <p>In 2015, inspectors from the Directorate spent 1,370 days at sea on fishing trips and the Coastguard conducted 169 boardings.</p>  <p>Figure 1. Coastguard boardings by year (2005 – 2015).</p> <p>The main reasons for the generation of remarks during Coast Guard inspections have remained consistent across the period from 2005 to 2015 (Figure 2). Note in this instance equipment relates to safety equipment and not to fishing gear which has a separate category.</p>  <p>Figure 2. Reasons for the generation of remarks during Coast Guard inspections in 2014, 2015 and from 1998 – 2015.</p>		

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
		<p>Also, post-landing checks of reported landings against quotas are performed for each vessel. A satellite based vessel monitoring system applies to all vessels.</p> <p>The Directorate of Fisheries receives logbook data and data on landings which are weighed on specially authorized and closely monitored scales. Data is transmitted electronically to the Directorate, in real time. Data on each vessel's catch and quota allowance (including all transfers of quota) is posted on the Directorate's website. This information is updated daily. Because most of the catch is exported there are additional ways to control reporting of catches by checking if the reported input of raw fish is consistent with the volume of production.</p> <p>The main management measure that the Directorate of Fisheries monitors is the quotas of individual fishers, catches and processing. There are cases where individual fishermen have been found to cheat through illegal landings and/or discarding. There are no reliable evidence that these violations exceed a few percentages of the TACs. The Directorate of Fisheries together with the Coast Guard monitors gear regulations and area closures. The extensive monitoring and the low number of violations observed do indicate that these rules are respected.</p> <p>There are agreements between some of the coastal states on fishing in each other's EEZs and landing in foreign ports. The port has to be authorised and subject to public surveillance. All landings by Icelandic vessels in foreign ports are subject to strict rules and reporting procedures and there is a well-established and coordinated mechanism to enable port-of-landing authorities to report the landing to the relevant authorities in a timely fashion. The same is true for foreign vessels that land in Icelandic ports. The directorates of fisheries in the coastal states co-operate in the control of the landings and for accuracy in the reporting on the landings.</p> <p>Therefore, a comprehensive monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules and <b>SG 100 is met.</b></p>		
b	Sanctions			
	Guidepost	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, <b>are consistently applied</b> and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and <b>demonstrably</b> provide effective deterrence.
	Met?	Y	Y	Y
	Justification	Violations of regulations are subject to sanctions which have been demonstrated to provide an effective deterrence against violations. Misreporting is subject to strict penalties. The relatively few cases of illegal landings, small estimated discarding and the number of violations of gear regulations and area closures do demonstrate that the sanctions that are in place and the high probability of being apprehended if engaging in illegal activities do form an effective deterrence.		
		The relatively few cases of illegal landings, small estimated discarding and the number of violations of gear regulations and area closures do demonstrate that the sanctions that are in place and the high probability of being apprehended if engaging in illegal activities do form an effective deterrence.		
		Sanctions to deal with non-compliance also exist in Greenland, Faroe Islands and Norway.		

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
		and may lead to fines or evocation of fishing licenses tehfore there is a system of sanctions consistently applied and <b>demonstrably</b> provide effective deterrence and <b>SG 100 is met.</b>		
c	Compliance			
	Guidepost	Fishers are <b>generally thought</b> to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	<b>Some evidence exists</b> to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a <b>high degree of confidence</b> that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	Y	Y	Y
	Justification	There is generally a high degree of compliance with regulations. There is no significant evidence of systematic non-compliance. In cases of non-compliance, a range of penalties can be applied. A minor infringement leads to a warning and a second offence leads to temporary withdrawal of fishing licenses. Serious offenses are brought to the courts and can lead to prison sentences. Corrective actions are well established, codified, understood and tested. Amongst the information provided to management by fishers is essential logbook and VMS data, provided to the Directorate of Fisheries and to the MFRI.  This information is checked through weighing of the catch (including all bycatch) in the harbour and review of VMS records. Other information in relation to the species mix/catch composition gained through sampling is further evidence of data that is provide to the management system.  Therefore, There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery and <b>SG 100 is met.</b>		
d	Systematic non-compliance			
	Guidepost		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	The level of compliance is relatively high. Data from inspections at sea and those carried out at landings indicate that the number of serious infractions is relatively low. The management system in general has a high level of legitimacy among fishers, probably because the need to manage resources through restrictions on fishing access is well understood.  Some foreign vessels land some of their catches of capelin in Icelandic harbours. The catches they land in their home countries have to be landed in special authorized harbours where their catches are weighted and reported to the Directorate of Fisheries in Iceland.  There is no common monitoring of the surveillance and monitoring system in individual states engaged in the fishery therefore There is no evidence of systematic non-compliance with the gears and <b>SG 80 is met.</b>		
References		Anonymous 2012. Directorate of Fisheries’ annual fishing statistics: Yfirlit yfir veiðar og afla fiskveiðiárið 2013/2014 ( <a href="http://www.fiskistofa.is/media/utgefid_efni/Yfirlit_2013_2014.pdf">http://www.fiskistofa.is/media/utgefid_efni/Yfirlit_2013_2014.pdf</a> ).		

PI 3.2.3	Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.	
OVERALL PERFORMANCE INDICATOR SCORE:		100
CONDITION NUMBER (if relevant):		NA

### PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives. There is effective and timely review of the fishery-specific management system.		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guidepost	There are mechanisms in place to evaluate <b>some</b> parts of the fishery-specific management system.	There are mechanisms in place to evaluate <b>key</b> parts of the fishery-specific management system	There are mechanisms in place to evaluate <b>all</b> parts of the fishery-specific management system.
	Met?	Y	Y	Y
	Justification	There have been several external reviews made by international experts on the methods that the Marine Research Institute uses to assess fish stocks and on the advice it gives to government. There has not been a comparable external review of the work of the Directorate of Fisheries or of the Ministry of Fisheries and Agriculture. However these institutions are subject to regular reviews by the Althing's committees, especially the permanent committee on fisheries issues. As with other public institutions in Iceland these institutions are subjected to scrutiny by The Icelandic National Audit Office (Ríkisendurskodun). The performance of these institutions is also intensively debated in Iceland, especially in the many fishing communities.  The MFRI experts have published their research in peer reviewed scientific journals.  The overall performance of the management regime for the resource is examined annually, including assessment of stock status and feeding ecology. Since 1970 the Marine Research Institute has carried out extensive environmental surveys up to four times per year in relation to oceanography and primary- and secondary production.  The management plan for the fishery has been externally reviewed by ICES and therefore, There are mechanisms in place to evaluate <b>all</b> parts of the fishery-specific management system. <b>SG 100 is met.</b>		
b	Internal and/or external review			
	Guidepost	The fishery-specific management system is subject to <b>occasional internal</b> review.	The fishery-specific management system is subject to <b>regular internal</b> and <b>occasional external</b> review.	The fishery-specific management system is subject to <b>regular internal</b> and <b>external</b> review.
	Met?	Y	Y	N
	Justification	There have been several reviews of the management system in Iceland during the last 30 years since the introduction of the system of transferable quotas. In most cases those involved in these reviews were internal to the political process in Iceland and to the fishing industry. The external review processes has been beneficial to the work of the MFRI.  Capelin assessment and advice is regularly reviewed internally by a TAC committee and externally by ICES, as was the management plan for the fishery. Therefore, the fishery-specific management system is subject to <b>regular internal</b> and <b>external</b> review and <b>SG 80 is met.</b>		
References		Anonymous 2012. Directorate of Fisheries' annual fishing statistics: Yfirlit yfir veiðar og afla fiskveiðiárið 2013/2014 ( <a href="http://www.fiskistofa.is/media/utgefing_efni/Yfirlit_2013_2014.pdf">http://www.fiskistofa.is/media/utgefing_efni/Yfirlit_2013_2014.pdf</a> ).		
OVERALL PERFORMANCE INDICATOR SCORE:				90

PI 3.2.4	<p>There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives.</p> <p>There is effective and timely review of the fishery-specific management system.</p>
CONDITION NUMBER (if relevant):	NA

## **9 Appendix 1. Risk Based Framework (RBF) Outputs**

Not applicable. The Risk Based Framework (RBF) was not used in the assessment of this fishery.



## 10 Appendix 2. Conditions

Not applicable. There were no conditions raised during the assessment of this fishery.

## 11 Appendix 3. Peer Review Reports

### 11.1 Peer Reviewer 1

#### Summary of Peer Reviewer 1 opinion

<b>Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?</b>	<b>Yes</b>	<b>CAB Response</b>
<p><u>Justification:</u></p> <p>Principle 1. The assessment team has probably extracted all the available assessment data for this stock of capelin and these UoAs. The evaluation data for this stock are taken mainly from the most recent ICES assessment and are used in the best/most efficient way as well as the observations fishery from this closely monitored fishery.</p> <p>Principle 2. I agree with the overall conclusion on Principle 2. The effect from this fishery on both the primary main and minor as well as the retained secondary species other species seems to be small, Especially because the by-catch of these species except cod seems to be very small. However the data for some of the secondary species are sporadic.</p> <p>It is also mentioned that, as a key LTL species, capelin is an important prey species in the ecosystem, probably also for several species of baleen whales (Minke and Humpback).</p> <p>The effect on the benthos from capelin fishery, which now is mainly by purse seine, seems to be negligible.</p> <p>Concerning Principle 3 the fisheries on this stock are managed internationally by agreements between Iceland , Greenland and Norway. The Icelandic share of the TAC is distributed in ITQs. The Icelandic capelin fishery is, like other Icelandic fisheries, closely and well monitored, also regarding by-catch.</p>		<p>The assessment team acknowledges the reviewers for his comments, and responses to comments on specific PI and rationale are provided in the Performance Indicator Review table</p>

<b>Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?</b> <b>[Reference: FCR 7.11.1 and sub-clauses]</b>	<b>N/A</b>	<b>CAB Response</b>
<u>Justification:</u>		

If included:

<b>Do you think the client action plan is sufficient to close the conditions raised?</b> <b>[Reference FCR 7.11.2-7.11.3 and sub-clauses]</b>	<b>N/A</b>	<b>CAB Response</b>
<u>Justification:</u>		

**Table 17. For reports using one of the default assessment trees:**

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
1.1.1	Yes	Yes			
1.1.2	Yes	Yes			
1.2.1	Yes	No	NA	Harvest strategy. I agree with the scoring of the 4 issues: a, b, c, d. But as I see it the overall score of 95 is not in accordance with the standard FCR requirements of 'cumulative' scoring.	The assessment team has followed the clause 7.10.5.3 of MSC FCR and following the criteria when all the scoring issues of SG 80 are met but not all meet SG 100 intermediate scores must not be given (85, 90, 95) therefore award 95 when most of the issue are fully met. In this cases 3 of them are fully met and just one is not fully met. Therefore 95 is correct.
1.2.2	Yes	Yes	NA		
1.2.3	Yes	Yes	NA		
1.2.4	Yes	Yes	NA		
2.1.1	Yes	(Yes)	NA	Clarification of the cod catches: In which way do the 236403 kg cod represent 12.13% of the "fishery". See also general comments.	The assessment team has done a estimation of catches. The data reported from DoF shows that the catches of Cod coming from capelin fishery during the period of time between 2012-2016 are 236,403kg. The

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
					initial evaluation was incorrect. And following re-evaluation cod was moved to minor species
2.1.2	Yes	Yes	NA		
2.1.3	Yes	Yes	NA		
2.2.1	Yes	(No)	NA	<p>It is a matter of subjectivity how to assess the influence of the capelin fisheries on the stocks of Skate, Turbot and Dealfish and to whether SG80 or SG 100 is appropriate.: Skate stock is at a very low level. We don't know much about stock status of Tubot in Icelandic waters and nothing about the status of the widely distributed Dealfish.</p> <p>So how can we detect '<u>evidence</u>' that the UoA does not hinder the recovery etc.'?</p> <p>The bycatch information indicate very low catches of these species, but at the same time: this does not give information on dynamics of these 'stocks'. There is no</p>	The assessment team has assumed that the quantitative data from DoF are by itself a evidences to confirm that Capelin fishery is not a risk for secondary minor species. The catches of turbot and delafish are 2 kilos in 4 years less than 0.0001% (of total catches of non target species) of the total landing. In the year 1992 the Marine Research Institute started to collect turbot in collaboration with Icelandic fishermen to form a brood stock, they has concluded that is a very rare species in Icelandic waters and the annual catch is usually only a few fish. On the other hand, the distrubution of turbot is at sandy bottom surfaces. The delafish has a range of distribution of 300m-600m. The grounds of the fishery are normally distributed until 300 meters and the fishery operates in the water colum therefore the catches of turbot and

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
				<p>evidence for anything.</p> <p>We are uncertain about the uncertainties</p>	<p>dealfish are very unusual. This information has been added to background section of secondary species.</p> <p>Skate has a % of catches in the period of four years of 77 kg (0.003 % of total catches of non target species). However, due to the assessment team cannot confirm that the species is above the PRI the scoring for grey skate is 80.</p> <p>The assessment team considers that the quantitative data of catches and furthermore, the types of gears used in the fishery are sufficient evidences to justify these minimum rates of catch and settles that the fishery is not a risk for these species classified as secondary minor.</p>
2.2.2	Yes	(No)	NA	<p>Because of the uncertainty, I would give <b>scores of 80</b> fore all 3 species.</p> <p>Note: The English language is particularly bad in PI 2.2.1, PI 2.2.2 and PI 2.2.3</p> <p>And now 'Skate' has become 'Stake'</p>	<p>The assessment team has corrected the wording and formatting of the texts cited by the reviewer.</p> <p>The CAB does not agree with the re-scoring and has kept the same score of 100 in two species, dealfish and turbot because the catch of two kilos in 4 years is enough evidence to justify that the fishery has a</p>

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
					strategy to avoid the catch of non-target species.
2.2.3	Yes	No	N/A	Again: I am not sure the coastguard data are sufficient for an evaluation (with 'a high degree of certainty') whether the strategy works (issue c) <b>Overall score = 90.</b>	The capelin fishery has enough quantitative data to evaluate primary and secondary species. Further the surveillance program carried out by the DoF and the coast guard is complete and well-defined to get SG 100. The coast guard realises inspections at sea and in the port. All the vessels under assessment have the obligation to land all the catches, bycatch is not happening and all the species captured must be landed and reported. The data of the total composition of catches are accurate. The assessment team agrees that the program to manage the secondary species is working and justify the rationale given to meet SG100. On the other hand, all vessels are required to carry a VMS system, which is monitored 24hrs a day by the Coast guard, there is no possibility to avoid the monitoring of the coast guard and the information is truthful.
2.3.1	Yes	Yes			
2.3.2	Yes	Yes			

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
2.3.3	Yes	Yes			
2.4.1	Yes	Yes			
2.4.2	Yes	Yes			
2.4.3	Yes	Yes			
2.5.1	Yes	Yes			
2.5.2	Yes	Yes			
2.5.3	Yes	Yes			
3.1.1	Yes	Yes			
3.1.2	Yes	Yes			
3.1.3	Yes	Yes			
3.2.1	Yes	Yes			
3.2.2	Yes	Yes			



<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
3.2.3	Yes	Yes			
3.2.4	Yes	Yes			

## General

Reading this report gives the impression that it has been produced very fast, **too fast!** No proof reading has been done on this draft, not even a computerised spelling check. This draft report certainly needs a proof reading to improve the English language as well as the large amount of typing/spelling errors. It is bad in sects. 3.2 -3.4. Take a look, for instance, in Sect. 3.2 in the **Executive summary**.

## CAB response:

A revision to improve the English was done. The typing/spelling checking was also made. The report has taken the time proposed on the MSC website and the necessary period of time to review the information gathered during the site visit and available in the different website of stakeholders was taken. The CAB agrees with the recommendations regarding the English but does not agree with the impression that it has been produced very fast.

## Special comments:

### Sect. 4.1.3

It is mentioned, that the most recent (ICES) report (and advice) was published 19 May 2016. Why not already here mention that the initial quota for 2016/17 advised by ICES is 0 (zero).

## CAB response:

The objective of the harvest control rule for the stock is to set a final TAC which ensures, with a 95% probability, that a minimum of 150000t (=B<sub>lim</sub>) remains for spawning (escapement strategy). This is achieved by a series of acoustic surveys from September through to February and a three stage process in finalising a seasonal TAC (described above). The quantity available for the fishery also has to take the quantity removed by predators.

- The initial TAC for the coming fishing season is advised in May, based on the autumn survey abundance estimate of immature 1 and 2 year old capelin.
- The intermediate TAC is advised in autumn based on the biomass estimate of maturing capelin.
- The final TAC is advised in January/February based on the biomass estimate of maturing capelin.

Therefore the fact that the first TAC is zero does not entail that the stock status is below the TRPs. It's a precautionary approach to allow that the stock status holds in a good conditions.

### Sect. 4.2.1

Capelin is possibly the most ecologically important fish in Icelandic waters....- ?? – What is meant? This statement needs more specification/explanation!

## CAB response:

Capelin is consider as key LTL species in the Icelandic ecosystem and for this reason the stock was evaluated as Key LTL and the table 1.1.1A was evaluated. The CAB has considered this important role in the ecosystem and it is explained in the report.

### Sect. 4.2.3

I think it should be mentioned in this section, that the majority of the landings/catches of capelin at present are taken by purse seiners! (According to ICES, 93% were taken by purse seine in the 2015/16 season). This is also a much cleaner fishery than the pelagic trawl fishery.

*'There are strong indications that the efficiency of the capelin fishery has increased substantially since the introduction of the vessel-quota system.'* What is meant with the 'efficiency of the fishery'? I assume increasing catches with fewer vessels (higher CPUEs)?

**CAB response:**

The fisheries technical article published by FAO "The Effects of Introducing Transferable Property Rights on Fleet Capacity and Ownership of Harvesting Rights in Iceland's Fisheries" (Runolfsson, B. and Arnason, R., 2011) explained the results of introducing ITQs system in Iceland Capelin and Herring Fisheries. The "efficiency of the capelin fishery has increased..." is referred to the system introduced which has allowed to reduce the total fleet tonnage (GRT) by over 25%, and the total days-at-sea for the fleet fell by almost 25%. The effort is controlled and also the number of vessels which have quota for this resource, further the system is a strategy to keep the stock at sustainable level as it was proved by different studies (Technical report FAO 2001, Burk 1991, Hayek 1976, Buchanan 1975). New Zealand and Iceland were pioneer in implementing this system. So it's means in this context that when the fishery stated to be manage by ITQ the catches per unit of effort increased and the usability of this natural resource is better than with the previous system of quotas (IQs).

Sect. 4.2.4

I assume that Fig. 7 refer to Icelandic catches/landings only ?! But the text refers to all landings or what? According to ICES, Icelandic catches alone never reached 1.5 million t. Fig. 7 should include a longer time series going back at least to the year 1996 with the million t catches as mentioned in the text, or a reference to Fig. 12.

Normally, you would also show the catches/landings figures in a table, cf. my comments to Sect. 4.4.1.

*"In the last report carried out by ICES in 2016 an initial quota of zero was **established** ....."* It has been advised by ICES (ICES only advises).

**CAB response:**

The CAB has changed the graphic and has kept just the plot from the last ICES report to avoid any misunderstanding between graphics from different organisms (ICES and the static.ie). The CAB assumes that the data from ICES are more updated and they are revised every year for different experts in the fishery.

Sect. 4.3

*"In the last stock assessment the methodology was as it is described in the WKICE NWWG REPORT..."*. There are two reports: WKICE (2015) and the 2016 ICES NW WG Report.

**CAB response:**

The CAB has rectified the mistake. The report referred in this section is NWWG Report 2016.

**Sect. 4.4 and 4.4.1**

Fig. 18. *"The graphic below shows that I (?) the retained species account for 13% of total catches...."* As I read this figure it shows the % distribution of the retained by-catch (cod const. app. 92% of the retained by-catch).

The description of the cod catches in the Capelin fleet is very imprecise and confusing, for instance.:

The % figures for primary species in Table 3: which data are they based on? A summation over 5 years (*"last five years"*, 2012-16) or what?

“The catches of cod during the last four years by Capelin fishery was 236,403 kg representing 12.13% of the total catches in the fishery.....” Now it is only 4 years. But again which fishery? If 12.36 % is 236,403 kg the total would be 1912646 kg. Which total fishery is that ? It could be some of the pelagic trawl fishery ?

Further down the text the 236403 kg refer to the catches in 2015 but this number only constitutes 0.11 % of the total catches of cod that year. It is very confusing!

It is unclear how these 236 t of cod constitute a percentage 12.36 cod and where they come from (Cod caught in the some capelin fishery?)

By-catch is a very important issue for most fisheries and in their assessments the CABs should always present the available relevant data in their reports. In this case the relevant data from the Icelandic Directory of Fisheries and specify the bases of the above mentioned percentages.

NB! The same figures are mentioned in a similar confusing way in App. 1 scoring PI 2.1.1

Wolfish/: This species is a species of concern in the NW Atlantic and data deficient in most of its distribution. In Icelandic waters catches have declined since around 2000. Note: The English name “ is mainly used for species belonging to Siluriformes (even if DoF uses “). In any case, it is confusing to use as heading to a paragraph dealing with wolfish (the Atlantic wolfish *Anarhichas lupus*). The name ‘Wolfish’ is also used in Sect. 4.5

#### CAB response:

The name of it was changed for wolfish because the species that is analysed is the Atlantic wolfish that is also called Atlantic in some place, so to avoid misunderstanding it will be called in this document as wolfish. The confusion came from Fisheries.ie because the same species is classified as follow: “*Scientific: Anarhichas lupus. English: Wolfish, Atlantic wolfish, , Atlantic , seawolf. Icelandic: Steinbítur, sladdi. For more languages see the Marine Animal Dictionary. Source: [www.fisheries.ie](http://www.fisheries.ie)*”

The data come from the DoF, the CAB does not attach the table with the data because there are 2618 register. The data are from 2012 to first fishing season in 2016, catches corresponding to February and March. The confusion regarding five or four years was corrected in the text.

The percentages of cod are explained in the table above. 92% correspond to the % of catches of the total non retained species in the fishery, therefore the most relevant non target species in the fishery will be Cod.

The 12.13% of catches corresponds with the total composition of catches of non target species in the period of time specified, 2012 to 2016 in the Capelin fishery.

Clarations were made in the text to make easy the understanding and this summary is attached

Species	Catches (kg) (2012 – 2016)	% total catches (2012 – 2016)	% non-target catches (2012 – 2016)
Capelin	1,948,686,000	99.99%	
Cod	236,403	0.012%	93.56%
Haddock	8,310	0.000426%	3.29%
Saithe	5,782	0.000297%	2.29%
Lumpfish	1,335	0.000068%	0.53%
Herring	403	0.000021%	0.16%

Plaice	140	0.000007%	0.06%
Redfish	116	0.000006%	0.05%
Skate	77	0.000004%	0.03%
Blue whiting	71	0.000004%	0.03%
Atlantic wolffish	19	0.000001%	0.01%
Monkfish	14	0.000001%	0.01%
Greenland halibut	6	0.000000%	0.002%
Dealfish	2	0.000000%	0.001%
Turbot	2	0.000000%	0.001%
<b>Total</b>	<b>1,948,938,680</b>	<b>100%</b>	<b>100%</b>
<b>Total non-target</b>	<b>252,680</b>		

#### Sect. 4.4.2

Secondary species. Although the effect of the pelagic trawl and purse seine fisheries for capelin on the stocks of Skates (*Dipturus batis*) probably is insignificant, it should be mentioned that this species is classified as critically endangered by IUCN. The decline in Icelandic waters is shown in Fig. 30. Very little information is available on *Trachipterus*.

#### CAB response:

The percentage of catches of these two species in the fishery are 0.0003% and 0.0001%. Since 2012 to 2016, in kilos, the data coming from the DoF, are 77 for skate and 2 for Dealfish. The information to justify the rationale and the roles of these species in the fishery is enough, because the obligation to land all catches is a manner to control the non retained species. They are secondary minor species in the fishery, with an insignificant impact that they have in the fishery. However more explanation of these species have been done in the tables above.

The CAB has added more information regarding the status of skate in the IUCN list.

#### Sect. 4.4.4

Fig. 32 needs to be improved that the EEZ becomes visible.

In the previous paragraph the '*minister*' of Fisheries is mentioned. I assume that it should be the ministry.

Table 7: I don't understand how the dealfish (*Trachipterus*) can be classified as 'not data-deficient'.

#### CAB response:

In the table 7 dealfish is not classified as not data deficient because is not limited data for the fishery under assessment. There is quantitative data for these species in the fishery and in this document the CAB has not been evaluating the dealfish as target species whether not as secondary minor. The data available are enough to evaluate this species and its role in the fishery under assessment and therefore it is not needed classified it as data limited.

The mistake in spelling minister was corrected.

The CAB has enlarged the figure to make it easier to understand.

#### Sect. 6

Scores at principle level. Following my comments to the score for PI 1.2.1 in Sect. 8 (App. 1), I don't understand how the CAB has arrived at an overall SG 95 here, with the 4 issues being scored 100, 80, 60, and 100?

Also the scoring of PI 2.2.1 should be reconsidered.

**CAB response:**

The scores of 1.2.1 was explained above and it was met following the FRC clause 7.10.5.3 where MSC specifies that award of 95 is met when most scoring issues are fully met and just few of them are not fully met. In this case just one is not fully met, therefore 95 is met.

The CAB does not agree that the outcome of secondary species need to be re-scored as was explained above.

## 11.2 Peer Reviewer 2

### Summary of Peer Reviewer 2 Opinion

<b>Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?</b>	<b>Yes/No</b> Yes	<b>CAB Response</b>
<u>Justification:</u> The conclusions seem to be appropriate but require further documentation as noted in Table 1, below.		The assessment team acknowledges the reviewer for his comments, and responses to comment on specific PI and rationale are provided in the Performance Indicator Review table. The assessment team has justified all the comments and in most of cases, more information was given to justify the rationale of the CAB in each answer.

<b>Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?</b> <b>[Reference: FCR 7.11.1 and sub-clauses]</b>	<b>Yes/No</b> NA	<b>CAB Response</b>
<u>Justification:</u>		

If included:

<b>Do you think the client action plan is sufficient to close the conditions raised?</b> <b>[Reference FCR 7.11.2-7.11.3 and sub-clauses]</b>	<b>Yes/No</b> NA	<b>CAB Response</b>
<u>Justification:</u>		



**Table 18 For reports using one of the default assessment trees:**

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
1.1.1	No	No	NA	<p>The Team correctly treats the stock as a LTL species, and used Box SA2 for scoring.</p> <p>SI a: The rationale does not reference all requirements and does not explain how they are met, to score at the 100 level. As per FCR SA2.2.12, stock status of LTL species may be scored with respect to B0, F, ecosystem model results, or from robust empirical data such as fishery independent surveys. Perhaps The Team could explain how B0 and F don't apply here, reference robustness of the acoustic surveys, and explain how the predation model yields Blim with 95% certainty? This was touched on in the background section of the report but was not brought forward to the scoring justification section.</p> <p>SI b: The rationale does not reference all</p>	In evaluating this whole process it must be appreciated that the IGJM and the Barents Sea capelin are unique amongst the pelagic species of the North Atlantic. Their role as an important LTL forage species with a potential for a sustainable harvest of surplus production is strongly dictated by their life history strategy of almost 100% natural mortality after spawning. Inevitably this unique situation does not always fit well with the wording of the MSC requirements. Nevertheless the intent is the same and the team have shown throughout the section on Principle 1 that, in managing this stock, the first and foremost requirement is that of the ecosystem and to annually ensure that there is a minimum of 150,000t of mature or maturing capelin left to spawn. The basis for this biomass limit level of 150,000t is firmly established based on B loss but we have not claimed 95% probability at the scoring issue only 80% at SG80.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
				<p>requirements and does not explain how they are met, to score at the 80 level. Specifically, referring to FCR SA2.2.13, the rationale needs to explain how the target level: <i>"i. Does not impact the abundance levels of more than 15% of the other species and trophic groups by more than 40% (compared to their state in the absence of fishing on the target LTL species); and ii. Does not reduce the abundance level of any other species or trophic group by more than 70%."</i>)</p>	<p>This reference point was strongly supported by the ICES benchmark workshop in 2015.</p> <p>In relation to the comments on scoring issue b) the comments above are also applicable. The team is confident that all the issues raised here are adequately addressed. The predation model based on the abundance of the predator species (from up to date ICES reports) and the coincidence both temporally and spatially with capelin distributions is very sophisticated. This is then firmly linked to a very precautionary approach to the assessment of capelin biomass through acoustic surveys. The assessment team confirms that it represents the role model for the management of a LTL species and well satisfies the requirements of the MSC process. The assessment team has erred on the side of caution and only scored this at SG 80 with the reasoning clearly explained in the comments.</p>

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
1.1.2	NA	NA	NA		
1.2.1	Yes	Yes	NA		
1.2.2	No	No	NA	<p>SI c: The rationale does not provide specific evidence to support the conclusion. The rationale references that the status of cod, haddock and saithe stocks support that the exploitation levels of capelin under the HCR are achieved; however, the recent/current status of these stocks is not provided in the rationale for documentation.</p>	<p>The assessment team has commented that "Available evidence, in the form of the status of dependent demersal stocks; cod haddock and saithe, suggest that this ecological measure is effective". The CAB agrees with the reviewers comment that the CAB has not quoted the specific stock status of these three species although we have referenced the relevant ICES assessment reports.</p> <p>Their specific status in 2015 is detailed below.</p> <p>Saithe: SSB is currently at 139kt which is above the average (1980 to 2014) and well above the biomass trigger and limit levels. (65kt and 61kt respectively.</p> <p>Haddock: SSB in 2015 was 78,319 t and has been below the long term mean of 99,792 t</p>

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
					<p>since 2011. However it is still well above the biomass limit level of 45,000 t.</p> <p>Cod: SSB in 2015 was 547kt the highest in the time series for 50 years and well above the biomass limit level of 45kt</p> <p>The assessment team has erred on the side of caution and only scored this PI at 80 fully explaining the reasons.</p>
1.2.3	Yes	Yes	NA		
1.2.4	No	No	NA	<p>SI e: With regard to external review, the rationale appears to contradict other published information. The rationale states: <i>"Only when endorsed by ACOM are the results of the assessment released in the form of advice on stock status and the future management of the fishery."</i> However, on page 382 of ICES (2016), it states; <i>"The assessment and advice on the</i></p>	<p>The assessment team is not entirely sure what point the reviewer is making here. The review process for the ICES assessment and advice is almost entirely internal every year and only exceptionally do ICES call on the services of an independent reviewer. This is why we have scored it at SG80. However the reviewer may be saying that there is no peer review process at all because some preliminary management action is taken</p>

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
				<p><i>final TAC for capelin based on the autumn and winter surveys are issued directly to the Coastal States by the Icelandic Marine Research Institute. This process is not internationally peer reviewed prior to the release of the advice. Among the reasons for using this process is the need for fast advice once the survey result is available. The ICES ACOM procedure is more time consuming. NWWG therefore recommends that a fast track workflow based on online meetings is established if possible."</i></p> <p>ICES. 2016. Report of the North-Western Working Group (NWWG), 27 April–4 May 2016, ICES Headquarters, Copenhagen, Denmark. ICES CM 2016/ACOM:08</p>	before the ICES advice is released. This is correct but ultimately the peer reviewed advice, released in May, forms the basis of the agreed final TAC. The requirements at SG 80 are therefore met but not those at SG 100.
2.1.1	Yes	Yes			
2.1.2	Yes	Yes			
2.1.3	No	No		<p>SI c: The rationale does not provide specific</p>	The assessment team has been considering that the information is coming from three

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
				<p>evidence to support the conclusion. The rationale refers to "data triangulation" by ICES, MFRI, and MII as evidence that information is adequate to support and evaluate the strategy with a high degree of certainty. However, these three entities are presumably all working with the same base of information, and thus cannot be seen as bringing data "from three different sources" as stated in the rationale. Also, enforcement by the Coast Guard is mentioned, but no information on coverage or compliance rates is provided. Potentially, information such as from an on-board observer program could help to confirm that the strategy is working, but none is provided.</p>	<p>different sources because every organism analyzed the data independently.</p> <p>The Coast guard is in charge, with the DoF, of the surveillance program. The cCoast guard is in charge of the enforcement. They carried out inspections at sea and at port and they control the access to the close areas as well.</p> <p>Every vessel includes in this assessment has to report every set and the use of the VMS is mandatory and it is connected 24 hours with the Coast guard center, therefore they can track every activity that the fleet makes and the information is recorded.</p> <p>On the other hand, discard is forbidden in the fishery and every catch must be landed and reported.</p> <p>The DoF has data from every fishing activity that the vessels realised and therefore the information on primary species is well-</p>

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
					known and is adequate to support a strategy to manage all these primary species.
2.2.1	Yes	Yes			
2.2.2	Yes	Yes			
2.2.3	Yes	Yes			
2.3.1	Yes	Yes			
2.3.2	Yes	Yes			
2.3.3	Yes	Yes			
2.4.1	Yes	Yes			
2.4.2	Yes	Yes			
2.4.3	Yes	Yes			



Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
2.5.1	Yes	Yes			
2.5.2	Yes	Yes			
2.5.3	Yes	Yes			
3.1.1	Yes	Yes			
3.1.2	Yes	Yes			
3.1.3	Yes	Yes			
3.2.1	Yes	Yes			
3.2.2	Yes	Yes			
3.2.3	No	No		The rationale does not provide specific evidence to support the conclusion. Enforcement coverage levels, and compliance rates are not provided to demonstrate a consistent ability to enforce	The assessment team has revised the information and it has concluded that the fishery has several measures in place to control the enforcement of the management strategies.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
				relevant management measures, strategies and/or rules.	A comprehensive monitoring, control and surveillance system is in place, with inspections at sea and at landing sites. Also post-landing checks of reported landings against quotas are performed for each vessel. A satellite based vessel monitoring system applies to all vessels. The Directorate of Fisheries together with the Coast Guard monitors gear regulations and area closures. The extensive monitoring and the low number of violations observed do indicate that these rules are respected. The relatively few cases of illegal landings, small estimated discarding and the number of violations of gear regulations and area closures do demonstrate that the sanctions that are in place and the high probability of being apprehended if engaging in illegal activities do form an effective deterrence. Because all these facts the assessment team considered that rationale justify the scoring given in this PI and SG 100 is met.

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
3.2.4	Yes	Yes			

### 11.3 Peer Reviewer 2 – Analysis of CAB Response to Peer Review Comments

#### Peer Review Analysis of CAB Response to Peer Review Comments – December 13, 2016

As requested, I have reviewed the CAB response to my original peer review comments. For the PI's 1.1.1, and 3.2.3, I found the CAB to be substantially unresponsive (see below). In the original peer review, I answered **Yes** to the question: ***"Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?"*** In my review, I had noted that the conclusions seemed appropriate, but required further documentation. Since that documentation has still not been provided, I now answer the above question: **"No"**.

#### PI 1.1.1

##### Peer Review Comments October 25, 2016

The Team correctly treats the stock as a LTL species, and used Box SA2 for scoring.

SI a:

The rationale does not reference all requirements and does not explain how they are met, to score at the 100 level. As per FCR SA2.2.12, stock status of LTL species may be scored with respect to B0, F, ecosystem model results, or from robust empirical data such as fishery independent surveys. Perhaps The Team could explain how B0 and F don't apply here, reference robustness of the acoustic surveys, and explain how the predation model yields Blim with 95% certainty? This was touched on in the background section of the report but was not brought forward to the scoring justification section.

SI b:

The rationale does not reference all requirements and does not explain how they are met, to score at the 80 level. Specifically, referring to FCR SA2.2.13, the rationale needs to explain how the target level: *"i. Does not impact the abundance levels of more than 15% of the other species and trophic groups by more than 40% (compared to their state in the absence of fishing on the target LTL species); and ii. Does not reduce the abundance level of any other species or trophic group by more than 70%."*

#### CAB Response to Peer Review Comments (PCDR) December 1, 2016

In evaluating this whole process it must be appreciated that the IGJM and the Barents Sea capelin are unique amongst the pelagic species of the North Atlantic. Their role as an important LTL forage species with a potential for a sustainable harvest of surplus production is strongly dictated by their life history strategy of almost 100% natural mortality after spawning. Inevitably this unique situation does not always fit well with the wording of the MSC requirements. Nevertheless the intent is the same and the team have shown throughout the section on Principle 1 that, in managing this stock, the first and foremost requirement is that of the ecosystem and to annually ensure that there is a minimum of 150,000t of mature or maturing capelin left to spawn. The basis for this biomass limit level of 150,000t is firmly established based on B loss but we have not claimed 95% probability at the scoring issue only 80% at SG80. This reference point was strongly supported by the ICES benchmark workshop in 2015.

In relation to the comments on scoring issue b) the comments above are also applicable. The team is confident that all the issues raised here are adequately addressed. The predation model based on the abundance of the predator species (from up to date ICES reports) and the coincidence both temporally and spatially with capelin distributions is very sophisticated. This is then firmly linked to a very precautionary approach to the assessment of capelin biomass through acoustic surveys. The assessment team confirms that it represents the role model for the management of a LTL species and well satisfies the requirements of the MSC process. The assessment team has erred on the side of caution and only scored this at SG 80 with the reasoning clearly explained in the comments

### CAB Justification Prior to Peer Review Comments (PDR) October 21, 2016

A biomass limit reference point is set at 150,000t which is a precautionary B loss, based on observations that the recruitments generated around this limit level (cohorts, 1981, 1982 and 1990) were of average strength and that average recruitment did not appear to decline at low SSB over the observed range. In setting this limit level, and managing exploitation, the role of capelin as a key forage species in the Icelandic ecosystem has been taken into account through a predation model which assesses the requirements of the three main demersal predator species, cod, haddock and saithe. The SSB estimated at spawning time in 2016 was 304,000t and it is therefore high degree of certainty (95% probability) that the stock is above a point where serious ecosystem impacts could occur. Even the basic biology of this short lived species and the potential for variable recruitment means that the more rigorous requirements MFRI shows in the last report on May 2016 with 95% of probability that the fishery is above therefore There is a **high degree of certainty** that the stock is above the point where serious ecosystem impacts could occur and **SG 100 is met**.

### CAB Justification After Peer Review Comments (PCDR) December 1, 2016

A biomass limit reference point is set at 150,000t which is a precautionary B loss, based on observations that the recruitments generated around this limit level (cohorts, 1981, 1982 and 1990) were of average strength and that average recruitment did not appear to decline at low SSB over the observed range. In setting this limit level, and managing exploitation, the role of capelin as a key forage species in the Icelandic ecosystem has been taken into account through a predation model which assesses the requirements of the three main demersal predator species, cod, haddock and saithe. The SSB estimated at spawning time in 2016 was 304,000t and it is therefore high degree of certainty (95% probability) that the stock is above a point where serious ecosystem impacts could occur. Even the basic biology of this short lived species and the potential for variable recruitment means that the more rigorous requirements MFRI shows in the last report on May 2016 with 95% of probability that the fishery is above therefore There is a **high degree of certainty** that the stock is above the point where serious ecosystem impacts could occur and **SG 100 is met**.

### Peer Reviewers Analysis of CAB Response to Peer Review Comments (PI 1.1.1)

PI 1.1.1 Sla: **Not Responsive**. The CAB has not addressed the Peer Reviewers observation that “The rationale does not reference all requirements and does not explain how they are met, to score at the 100 level.”

PI 1.1.1 S1b: **Not Responsive**. The CAB has not addressed the Peer Reviewers observation that : “The rationale does not reference all requirements and does not explain how they are met, to score at the 80 level.”

Excuses are provided in the CAB comments to the peer review, but the MSC requirements are clear and specific; the requirements are not referenced, and thus the scoring is not justified.

The post- peer review scoring justifications appear to be unchanged from the pre- peer review (see above).

### CAB's response

The Assessment team has modified the scoring in the PI 1.1.1A, the re-scoring is SG 80.

In the issue a) the new rationale meets SG 80 and is justified as follows: A biomass limit reference point is set at 150,000t which is a precautionary B loss, based on observations that the recruitments generated around this limit level (cohorts, 1981, 1982 and 1990) were of average strength and that average recruitment did not appear to decline at low SSB over the observed range. In setting this limit level, and managing exploitation, the role of capelin as a key forage species in the Icelandic ecosystem has been taken into account through a predation model which assesses the requirements of the three main demersal predator species, cod, haddock and saithe. The SSB estimated at spawning time in 2016 was 304,000t and it is therefore highly likely

(80% probability) that the stock is above a point where serious ecosystem impacts could occur. However the basic biology of this short lived species, the potential for variable recruitment and the unquantified predation by cetaceans and seabirds means that the more rigorous requirements of a high degree of certainty (95% probability) that the stock is above a point where serious ecosystem impacts could occur (SG 100) are not fully met. Therefore, It is highly likely that the stock is above the point where serious ecosystem impacts could occur and SG 80 is met.

In the Issue b) the rationale was modified as follows:

The success of this strategy satisfies the requirements at SG 80. However because of some uncertainty generated by the basic biology of this short lived species and the inherent difficulty of determining unfished spawning biomass levels, or the total stock biomass, the more rigorous requirements, for a high degree of certainty, at SG 100 are not met. Therefore, the stock is at or fluctuating around a level consistent with ecosystem needs and SG 80 is met.

### **PI 3.2.3**

#### **Peer Review Comments October 25, 2016**

The rationale does not provide specific evidence to support the conclusion. Enforcement coverage levels, and compliance rates are not provided to demonstrate a consistent ability to enforce relevant management measures, strategies and/or rules.

#### **CAB Response to Peer Review Comments (PCDR) December 1, 2016**

The assessment team has revised the information and it has concluded that the fishery has several measures in place to control the enforcement of the management strategies. A comprehensive monitoring, control and surveillance system is in place, with inspections at sea and at landing sites. Also post-landing checks of reported landings against quotas are performed for each vessel. A satellite based vessel monitoring system applies to all vessels. The Directorate of Fisheries together with the Coast Guard monitors gear regulations and area closures. The extensive monitoring and the low number of violations observed do indicate that these rules are respected. The relatively few cases of illegal landings, small estimated discarding and the number of violations of gear regulations and area closures do demonstrate that the sanctions that are in place and the high probability of being apprehended if engaging in illegal activities do form an effective deterrence. Because all these facts the assessment team considered that rationale justify the scoring given in this PI and SG 100 is met.

#### **CAB Justification Prior to Peer Review Comments (PDR) October 21, 2016**

##### **Sl a:**

For the fishing of capelin by Icelandic vessels there exists a comprehensive monitoring, control and surveillance system. This system has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.

A comprehensive monitoring, control and surveillance system is in place, with inspections at sea and at landing sites. Also post-landing checks of reported landings against quotas are performed for each vessel. A satellite based vessel monitoring system applies to all vessels.

The Directorate of Fisheries receives logbook data and data on landings which are weighed on specially authorized and closely monitored scales. Data is transmitted electronically to the Directorate, in real time. Data on each vessel's catch and quota allowance (including all transfers of quota) is posted on the Directorate's website. This information is updated daily. Because most of the catch is exported there are additional ways to control reporting of catches by checking if the reported input of raw fish is consistent with the volume of production.

The main management measure that the Directorate of Fisheries monitors is the quotas of individual fishers, catches and processing. There are cases where individual fishermen have been found to cheat through illegal landings and/or discarding. There is no reliable evidence that these violations exceed a few percentages of the TACs. The Directorate of Fisheries together with the Coast Guard monitors gear regulations and area closures. The extensive monitoring and the low number of violations observed do indicate that these rules are respected.

There are agreements between some of the coastal states on fishing in each other's EEZs and landing in foreign ports. The port has to be authorised and subject to public surveillance. All landings by Icelandic vessels in foreign ports are subject to strict rules and reporting procedures and there is a well-established and coordinated mechanism to enable port-of-landing authorities to report the landing to the relevant authorities in a timely fashion. The same is true for foreign vessels that land in Icelandic ports. The directorates of fisheries in the coastal states co-operate in the control of the landings and for accuracy in the reporting on the landings. Therefore, a **comprehensive** monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules and **SG 100 is met**.

**SIb:**

Violations of regulations are subject to sanctions which have been demonstrated to provide an effective deterrence against violations. Misreporting is subject to strict penalties. The relatively few cases of illegal landings, small estimated discarding and the number of violations of gear regulations and area closures do demonstrate that the sanctions that are in place and the high probability of being apprehended if engaging in illegal activities do form an effective deterrence.

The relatively few cases of illegal landings, small estimated discarding and the number of violations of gear regulations and area closures do demonstrate that the sanctions that are in place and the high probability of being apprehended if engaging in illegal activities do form an effective deterrence.

Sanctions to deal with non-compliance also exist in Greenland, Faroe Islands and Norway, and may lead to fines or revocation of fishing licenses therefore there is a system of sanctions consistently applied and **demonstrably** provide effective deterrence and **SG 100 is met**.

**SIc:**

There is generally a high degree of compliance with regulations. There is no significant evidence of systematic non-compliance. In cases of non-compliance, a range of penalties can be applied. A minor infringement leads to a warning and a second offence leads to temporary withdrawal of fishing licenses. Serious offenses are brought to the courts and can lead to prison sentences. Corrective actions are well established, codified, understood and tested. Amongst the information provided to management by fishers is essential logbook and VMS data, provided to the Directorate of Fisheries and to the MFRI. This information is checked through weighing of the catch (including all bycatch) in the harbour and review of VMS records. Other information in relation to the species mix/catch composition gained through sampling is further evidence of data that is provided to the management system. Therefore, There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery and **SG 100 is met**.

**Sid:**

The level of compliance is relatively high. Data from inspections at sea and those carried out at landings indicate that the number of serious infractions is relatively low. The management system in general has a



high level of legitimacy among fishers, probably because the need to manage resources through restrictions on fishing access is well understood.

Some foreign vessels land some of their catches of capelin in Icelandic harbours. The catches they land in their home countries have to be landed in special authorized harbours where their catches are weighted and reported to the Directorate of Fisheries in Iceland.

There is no common monitoring of the surveillance and monitoring system in individual states engaged in the fishery therefore There is no evidence of systematic non-compliance with the gears and **SG 80 is met.**

#### **CAB Justification After Peer Review Comments (PCDR) December 1, 2016**

##### **Sla:**

For the fishing of capelin by Icelandic vessels there exists a comprehensive monitoring, control and surveillance system. This system has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.

A comprehensive monitoring, control and surveillance system is in place, with inspections at sea and at landing sites. Also post-landing checks of reported landings against quotas are performed for each vessel. A satellite based vessel monitoring system applies to all vessels.

The Directorate of Fisheries receives logbook data and data on landings which are weighed on specially authorized and closely monitored scales. Data is transmitted electronically to the Directorate, in real time. Data on each vessel's catch and quota allowance (including all transfers of quota) is posted on the Directorate's website. This information is updated daily. Because most of the catch is exported there are additional ways to control reporting of catches by checking if the reported input of raw fish is consistent with the volume of production.

The main management measure that the Directorate of Fisheries monitors is the quotas of individual fishers, catches and processing. There are cases where individual fishermen have been found to cheat through illegal landings and/or discarding. There are no reliable evidence that these violations exceed a few percentages of the TACs. The Directorate of Fisheries together with the Coast Guard monitors gear regulations and area closures. The extensive monitoring and the low number of violations observed do indicate that these rules are respected.

There are agreements between some of the coastal states on fishing in each other's EEZs and landing in foreign ports. The port has to be authorised and subject to public surveillance. All landings by Icelandic vessels in foreign ports are subject to strict rules and reporting procedures and there is a well-established and coordinated mechanism to enable port-of-landing authorities to report the landing to the relevant authorities in a timely fashion. The same is true for foreign vessels that land in Icelandic ports. The directorates of fisheries in the coastal states co-operate in the control of the landings and for accuracy in the reporting on the landings. Therefore, a **comprehensive** monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules and **SG 100 is met.**

##### **S1b:**

Violations of regulations are subject to sanctions which have been demonstrated to provide an effective deterrence against violations. Misreporting is subject to strict penalties. The relatively few cases of illegal landings, small estimated discarding and the number of violations of gear regulations and area closures do demonstrate that the sanctions that are in place and the high probability of being apprehended if engaging in

illegal activities do form an effective deterrence.

The relatively few cases of illegal landings, small estimated discarding and the number of violations of gear regulations and area closures do demonstrate that the sanctions that are in place and the high probability of being apprehended if engaging in illegal activities do form an effective deterrence.

Sanctions to deal with non-compliance also exist in Greenland, Faroe Islands and Norway, and may lead to fines or evocation of fishing licenses therefore there is a system of sanctions consistently applied and **demonstrably** provide effective deterrence and **SG 100 is met**.

**Sic:**

There is generally a high degree of compliance with regulations. There is no significant evidence of systematic non-compliance. In cases of non-compliance, a range of penalties can be applied. A minor infringement leads to a warning and a second offence leads to temporary withdrawal of fishing licenses. Serious offenses are brought to the courts and can lead to prison sentences. Corrective actions are well established, codified, understood and tested. Amongst the information provided to management by fishers is essential logbook and VMS data, provided to the Directorate of Fisheries and to the MFRI. This information is checked through weighing of the catch (including all bycatch) in the harbour and review of VMS records. Other information in relation to the species mix/catch composition gained through sampling is further evidence of data that is provide to the management system. Therefore, There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery and **SG 100 is met**.

**Sid:**

The level of compliance is relatively high. Data from inspections at sea and those carried out at landings indicate that the number of serious infractions is relatively low. The management system in general has a high level of legitimacy among fishers, probably because the need to manage resources through restrictions on fishing access is well understood.

Some foreign vessels land some of their catches of capelin in Icelandic harbours. The catches they land in their home countries have to be landed in special authorized harbours where their catches are weighted and reported to the Directorate of Fisheries in Iceland.

There is no common monitoring of the surveillance and monitoring system in individual states engaged in the fishery therefore There is no evidence of systematic non-compliance with the gears and **SG 80 is met**.

**Peer Reviewers Analysis of CAB Response to Peer Review Comments (PI 3.2.3)**

**Not Responsive.** The CAB has not addressed the Peer Reviewers observation that: “Enforcement coverage levels, and compliance rates are not provided to demonstrate a consistent ability to enforce relevant management measures, strategies and/or rules.”

The CAB makes many assertions about enforcement and compliance, but no data are provided to document the validity of the assertions.

The post- peer review scoring justifications appear to be unchanged from the pre- peer review (see above).

**CAB’s response**

The assessment team has provided some data on the level of surveillance and number of violations and sanctions. These data come from the Directorate of Fisheries and Coast Guard. More data and two graphics

has been added to the rationale in the table to make easy the level of compliance and enforcement. The data are listed below:

In 2015, inspectors from the Directorate spent 1,370 days at sea on fishing trips and the Coastguard conducted 169 boardings.

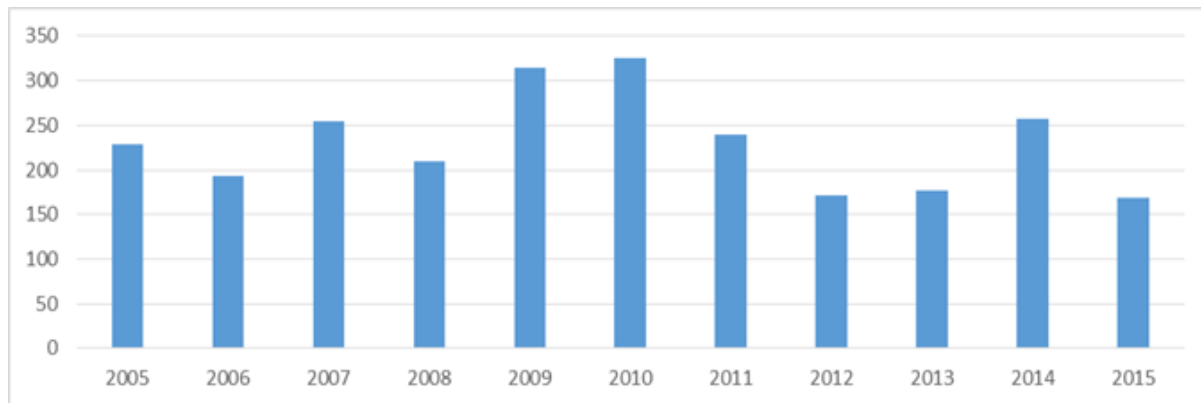


Figure 1. Coastguard boardings by year (2005 – 2015).

The main reasons for the generation of remarks during Coast Guard inspections have remained consistent across the period from 2005 to present (Figure 2); Note in this instance equipment relates to safety equipment and not to fishing gear which has a separate category.

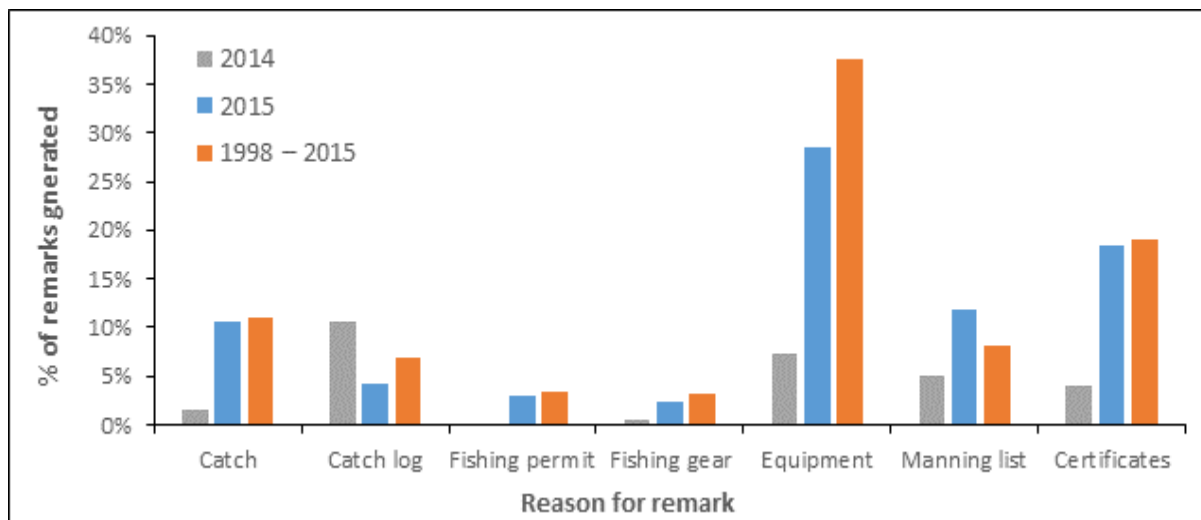


Figure 2. Reasons for the generation of remarks during Coast Guard inspections in 2014, 2015 and from 1998 – 2015.

Furthermore, most of the judgement on these issues comes from discussions with the Directorate's staff. They (and MFRI would agree) say that the compliance rates for providing log- books and the checks of log-book data against landing data are 100%. They also say by personal communications that the compliance rate for the weighing of the landings and the quota regulations for capelin is practically 100%. Compliance to the gear-regulations are also practically 100%. The main issue is the bycatch of other quota species (cod etc.) which explains the high number of landings of capelin where observers are present. It is not easy to give a number for the compliance rate for this but there are indications that it is high, possibly near 100%.

The Assessment Team conclusion of this comes from talking to the people from the Directorate of Fisheries (DoF), both during the site visit meeting with them and a number of similar meetings.

The expert on P3 has large experience and through years of communications and observations of the Icelandic fisheries the conclusion was that the rate of compliance is high. The assessment team is allowed (and indeed has to) take this kind of data (personal communications) into considerations and use them for the scoring, but the assessment team cannot provide hard evidence for these assertions. The DoF presents those data that provide officially, surveillance efforts, number of violations and sanctions.

Following the requirement to meet the scoring SG 80 and SG 100 the assessment team consider that cannot confirm that there are evidences that the rate of compliance is high and can get the scoring that was set up in the PCDR.

## 12 Appendix 4. Stakeholder submissions

AWI submission on June 8<sup>th</sup> 2016

Assessment Stage	Fishery	Date	Name of Organization
Fishery announcement and stakeholder identification	ISF Iceland Capelin	8 June 2016	Animal Welfare Institute (AWI) Attn.: Kate O'Connell

Nature of Comment
A) I wish to indicate that I am a stake holder in this fishery, please keep me informed about each stage of the assessment process
B) I wish to suggest information or documents important for the assessment of this fishery
C) I wish to suggest other individuals or organizations who should be considered stakeholders in the MSC assessment of this fishery

Additional Information/Detail
<p>A) The Animal Welfare Institute (AWI) is committed to safeguarding marine species and their habitats. Our efforts focus on curbing humankind's harmful impact by urging governments and other decision makers to halt or prevent damaging actions, as well as educating the public and seafood industry about the deleterious effects their actions can have on the oceans' inhabitants, including fisheries bycatch of non-target marine mammals species and sharks. AWI regularly participates in international fora such as CITES and IWC. The organisation also has regularly participated in the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNICPLoS), and has funded research related to the mitigation of cetacean entanglement in fishing gear. AWI has undertaken a review of North Atlantic fisheries, including Icelandic fisheries, in light of increased consumer interest in the products from these fisheries in the US and Europe.</p> <p>B) We urge the assessment team to consider the following information related to the potential for encirclement of humpback whales (<i>Megaptera novaeangliae</i>), an ETP species, in the capelin purse seine fishery. Although it appears that numbers in the North Atlantic are recovering following decades of over-exploitation by the commercial whaling industry, humpbacks are still listed on Appendix I of CITES, and are also listed as a Protection Stock (PS) by the International Whaling Commission.</p> <p>Further, investigations show that while the population of humpbacks in Icelandic waters had experienced a surge in growth from 1986 to 2001, more recent research seems to show that from 2001 to 2007 there was little or no growth in population</p>



size, and that the population size may have reached a plateau.

Pike, D.G., Gunnlaugsson, T., Víkingsson, G.A., Desportes, G., and Mikkelsen, B. (2010) Estimates of the abundance of humpback whales (*Megaptera novaeangliae*) from the T-NASS Icelandic and Faroese ship surveys conducted in 2007. IWC/SC/62/O13.

A significant number of humpback whales frequent Icelandic waters, and more than 300 individual humpback whales have been photo-identified since 2001; the information is catalogued by the Húsavík Whale Museum and the Rannsóknasetur Háskóla Íslands (see [http://rannsoknasetur.hi.is/photo\\_identification\\_project](http://rannsoknasetur.hi.is/photo_identification_project)). These photos can often provide evidence of entanglement in fishing gear.

A 2010 assessment for the IFFO indicated that there was "some evidence that on average 1-2 Humpback whales are caught each year in Capelin Purse seine nets" and that "[s]ome reports have stated that as many as 5 whales may have been caught."

Pratt, Mike (2010) IFFO Fishery Assessment Report Issue No; 3, Iceland-E.Greenland-Jan Mayen Subareas V and XIV and Division IIa west of 5W; Global Trust Certification Ltd, Dundalk, Co. Louth, Ireland.

A second, more in-depth report from 2014 refers to the "prominence of humpbacks interacting with capelin purse seines" and suggests that, "this may be one of the more significant issues in Iceland." The paper notes that although the whales can often be freed from the nets, or the nets tear thus allowing the whales to swim free, that "entanglement studies may not be including interactions with seine nets even though this could still have detrimental consequences for the whale."

The same study notes that capelin is one of the major prey species for North Atlantic humpback whales, and that "whales are known to congregate where prey abundance is high (Johnson and Wolman, 1984), which suggests that there could be a higher probability of humpbacks being incidentally caught in capelin seine nets while they are feeding in Icelandic waters in areas with significant fishing activity."

Basran, Charla (2014) Scar-based analysis and eyewitness accounts of entanglement of humpback whales (*Megaptera novaeangliae*) in fishing gear in Iceland  
45 ECTS thesis submitted in partial fulfilment of a Master of Resource Management degree in Coastal and Marine Management at the University Centre of the Westfjords, Degree.

Studies in other oceans on a variety of cetacean species indicate that encirclement by purse seine nets –even if an animal is released alive -- can impact physiology, negatively impacting immune systems, feeding and other behaviors.

There are dozens of anecdotal accounts of humpback interactions with capelin fisheries in Icelandic media; some of these are referenced in the Basra papers.

Examples of additional articles are as follows:

In a November 1988 article, Ilmari Þórarinnsson, a skipper on board a capelin vessel, mentioned numerous interactions with humpback whales (as well as a "larger whale") that involved encirclement of the whales. In some cases the whales were released by lowering the net and in others, the nets were torn. The title of the article indicated that whales were being encircled "every night". "Loðnuveiðamar: Skipin fá stórhveli í nótna á hverri nóttu". Morgunblaðið 29.11.1988.

In December of 1988, an article again referred to the presence of humpback whales on the capelin fishing grounds, and that "up to four whales a night" have been encircled by the nets. "Loðna: Hvalafjöld ógnar veiðum". Þjóðviljinn. 10.12.1988.

In 1989, there was a reference to a large number of humpbacks on the capelin grounds off Kolbein Island. "Stór loðna suður af Kolbeinsey", Morgunblaðið 02.11.1989.

In August of 1993, it was noted that it was common for two to three whales a night to be encircled in the capelin purse seine fishery. "Loðnan dreifðari: Loðnugöngur fyrir Vestur- og Norðurlandi". Morgunblaðið 14.08.1993.

In February 1995, an article noted two vessels having encircled humpback whales while capelin fishing (the Þórður Jónasson EA and the Beitir NK). In one case, the net was lowered and the whale freed, and in another the whale became entangled and then broke the net to get free. "Loðnuskipið Þórður Jónasson EA: Hnúfubakur skemmdi nótna". Morgunblaðið 17.02.1995.

A November 1995 article refers to the presence of humpback whales on the capelin grounds and the fact that they are encircled; the article notes the presence of "strong currents" as also being problematic. "Hvalir og sterkur straumur að angra Sjómennina". Dagur. 29.11.1995.

A July 1998 article again refers to the presence and encirclement of humpback whales on the capelin fishing grounds, this time to the north of Húnaflóa. Also contains a reference to the presence of orcas. "Veiðisvæði loðnu norður af Húnaflóa". Dagur. 08.07.1998.

A 2002 article featured an interview with Kristján Loftsson, in which he stated that he had been speaking with a number of capelin skippers during a fisheries exhibit and that "out of 50 times a net was cast, 40 involved humpbacks" "Sumir eru hræddir við drauga". Dagblaðið Visir, 12.09.2002.

A January 2005 article noted the presence of humpback whales on the capelin fishing grounds east of Langanesi, and referenced the fact that whale encirclements did occur, with some net damage incurred. "Hnúfubakur á miðunum". Frettablaðið. 15.01.2005.



On December 13, 2012, the HB Grandi company posted an article on their website "Tveir til þrír hnúfubakar í nóttinni í einu!". The article noted that the skipper of the HB Grandi vessel Lundey reported a large number of humpback whales on the capelin grounds to the north of Vestfirðir. The seine nets were said to tear on at least four or five occasions" after humpbacks had been encircled, with the fact that sets were taking place at night "making it difficult to avoid the whales".

<http://www.hbgrandi.is/frettir/frett/2012/12/13/Tveir-til-thrir-hnufubakar-i-notinni-i-einu>

In light of the recent changes to the MSC assessment process, and the need to consider cumulative impacts of fisheries in the area, AWI also draws attention to a study that indicated that "[i]n total, 19 out of 44 (43.2%) humpback whales sampled at Iceland had a high likelihood of prior entanglement" while an additional fifteen humpbacks (34.1%) had one or more injuries that could have been entanglement-related, but the evidence was inconclusive. Five (11.4%) showed unhealed injuries indicative of a recent entanglement event, including one individual from with monofilament still embedded in the wound.

The paper concluded that the results "suggest that humpback whales off Iceland have an entanglement rate approaching that of humpback whales in the Gulf of Maine, where entanglement is of known management concern" and recommended additional research to clarify the magnitude and impact of entanglement on this population.

Bertulli, C.G., Cecchetti, A., Bárðarson, H. and Robbins, J. ( 2011). First assessment of entanglement rate among North Atlantic humpback whales (*Megaptera novaeangliae*) off Iceland. Poster presented to the 2011 Biennial Meeting of the Society for Marine Mammalogy, Tampa, FL.

The Basra paper cited above also raises concerns for entanglement of humpback whales in other fishing gear off Iceland. A survey of fishermen conducted for the report yielded the finding of "6 eye-witness entanglement accounts involving humpbacks interacting with a variety of fishing gear including seine nets, hook-and-line gear, and gillnets."

Again, there have been anecdotal accounts of humpbacks entangled in fishing gear, for example a whale that was freed by the Coast Guard in 2014

<http://grapevine.is/news/2014/08/28/humpback-whale-saved-from-netting-video/> and another freed –likely from lumpfish gillnet gear -- in August of 2015 <http://icelandmag.visir.is/article/humpback-faxaflói-bay-rescued-fishing-nets-teams-iceland-uk-and-usa>

AWI wishes to draw the attention of the team to the fact that the International Whaling Commission (IWC) recognizes that cetacean entanglement in fishing gear is a growing problem, and now offers capacity building for entanglement responses. The training includes information on data collection and prevention as well as safe-release practices that seek to minimize danger to fishers, as well as improving the possibility of a live release for whales (see <https://iwc.int/entanglement> ). The IWC was involved in the successful release attempt of the humpback in 2015

[http://icelandmonitor.mbl.is/news/nature\\_and\\_travel/2015/08/15/humpback\\_whale\\_rescue\\_underway/](http://icelandmonitor.mbl.is/news/nature_and_travel/2015/08/15/humpback_whale_rescue_underway/)

C) There are a number of cetacean experts and stakeholders in Iceland whom we believe should be contacted by assessment team. While it is expected that the team will contact researchers at the Marine Research Institute, we would especially recommend contacting whale expert Dr. Gísli Víkingsson ([gisli@hafro.is](mailto:gisli@hafro.is)).

We also suggest that the team contact IceWhale, the Icelandic Whale Watching Association. Many IceWhale members have created a platform for marine biologists and university students conducting both short and long term studies. The main emphasis has been on photo identification but also dive time and habitat studies, as well as assessments of fishing impacts. Maria Björk Gunnarsdóttir, secretary of Elding, can be contacted at [info@icewhale.is](mailto:info@icewhale.is)

Finally, Dr. Marianne Helene Rasmussen of the Húsavík Research Center/University of Iceland is an expert on marine mammal science. She can be reached at [mhr@hi.is](mailto:mhr@hi.is)

**SAI Global acknowledgment of AWI submission on June 8<sup>th</sup> 2016****Virginia Polonio**

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**From:** Jean Ragg  
**Sent:** 09 June 2016 16:36  
**To:** 'Kate O'Connell'  
**Subject:** RE: MSC assessment of the ISF Iceland Capelin Fisheries

Dear Kate,

Thank you for your submission.

I have added you to our stakeholder list and forwarded your submission to the assessment team.

Kind Regards,  
Jean

Kind Regards,  
**Jean Ragg**

Fisheries & Aquaculture Administrator  
**SAI Global / Global Trust Certification**  
Quayside Business Park, Mill Street  
Dundalk, County Louth, Ireland  
**T:** +353 (0) 42 9320912  
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Creating Trust in a Complex World

**SAI Global response to AWI submission on June 8<sup>th</sup> 2016****Virginia Polonio**

**From:** Virginia Polonio  
**Sent:** 22 September 2016 17:22  
**To:** 'kate.oconnell@balaena.org'  
**Subject:** ISF Capelin Fishery -MSC Certification

Dear kate,

I am Virginia Polonio assessor form SAI Global and team leader of the assessment team of ISF Capelin Fishery.

I appreciated the email you sent to our administrator programme few months ago when the announcement of the fishery was done.

As we answered you, you were included as stakeholders in the fishery and the reason of this email is to advice you that all the references you submitted were consulted and as you proposed, a meeting with Maria Bjork was carried out and you will consulted in the report.

The personal meetings with Dr. Gisli Vikingsson, Charla Barsnan and Dr. Marianne Helene Rasmussen were not possible due to the schedule but information by email was shared.

All this data have been consulted during the scoring of this fishery and it could be consulted during the public consultation at the stage of the certification: "public comment draft report,( PCDR)

This report is expected to be posted on MSC website next November 2016. As stakeholder, an email will be sent to notify the publication of this report.

Please any question do not hesitate to contact me.

Kind regards,  
**Virginia Polonio, Ph.D**  
Fisheries Technical Officer  
**SAI Global / Global Trust Certification**  
Quayside Business Park, Mill Street  
Dundalk, County Louth, Ireland  
**T:** +353 (0) 42 9320912  
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Creating Trust in a Complex World



## Birdlife submission- Pre-site visit (June, 2016)

### Pre-Site Visit Submission to SAI Global

#### Marine Stewardship Council Assessment of ISF Iceland Capelin Fishery

#### BirdLife International and Fuglavernd Islands

Many thanks to the assessment team at SAI Global for the opportunity to submit comments on the assessment of the Icelandic Capelin Fishery under the Marine Stewardship Council (MSC) certification scheme. Iceland is internationally important for its seabird populations, and as such, BirdLife International and Fuglavernd have been closely involved in various MSC assessments. We are keen to maintain helpful input into the assessments of fisheries that may have impacts on seabirds, either through direct effects like bycatch, or indirect effects through prey depletion. Unfortunately, we are unable to send a representative to the site visit meetings, but are willing to elaborate on/discuss any of the points raised in this submission.

#### Background

Forage fish like capelin play a vital functional role in marine food webs by facilitating the flow of energy from the plankton up to the higher trophic levels occupied by larger fish, marine mammals and seabirds. Stock depletion by lower trophic level (LTL) fisheries has been identified as a key factor in seabird declines across the globe, including capelin in Norway (Gjøsester et al., 2009), sandeels in the North Sea (Furness, 2002), anchoveta on the Humboldt Current (Muck & Pauly, 1987; Tovar et al., 1987) and sardines in South Africa (Crawford et al., 2011). In an attempt to mitigate against such collapses and other negative ecosystem effects of overexploitation, several authors have proposed catch limits more precautionary than Maximum Sustainable Yield for forage fisheries (Cury et al., 2011; Pikitch et al., 2012), including work which has directly informed MSC's certification requirements (Smith et al., 2012).

Lilliendahl and Solmundsson (1997) highlighted that capelin are the primary prey source for breeding seabirds in northern Iceland. It is therefore vital that the CAB give due attention to the potential impacts of capelin depletion by the fishery on dependent seabirds, which are reliant on this prey to raise chicks.

#### MSC Criteria and key LTL stocks

We consider capelin to be a key LTL stock under MSC's criteria, as it is an *Osmerid* fish and '(i) a large proportion of the trophic connections in the ecosystem involve this stock, leading to significant predator dependency; (ii) a large volume of energy passing between lower and higher trophic levels passes through this stock.' (from MSC's Certification Requirements)

Point (i) is particularly the case for seabirds in the north of Iceland, as noted above. Stomach contents analysis of several species shows that capelin are a major constituent of the diet - over 90% for common guillemots, razorbills and kittiwakes across northern Iceland, and for Atlantic puffins and Brünnich's guillemots in northeast Iceland (Lilliendahl and Solmundsson, 1997). Further south, sandeels form a more substantial part of the diet, though capelin remain an important proportion for some species (Lilliendahl and Solmundsson, 1997). As regards point (ii), Vilhjalmsen (2002) notes that, in the early 1990s, an estimated 2.1-3.4 million tonnes of

capelin was removed annually by predators in the Iceland-East Greenland-Jan Mayen ecosystem, and that reduced capelin abundance was correlated with reduced cod weights. Of this annual total predator removal of capelin, 350,000t per year was attributed to seabird summer feeding (Vilhjalmsson, 2002). Overall, predator dependency on capelin is high in Iceland, including for commercially important species like cod. Therefore, we believe it is appropriate for the CAB to assess capelin as a key LTL stock under Performance Indicator 1.1.1A (scoring issue (b)), ensuring that the default biomass target level is consistent with ecosystem needs (i.e. 75% of unfished spawning stock biomass) or that abundance levels of other trophic groups is not substantially impacted by the fishery.

#### *Icelandic seabird population status*

Icelandic seabirds are experiencing a period of sharp decline (see Table 1 below - used with permission from Gardarsson et al. (Gardarsson et al. In print) and Hansen & Sigurdsson submitted (for Puffin)). These severe declines, particularly those in Iceland, have resulted in the recent uplisting of Atlantic Puffin to 'Endangered' on the IUCN global Red List (IUCN, 2015a) and kittiwake to 'Vulnerable' on the IUCN European Red List (IUCN, 2015b), making them eligible for consideration as ETP species potentially impacted by this fishery.

Spp.	1983-1985	2006-2008	% change	% change /year
Brunnich Guillemot	579000	327000	-43.6	-1.7
Common Guillemot	992000	698000	-29.7	-1.2
Razorbill	378000	313000	-17.2	-0.7
Fulmar (partial count)	312000	203000	-35	-1.4
Kittiwake	651000	581000	-10.8	-0.4
Puffin 2002-2015	3500000	1961000	-44	-3.4

*Table 1. Icelandic seabird breeding population figures, from Gardarsson et al. (Gardarsson et al. In print) and Hansen & Sigurdsson submitted.*

Climate change has been proposed as a key driver of these declines, which are thought to be impacting plankton and capelin populations alike (Palsson et al., 2012), and the additional mortality incurred by the fishery (and potential knock-on effects through ecosystem) need to be viewed in this context.

#### *Status and management of Icelandic capelin*

ICES has previously criticised management of the Icelandic capelin stock as not sufficiently precautionary - this in the context of 11 years of poor stock recruitment (Marine Research Institute, 2015). A new Harvest Control Rule was developed and ICES deemed this to be sufficiently precautionary in January 2015 (Marine Research Institute, 2015). However, the status of this species as a key LTL stock under the MSC criteria, and the conservation status of dependent seabirds, warrants careful consideration under not just Principle 1 requirements (as noted above), but also under ETP Performance Indicators 2.3.1, 2.3.2 and 2.3.3, to ensure that the capelin stock is being exploited without impacting dependent seabird populations.

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**BirdLife International – Submission to PCDR report on December 5<sup>th</sup> 2016**

<b>Contact Information</b> Make sure you submit your full contact details at the first phase you participate in within a specific assessment process. Subsequent participation will only require your name unless these details change.			
Contact Name	First <b>Rory</b>		Last <b>Crawford</b>
Title	Mr.		
On behalf of (organisation, company, government agency, etc.) – if applicable			
Organisation	Please enter the legal or registered name of your organisation or company. <b>BirdLife International/Fuglavernd Islands</b>		
Department	<b>Marine Programme</b>		
Position	Please indicate your position or function within your organisation or company. <b>Programme Manager</b>		
Description	Please provide a short description of your organisation. BirdLife International are a global Partnership of independent organisations working together as one for nature and people. The overarching objectives of the Marine Programme are: • Promote the collaborative international action that is vital to arrest seabird declines • Advocate for the conservation of seabirds at national, regional and global levels • Work directly with fishermen and other stakeholders to reduce seabird bycatch and other threats to seabird populations BirdLife is also a member of the MSC's Stakeholder Council		
Mailing Address, Country	c/o RSPB, The Lodge, Pottton Road, Sandy, Bedfordshire. SG19 2DL		
Phone	Tel	+ 44 (0)141 331 9801	Mob + 44 (0)7739 921 489
Email	rory.crawford@rspb.org.uk		Web www.birdlife.org/marine

<b>Assessment Details</b>	
Fishery	ISF Iceland Capelin Fishery
CAB	SAI Global

Performance Indicator	Nature of Comment Indicate relevant code(s) from list above.	Justification Please support your comment by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.
PI 1.1.1A	1,2	<p>The fishery is deemed by the CAB to have met SG100 for 1.1.1Aa, on the basis that the biomass limit reference point for the fishery is set at 150,000t, taking into account a predation model that accounts for capelin consumption required for cod, haddock and saithe. However, this would apparently neglect to account for the requirements of seabirds, with several species dependent on capelin, particularly in the north/northeast of Iceland (over 90% of the diet for several species, including the globally threatened Atlantic Puffin (Lilliendahl and Solmundsson, 1997)). In the early 1990s, an estimated 2.1-3.4 million tonnes of capelin was removed annually by predators in the Iceland-East Greenland-Jan Mayen ecosystem. Of this annual total predator removal of capelin, 350,000t per year was attributed to seabird summer feeding (Vilhjalmsson, 2002). With the SSB considered to sit at 304,000t, it is difficult to see that the existing limit reference point is taking adequate account of the full ecosystem needs - particularly in the context of recent catastrophic declines in Icelandic breeding seabird populations, related to prey availability. Consumption of capelin by marine mammals needs to be properly considered here too.</p> <p>Given this context, we believe this scoring issue has been significantly overscored, and should, at best, receive a sub-80 score, at very least receiving a condition to gain a more contemporary understanding of the state of the stock relative to ecosystem requirements.</p> <p>The fishery is also deemed by the CAB to have met SG80 (but not SG100) for 1.1.1Ab, with similar justification to the SG100 score for 1.1.1Aa. The points made above are again relevant here - existing ecosystem models do not appear to take account of the needs of dependent predators. In the case of seabirds, several species, including globally and regionally threatened species, are in a state of severe decline related to low prey availability, and additional removals from the prey base need to be considered properly. We argue that the stock is not at a level that is consistent with ecosystem needs, as the declines of several capelin predator species would infer - between the early 80s and mid 2000s there has been a: 44% decline in Brunnich's guillemot; 30% decline in common guillemot; 44% decline in Atlantic puffin (this decline from 2002-2015); 11% decline in kittiwake (see our site visit submission, Gardarsson et al. in print). 'Ecosystem needs' are considered by MSC to be 75% of the unfished spawning stock biomass, though this figure is not referenced at all in the PCDR (alternatively, the abundance level of other trophic groups should not be impacted by the fishery). By both measures, it is not possible to determine whether the stock is at a level that is consistent with ecosystem needs, given the breeding failure of several seabird species noted above.</p> <p>Therefore the fishery does not meet SG80 for 1.1.1Ab.</p> <p>Overall, 90 represents a significant overscore for this Performance Indicator, as ecosystem needs (beyond commercial fish predators) have not been properly considered in stock management.</p>
PI 1.2.1	1,2	<p>The points raise above have relevance to whether the harvest strategy fully incorporates proper objectives to account for the predation of seabirds and marine mammals - this should be considered here and scores adjusted accordingly.</p>

Performance Indicator	Nature of Comment Indicate relevant code(s) from list above.	Justification Please support your comment by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.
PI 1.2.2	1,2	As above, SG80 is not met for 1.2.2a as ecosystem needs have not been adequately accounted for.
PI 1.2.3	1,2	In addition to cetaceans (noted under 1.2.3b), there is not sufficient information collected to assess impacts on capelin-dependent seabirds.
PI 2.3.1, 2.3.2, 2.3.3, 2.2.X	1,2	<p>No seabirds have been considered under ETP species, in spite of the fact that Atlantic Puffin is globally threatened (Vulnerable globally, Endangered in Europe) and kittiwakes are 'Vulnerable' on the IUCN European Red List. Both species take capelin as prey (in varying quantities depending on their breeding site - can be over 90% in the north of Iceland - and indirect effects on these birds need to be considered under 2.3.1c. Further, other seabirds not considered ETP, but still dependent on capelin (i.e. Common and Brünnich's Guillemots, Razorbills) need to be considered under 2.2 performance indicators. Given the uncertainties noted above, it is likely that inclusion of seabirds will reduce the overall PI score, and infers the need for further data collection and analysis to understand what ecosystem needs are, and what the impact of the fishery is on ETP and non-ETP birds and cetaceans - at present, this impact is not understood or quantified, and could be hindering recovery of both taxa around Iceland. Conditions placed on the fishery could help to resolve this.</p> <p>Additionally, there are issues with the scoring for monitoring under the justification for PI 2.3.1.b. Given that monitoring appears to be largely dependent on submission of log-books, it seems over-reaching to assert that "<i>the fishery is highly unlikely to create unacceptable impacts for any ETP populations</i>". (Also logbook compliance with such reporting is not mentioned on p. 156 (PI 3.2.3)). Scoring of this PI should either be lowered or justified with appropriate evidence.</p>

Comment	Nature of Comment	Justification <small>Please attach additional pages if necessary.</small>
<input checked="" type="checkbox"/> I wish to comment on the adequacy of the consultation process used to gather information about this fishery (e.g. related to the RBF process, selection of stakeholders consulted, etc.).	1	<p>BirdLife submitted evidence to SAI Global before the site visit covering many of the general points listed above. Unfortunately, our submission has not been included in the PCDR and there is no evidence that it has been considered in the drafting of the report - seabirds are mentioned only once in the entire report. This is in spite of the importance of Iceland for this group of birds, and the reliance of many species on capelin, particularly in the north of the country. It is disappointing that at this late stage we are having to re-make fundamental points about the interaction between lower trophic level fisheries and seabirds, which are well established, and part of the reason that MSC put in place requirements on 'key' LTL species.</p>

Comment	Nature of Comment	Justification <small>Please attach additional pages if necessary.</small>
<input checked="" type="checkbox"/> I wish to comment on other portions of the report (e.g. background information, species biology, peer review reports and CAB responses, list of consultees, etc.).	4	<p>There are various issues with the content of the report itself, outside of the scoring issues. These are listed below:</p> <p>P. 9 (3.4) - <i>"The fishery should be more proactive to obtain quantitative data of ETP species and the interactions with the whales to meet SG100"</i> (see also p. 10, rec 2: <i>"... the fishery should be more proactive in reporting all interactions with ETPs"</i>).</p> <p>'should be more proactive' is a strange way of putting it—is this a vague wishlist/firm directive/condition? The action needs to be clarified and strengthened here.</p> <p>P. 13 (4.2.1) – No mention of the ecological importance of capelin to seabirds here (only to piscivorous fish), though this is (minimally) rectified on p 31 (4.3.4) – the only mention of seabirds in the PCDR. (The issue of ecological importance also picked up by peer reviewer on p, 172).</p> <p>P. 26 (4.3.2.5) - <i>"Since 1979 a Biomass escapement reference point of 400,000 t had been used for management of this stock."</i> It's not clear from this if the same escapement level applies now. But if it is, is it consistent with the MSC's own guidance for LTL species and also with statement on p. 150 that <i>"The biological reference points used in the setting of the TAC for target and main retained species are explicit and consistent with the outcomes expressed by MSC's Principle 1 and 2"</i>?</p> <p>Pp. 45-49 (4.4.3) - No mention of seabirds here</p>



**SAI Global response to BirdLife International – Submission on PCDR report on December 5<sup>th</sup> 2016**

December 22<sup>nd</sup> 2016

Rory Crawford  
Programme Manager  
BirdLife International/Fuglavernd Islands  
C/O RSPB, The Lodge, Potton Road, Sandy, Bedfordshire. SG19 2DL  
United Kingdom

*Re: ISF Iceland Capelin PCDR-formal submission pre and post site visit.*

Dear Rory,

The assessment team appointed to conduct the MSC full assessment of the ISF Iceland Capelin Fishery has reviewed your submission and discussed the concerns you have raised in relation to the LTL key species and the impacts on ETP species and particularly to seabirds. We do take your concerns seriously and would like to make the following responses.

~ **Submission made on June 2016**

**Submission to SAI Global  
Marine Stewardship Council Assessment of ISF Iceland Capelin Fishery  
BirdLife International and Fuglavernd Islands**

Many thanks to the assessment team at SAI Global for the opportunity to submit comments on the assessment of the Icelandic Capelin Fishery under the Marine Stewardship Council (MSC) certification scheme. Iceland is internationally important for its seabird populations, and as such, BirdLife International and Fuglavernd have been closely involved in various MSC assessments. We are keen to maintain helpful input into the assessments of fisheries that may have impacts on seabirds, either through direct effects like bycatch, or indirect effects through prey depletion. Unfortunately, we are unable to send a representative to the site visit meetings, but are willing to elaborate on/discuss any of the points raised in this submission.

*Background*

Forage fish like capelin play a vital functional role in marine food webs by facilitating the flow of energy from the plankton up to the higher trophic levels occupied by larger fish, marine mammals and seabirds. Stock depletion by lower trophic level (LTL) fisheries has been identified as a key factor in seabird declines across the globe, including capelin in Norway (Gjøsæter et al., 2009), sandeels in the North Sea (Furness, 2002), anchoveta on the Humboldt Current (Muck & Pauly, 1987; Tovar et al., 1987) and sardines in South Africa (Crawford et al., 2011). In an attempt to mitigate against such collapses and other negative ecosystem effects of overexploitation, several authors have proposed catch limits more precautionary than Maximum Sustainable Yield for forage fisheries (Cury et al., 2011; Pikitch et al., 2012), including work which has directly informed MSC's certification requirements (Smith et al., 2012).

Lilliendahl and Solmundsson (1997) highlighted that capelin are the primary prey source for breeding seabirds in northern Iceland. It is therefore vital that the CAB give due attention to the potential impacts of capelin depletion by the fishery on dependent seabirds, which are reliant on this prey to raise chicks.

#### *MSC Criteria and key LTL stocks*

We consider capelin to be a key LTL stock under MSC's criteria, as it is an Osmerid fish and

'(i) a large proportion of the trophic connections in the ecosystem involve this stock, leading to significant predator dependency; (ii) a large volume of energy passing between lower and higher trophic levels passes through this stock.' (from MSC's Certification Requirements)

Point (i) is particularly the case for seabirds in the north of Iceland, as noted above. Stomach contents analysis of several species shows that capelin are a major constituent of the diet - over 90% for common guillemots, razorbills and kittiwakes across northern Iceland, and for Atlantic puffins and Brünnich's guillemots in northeast Iceland (Lilliendahl and Solmundsson, 1997). Further south, sandeels form a more substantial part of the diet, though capelin remain an important proportion for some species (Lilliendahl and Solmundsson, 1997). As regards point (ii), Vilhjalmsen (2002) notes that, in the early 1990s, an estimated 2.1-3.4 million tonnes of capelin was removed annually by predators in the Iceland-East Greenland-Jan Mayen ecosystem, and that reduced capelin abundance was correlated with reduced cod weights. Of this annual total predator removal of capelin, 350,000t per year was attributed to seabird summer feeding (Vilhjalmsen, 2002). Overall, predator dependency on capelin is high in Iceland, including for commercially important species like cod. Therefore, we believe it is appropriate for the CAB to assess capelin as a **key** LTL stock under Performance Indicator 1.1.1A (scoring issue (b)), ensuring that the default biomass target level is consistent with ecosystem needs (i.e. 75% of unfished spawning stock biomass) or that abundance levels of other trophic groups is not substantially impacted by the fishery.

#### *Icelandic seabird population status*

Icelandic seabirds are experiencing a period of sharp decline (see Table 1 below - used with permission from Garðarsson et al. (Gardarsson *et al.* In print) and Hansen & Sigurðsson submitted (for Puffin)). These severe declines, particularly those in Iceland, have resulted in the recent uplisting of Atlantic Puffin to 'Endangered' on the IUCN global Red List (IUCN, 2015a) and kittiwake to 'Vulnerable' on the IUCN European Red List (IUCN, 2015b), making them eligible for consideration as ETP species potentially impacted by this fishery.

*Table 1. Icelandic seabird breeding population figures, from Garðarsson et al. (Gardarsson et al. In print) and Hansen & Sigurðsson submitted.*

<b>Spp.</b>	<b>1983-1985</b>	<b>2006-2008</b>	<b>% change</b>	<b>% change/year</b>
Brunnich Guillemot	579,000	327,000	-43.6	-1.7
Common Guillemot	992,000	698,000	-29.7	-1.2
Razorbill	378,000	313,000	-17.2	-0.7
Fulmar (partial count)	312,000	203,000	-35	-1.4
Kittiwake	651,000	581,000	-10.8	-0.4
Puffin 2002-2015	3,500,000	1,961,000	-44	-3.4

Climate change has been proposed as a key driver of these declines, which are thought to be impacting plankton and capelin populations alike (Pálsson et al., 2012), and the additional mortality incurred by the fishery (and potential knock-on effects through ecosystem) need to be viewed in this context.

#### *Status and management of Icelandic capelin*

ICES has previously criticised management of the Icelandic capelin stock as not sufficiently precautionary - this in the context of 11 years of poor stock recruitment (Marine Research Institute, 2015). A new Harvest Control Rule was developed and ICES deemed this to be sufficiently precautionary in January 2015 (Marine Research Institute, 2015). However, the status of this species as a key LTL stock under the MSC criteria, and the conservation status of dependent seabirds, warrants careful consideration under not just Principle 1



requirements (as noted above), but also under ETP Performance Indicators 2.3.1, 2.3.2 and 2.3.3, to ensure that the capelin stock is being exploited without impacting dependent seabird populations.

#### **Assessment team's response**

As indicated by Birdlife International in their submission IGJM Capelin is clearly a KEY LTL species in the context of the MSC Criteria. As a consequence the Team has scored Principle 1 using Performance Indicator 1.1.1A.

During the assessment, the team has reviewed the reports from The ICES Assessment Working Group and the most recent Benchmark assessment (WKICE 2015, ICES Advice on fishing opportunities, catch, and effort Greenland Sea and Iceland Sea Ecoregions 2016) consider the main predators on Capelin in this ecosystem to be the voracious piscivores Cod, Haddock and Saithe whilst recognising that they also form an important food source for Seabirds and Cetaceans.

The assessment team considers that the management of this stock is strongly driven by the ecosystem needs as the main priority prior to any allocation of surplus production to a fishery. This is addressed by a very sophisticated modelling procedure (ICES, 2015) which is used to set an initial and final TAC. Sometimes the initial TAC is set at a precautionary zero as dictated by ecosystem needs until a later (summer) survey is conducted to confirm, the abundance of capelin. From our review, the model mainly addresses the requirements of the main predators, the biomass limit level clearly addresses all ecosystem needs in ensuring an adequate spawning biomass (ICES, 2016).

Since Birdlife submission, the assessment team has recognised that, whilst the management of this stock does address ecosystem needs in a precautionary way, there are still information gaps which should be investigated in order to improve the model on which the Harvest Control Rule is based.

The assessment team has included a Recommendation against PI 1.2.2 related to Cetaceans. In consideration of the submission by Birdlife International we have now added an additional Recommendation linked to both PI 1.2.1 and 1.1.1A and made a change to the scoring rationale for these PI's. Recommendations listed in the report as follows (from the PCDR):

#### **Recommendation 1:**

##### **1.2.2. – Harvest Control Rules and tools**

There is a potential element of natural mortality which is not fully accounted in the stock assessment and management process. Marine mammal abundance and its coincidence with the seasonal migration and distribution of capelin should be further investigated in particular during the winter spawning migration of capelin. Those investigations should include a thorough investigation of the level of dependence by whales on capelin as a source of food.

If appropriate the results should be incorporated into the existing predation model which currently only includes predation by cod, saithe and haddock.

This investigation should provide a precautionary estimation of natural mortality and help to eliminate areas of uncertainty in the predictive models.

#### **Recommendation 2:**

##### **2.3.3. – ETP species information**

The assessment team found that the fishery does not have a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species. While there are no reports of direct mortality of whales due to

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the Capelin fleet, injuries by the gear are reported and several studies are carried out to know more about this (Barscan, 2014). Scientists at MFRI have provided comments that there is interaction with whales and Icelandic fisheries. There is a system for reporting interactions and this is reviewed in the scoring rationales for PI 2.5.3 ETP Information. The team is satisfied that the ETP outcomes achieves an 80 score but makes a recommendation to the client to support methods that promote proactive reporting of whale interactions specific to capelin. Regarding seabirds, research into the distribution of the breeding areas and the possible overlap with the fishery could better inform management of these species and support the development of the estimation models.

In support of this, methods to support proactive reporting all interactions, direct and indirect, with ETPs should be considered.

#### Recommendation 3:

##### ***General recommendation on key LTL species and their relation with ETPs:***

Whilst the assessment modelling procedure on which the Harvest Control Rules are based does take into account the 'main' predators there are elements of known predation on capelin which are not fully considered in the management of this stock.

One element which should be considered within the model is the predation on capelin by seabirds. Organisations such as Birdlife International may have information which could be used in this way. For example, stomach contents analysis of the consumption of capelin by seabirds in the north of Iceland. This could be used together with their knowledge of seabird population numbers to estimate the likely take, and thus the ecosystem requirements of seabirds, of capelin. Investigation into the overlap of seabird populations with seasonal spatial distribution of capelin would also be useful. Where appropriate, these data could then be considered by the ICES assessment working group for incorporation into the current modelling procedure for cod, haddock and saithe. This would then add a further element of precaution into the annual TAC setting procedure.

The assessment team has documented these overall recommendations in principles 1 and principles 2.

#### Recommendation 4:

##### ***General recommendation for the fishery regarding LTL species***

The client should liaise with Birdlife International and scientists at the Marine Research Institute in Reykjavik and encourage both parties to address this issue. They should ensure that predation on IGJM capelin by seabirds is properly quantified and if appropriate incorporated into the assessment modelling procedure on which the Harvest Control rules are based

#### **New scoring-PI 1.1.1A**

##### **Scoring issue (a)**

A biomass limit reference point is set at 150,000t which is a precautionary B loss, based on observations that the recruitments generated around this limit level (cohorts, 1981, 1982 and 1990) were of average strength and that average recruitment did not appear to decline at low SSB over the observed range. In setting this limit level, and managing exploitation, the role of capelin as a key forage species in the Icelandic ecosystem has been taken into account through a predation model which assesses the requirements of the three main demersal predator species, cod, haddock and saithe. The SSB estimated at spawning time in 2016 was 304,000t and it is therefore highly likely (80% probability) that the stock is above a point where serious ecosystem impacts could occur. However the basic biology of this short lived species, the potential for variable recruitment and the unquantified predation by cetaceans and seabirds means that the more

rigorous requirements of a high degree of certainty (95% probability) that the stock is above a point where serious ecosystem impacts could occur (SG 100) are not fully met.

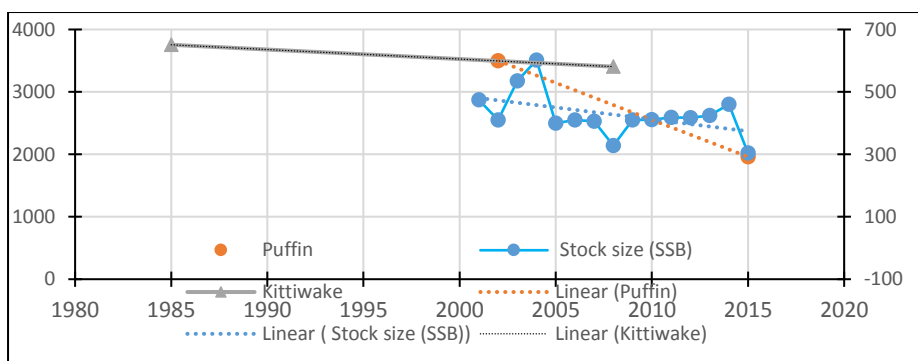
#### PI 1.2.1

##### Scoring issue (b)

This harvest strategy is considered by ICES to be precautionary. The permitted exploitation level is determined annually and adjusted throughout the fishing season with initial, intermediate and final TACs. Harvesting the surplus in this way is clearly secondary to the ecosystem needs for capelin as an important forage species. This is achieved through the predation model and careful acoustic monitoring of stock status before any exploitation is sanctioned. The current level of SSB at over two times a biomass limit level and average recruitment over the past two years provides evidence that the strategy is achieving its objectives. Some elements of the harvest strategy, including defining a biomass limit level, have only been operational for a short time and are not yet fully evaluated. Once the new harvest control rule has been operational for a few years ICES recommends that assumptions and practical operation should be evaluated. Furthermore there is an unquantified degree of predation on capelin by whales and seabirds. Although these elements are considered to be seasonal and may not be significant it would nevertheless be useful if these elements of predation could be further investigated and if necessary incorporated into the existing predation model as an additional element of natural mortality. This has been made the subject of a recommendation. Therefore the requirements at SG 100 are not yet met and at the moment, the harvest strategy may not have been fully **tested** but evidence exists that it is achieving its objectives and **SG 80 is met**.

##### Assessment team's response P2

A revision of ETPs specie in the report has been carried out, for that a new table for ETPs was added in the report. The species Black-legged Kittiwake (*Rissa tridactyla*, Linnaeus, 1758) and Atlantic Puffin (*Fratercula arctica*, Linnaeus, 1758) have been included to the ETPs species list and consider to score the fishery against the P2 performance indicators. The rest of the species listed by Birdlife are not considered under P2 because they are not vulnerable and the fishery does not catch seabirds, therefore they are out of scope and cannot be considered as secondary main species if catches are not reported. A plot has been included in the report to justify that the trend of the stock status of capelin is not overlapped with the populations of seabird. When the population of puffin and kittiwake are decreasing, the stock of capelin appears stable and the last stock assessment of ICES has shown that the biomass is above limits.



The rationales of ETPs in the tables have been modified to justify the role of seabird in the fishery. The amended PCDR shows the new rationale and justification.

#### 2.3.1 c-New rationale:

Indirect effects could be defined as depletion of the target species, which could be a key food source for some species or through physical disturbance when the whales or other ETPs are entangled in the nets. There is some studies to

describe the entanglement of whales, and other countries as USA, Australia or New Zealand have management plan to trackle the entanglement.

Regarding the role of Capelin as LTL species and its relation with the feeding habit of whales and seabirds, it is highly unlikely that the fisheries reduce the capelin stocks to a point where it would adversely affect ETP populations. Stefánsson et al. (1997) studied the interactions between cetaceans and some fish species (mainly capelin and krill) in Icelandic waters. The results indicate that both minke and humpback whales may have significant direct impact on the status of the capelin stock. The effects of fin whale predation on the capelin stock seems less significant unless such consumption occurs outside the sampled area, which is considered quite possible.

The assessment team notes that prediction models for allocation of capelin for ecosystem servicing of whales and seabirds is developing. Although studies show that the decrease in the seabird population are due to several causes and the causes of population shift and range changes can rarely be confidently attributed to a single source (Gaston et.al, 2011), the assessment team makes a recommendation to encourage the scientific agencies to work closely with NGOs that may have additional data on seabird population structure and distribution that will improve current knowledge on spatial overlap and improve the accuracy of estimation models that use an ecosystem approach.

The assessment team concludes that the direct impacts are negligible. However, although the indirect impacts do not highly impact ETP populations, further information regarding the feeding patterns of whales and seabird such as kittiwake or puffin (section 4.4.3) on capelin would support improved knowledge. Additionally, whilst direct effects on humpback are not considered significant, further investigation and knowledge on interactions with the purse seine fishery would be an advantage.

Therefore, the assessment team cannot conclude that there is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species and SG 100 is not met.

Indirect effects, mainly relating to ecosystem requirements for ETP species, have been considered and it is considered highly likely that the fishery creates unacceptable impacts and therefore, SG 80 is met.

Therefore, indirect impact has been assessed at SG 80 and the scoring rationales modified to reflect this. The overall score of ETPs species in the fishery is now SG 80, representing a combination of direct and indirect effects. The assessment team has been precautionary and a recommendation to improve the skills regarding indirect impact in ETPs has been set up.

Regarding ecosystem, the PI 2.5.3 was re-scored to SG 80. Guidepost b, c, d and e were re-scored to SG 80. A new rationale was included in each case to identify the need to develop the models to include feeding habits of seabirds. Recommendations 3 and 4 are provided in this regard.

**BirdLife International Submission on December 2016.**

<b>Contact Information</b> Make sure you submit your full contact details at the first phase you participate in within a specific assessment process. Subsequent participation will only require your name unless these details change.			
<b>Contact Name</b>	<i>First</i> <b>Rory</b>	<i>Last</i> <b>Crawford</b>	
<b>Title</b>	<b>Mr.</b>		
<i>On behalf of (organisation, company, government agency, etc.) – if applicable</i>			
<b>Organisation</b>	<i>Please enter the legal or registered name of your organisation or company.</i> <b>BirdLife International/Fuglavernd Islands</b>		
<b>Department</b>	<b>Marine Programme</b>		
<b>Position</b>	<i>Please indicate your position or function within your organisation or company.</i> <b>Programme Manager</b>		
<b>Description</b>	<i>Please provide a short description of your organisation.</i>  <b>BirdLife International are a global Partnership of independent organisations working together as one for nature and people.</b> <b>The overarching objectives of the Marine Programme are:</b> <ul style="list-style-type: none"> <li>• Promote the collaborative international action that is vital to arrest seabird declines</li> <li>• Advocate for the conservation of seabirds at national, regional and global levels</li> <li>• Work directly with fishermen and other stakeholders to reduce seabird bycatch and other threats to seabird populations</li> </ul> <b>BirdLife is also a member of the MSC's Stakeholder Council</b>		
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<b>Assessment Details</b>	
<b>Fishery</b>	<b>ISF Iceland Capelin Fishery</b>
<b>CAB</b>	<b>SAI Global</b>



Performance Indicator	Nature of Comment Indicate relevant code(s) from list above.	Justification Please support your comment by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.
PI 1.1.1A	1,2	<p>The fishery is deemed by the CAB to have met SG100 for 1.1.1Aa, on the basis that the biomass limit reference point for the fishery is set at 150,000t, taking into account a predation model that accounts for capelin consumption required for cod, haddock and saithe. However, this would apparently neglect to account for the requirements of seabirds, with several species dependent on capelin, particularly in the north/northeast of Iceland (over 90% of the diet for several species, including the globally threatened Atlantic Puffin (Lilliendahl and Solmundsson, 1997)). In the early 1990s, an estimated 2.1-3.4 million tonnes of capelin was removed annually by predators in the Iceland-East Greenland-Jan Mayen ecosystem. Of this annual total predator removal of capelin, 350,000t per year was attributed to seabird summer feeding (Vilhjalmson, 2002). With the SSB considered to sit at 304,000t, it is difficult to see that the existing limit reference point is taking adequate account of the full ecosystem needs - particularly in the context of recent catastrophic declines in Icelandic breeding seabird populations, related to prey availability. Consumption of capelin by marine mammals needs to be properly considered here too.</p> <p>Given this context, we believe this scoring issue has been significantly overscored, and should, at best, receive a sub-80 score, at very least receiving a condition to gain a more contemporary understanding of the state of the stock relative to ecosystem requirements.</p> <p>The fishery is also deemed by the CAB to have met SG80 (but not SG100) for 1.1.1Ab, with similar justification to the SG100 score for 1.1.1Aa. The points made above are again relevant here - existing ecosystem models do not appear to take account of the needs of dependent predators. In the case of seabirds, several species, including globally and regionally threatened species, are in a state of severe decline related to low prey availability, and additional removals from the prey base need to be considered properly. We argue that the stock is not at a level that is consistent with ecosystem needs, as the declines of several capelin predator species would infer - between the early 80s and mid 2000s there has been a: 44% decline in Brunnich's guillemot; 30% decline in common guillemot; 44% decline in Atlantic puffin (this decline from 2002-2015); 11% decline in kittiwake (see our site visit submission, Gardarsson et al. in print). 'Ecosystem needs' are considered by MSC to be 75% of the unfished spawning stock biomass, though this figure is not referenced at all in the PCDR (alternatively, the abundance level of other trophic groups should not be impacted by the fishery). By both measures, it is not possible to determine whether the stock is at a level that is consistent with ecosystem needs, given the breeding failure of several seabird species noted above.</p> <p>Therefore the fishery does not meet SG80 for 1.1.1Ab.</p> <p>Overall, 90 represents a significant overscore for this Performance Indicator, as ecosystem needs (beyond commercial fish predators) have not been properly considered in stock management.</p>
PI 1.2.1	1,2	<p>The points raised above have relevance to whether the harvest strategy fully incorporates proper objectives to account for the predation of seabirds and marine mammals - this should be considered here and scores adjusted accordingly.</p>

Performance Indicator	Nature of Comment Indicate relevant code(s) from list above.	Justification Please support your comment by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.
PI 1.2.2	1,2	As above, SG80 is not met for 1.2.2a as ecosystem needs have not been adequately accounted for.
PI 1.2.3	1,2	In addition to cetaceans (noted under 1.2.3b), there is not sufficient information collected to assess impacts on capelin-dependent seabirds.
PI 2.3.1, 2.3.2, 2.3.3, 2.2.X	1,2	<p>No seabirds have been considered under ETP species, in spite of the fact that Atlantic Puffin is globally threatened (Vulnerable globally, Endangered in Europe) and kittiwakes are 'Vulnerable' on the IUCN European Red List. Both species take capelin as prey (in varying quantities depending on their breeding site - can be over 90% in the north of Iceland - and indirect effects on these birds need to be considered under 2.3.1c. Further, other seabirds not considered ETP, but still dependent on capelin (i.e. Common and Brünnich's Guillemots, Razorbills) need to be considered under 2.2 performance indicators. Given the uncertainties noted above, it is likely that inclusion of seabirds will reduce the overall PI score, and infers the need for further data collection and analysis to understand what ecosystem needs are, and what the impact of the fishery is on ETP and non-ETP birds and cetaceans - at present, this impact is not understood or quantified, and could be hindering recovery of both taxa around Iceland. Conditions placed on the fishery could help to resolve this.</p> <p>Additionally, there are issues with the scoring for monitoring under the justification for PI 2.3.1.b. Given that monitoring appears to be largely dependent on submission of log-books, it seems over-reaching to assert that "<i>the fishery is highly unlikely to create unacceptable impacts for any ETP populations</i>". (Also logbook compliance with such reporting is not mentioned on p. 156 (PI 3.2.3)). Scoring of this PI should either be lowered or justified with appropriate evidence.</p>



Comment	Nature of Comment	Justification <small>Please attach additional pages if necessary.</small>
<input checked="" type="checkbox"/> I wish to comment on the adequacy of the consultation process used to gather information about this fishery (e.g. related to the RBF process, selection of stakeholders consulted, etc.).	1	<p>BirdLife submitted evidence to SAI Global before the site visit covering many of the general points listed above. Unfortunately, our submission has not been included in the PCDR and there is no evidence that it has been considered in the drafting of the report - seabirds are mentioned only once in the entire report. This is in spite of the importance of Iceland for this group of birds, and the reliance of many species on capelin, particularly in the north of the country. It is disappointing that at this late stage we are having to re-make fundamental points about the interaction between lower trophic level fisheries and seabirds, which are well established, and part of the reason that MSC put in place requirements on 'key' LTL species.</p>

Comment	Nature of Comment	Justification <small>Please attach additional pages if necessary.</small>
<input checked="" type="checkbox"/> I wish to comment on other portions of the report (e.g. background information, species biology, peer review reports and CAB responses, list of consultees, etc.).	4	<p>There are various issues with the content of the report itself, outside of the scoring issues. These are listed below:</p> <p>P. 9 (3.4) - <i>"The fishery should be more proactive to obtain quantitative data of ETP species and the interactions with the whales to meet SG100"</i> (see also p. 10, rec 2: <i>"... the fishery should be more proactive in reporting all interactions with ETPs"</i>).</p> <p>'should be more proactive' is a strange way of putting it - is this a vague wishlist/firm directive/condition? The action needs to be clarified and strengthened here.</p> <p>P. 13 (4.2.1) - No mention of the ecological importance of capelin to seabirds here (only to piscivorous fish), though this is (minimally) rectified on p 31 (4.3.4) - the only mention of seabirds in the PCDR. (The issue of ecological importance also picked up by peer reviewer on p, 172).</p> <p>P. 26 (4.3.2.5) - <i>"Since 1979 a Biomass escapement reference point of 400,000 t had been used for management of this stock."</i> It's not clear from this if the same escapement level applies now. But if it is, is it consistent with the MSC's own guidance for LTL species and also with statement on p. 150 that <i>"The biological reference points used in the setting of the TAC for target and main retained species are explicit and consistent with the outcomes expressed by MSC's Principle 1 and 2"</i>?</p> <p>Pp. 45-49 (4.4.3) - No mention of seabirds here</p>

### Assessment team's response to BirdLife International Submission on December 2016.

Regarding the Birdlife submission on 1.1.1A, 1.2.1, 1.2.2, 1.2.3, 2.3.1, 2.3.2, 2.3.3 and general comments, summarise of main actions is listed below:

- A new rationale has been added and provided in this letter for 1.1.1A and 1.2.1.
- The rationales for PIs 1.2.2 and 1.2.3 are modified to emphasise the predation of seabirds and recommendations have been developed. Principle 2 has been re-scored in the identified PIs and a new rationale has been included in 2.3.1, 2.3.2 and 2.3.3. Two new recommendations have been developed in this regard.
- The ecosystem information was also reviewed and the PI 2.5.3 was re-scored in the guidepost b, c, d and e. The rationale meets SG 80 and SG 100 is not fully met due to the lack of information in the feeding habits of ETPs.
- The report section 4.4.3 ETPs was extended and now more information of seabird was included. Two species of seabird are listed as ETPs: Atlantic puffin and Kittiwake.
- The recommendations are wording to encourage the fishery to collaborate in gathering information and with the research program in the area. When the assessment team makes reference to be more proactive, it means that the fishery should report more data, after interviews with the fleet, the explained that some of the vessels are already collaborating in studies in the areas. That is not condition and the manner to wording is to recommend more effort in acquiring data.

A table with the scoring in the first PCDR is attached and with the re-scoring. The overall scoring in the two PCDR (first one and amended PCDR) is also listed herein.

#### Principle level scoring (Original and revised PCDR)

Principle	Original Score	Revised Score	PASS/FAIL
Principle 1 – Target Species	90.8	<b>87.5</b>	PASS
Principle 2 – Ecosystem	94.0	<b>92.3</b>	PASS
Principle 3 – Management System	92.9	92.9	PASS

#### Individual Performance Indicators-(PI) scoring (Original and revised PCDR)

Principle	Component	PI		Original Score	Revised Score
One	Outcome	1.1.1	Stock status	90	<b>80</b>
	Management	1.2.1	Harvest strategy	95	95
		1.2.2	Harvest control rules & tools	80	80
		1.2.3	Information & monitoring	90	90
		1.2.4	Assessment of stock status	100	100
Two	Primary species	2.1.1	Outcome	100	100
		2.1.2	Management strategy	100	100
		2.1.3	Information/Monitoring	100	100
	Secondary species	2.2.1	Outcome	100	100
		2.2.2	Management strategy	85	<b>100</b>
		2.2.3	Information/Monitoring	100	100
	ETP species	2.3.1	Outcome	85	<b>80</b>
		2.3.2	Management strategy	80	80
		2.3.3	Information strategy	80	80

	<b>Habitats</b>	2.4.1	Outcome	100	100
		2.4.2	Management strategy	95	95
		2.4.3	Information	95	95
	<b>Ecosystem</b>	2.5.1	Outcome	100	80
		2.5.2	Management	95	95
		2.5.3	Information	95	80
<b>Three</b>	<b>Governance and policy</b>	3.1.1	Legal &/or customary framework	85	85
		3.1.2	Consultation, roles & responsibilities	95	95
		3.1.3	Long term objectives	100	100
	<b>Fishery specific management system</b>	3.2.1	Fishery specific objectives	100	100
		3.2.2	Decision making processes	80	80
		3.2.3	Compliance & enforcement	100	100
		3.2.4	Monitoring & management performance evaluation	90	90

SAI Global would like to state that the omission of the Birdlife information relevant to Atlantic puffin and kittiwake was made in error and would like to apologise for this unfortunate mistake. The publication of the amended PCDR will be posted with a new period of consultation of 30 days and a release of notification will be sent to all the stakeholders involved in the certification process.

We hope that these responses have dealt with the comments and concerns as outlined in your letter.

Thank you for having taken the time to communicate with the assessment on this matter.

Yours sincerely,

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BirdLife International submission (6<sup>th</sup> January 2017)

January 6<sup>th</sup> 2017

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**BirdLife International and Fuglaverndarfélag Islands response to updated Public Comment Draft Report for ISF Icelandic Capelin MSC Certification**

Dear Virginia,

Many thanks for your response and for the acknowledgement and changes made to the Public Comment Draft Report (PCDR) in light of our comments. We believe it to be highly important that seabirds and other dependent predators are properly considered in all MSC assessments, not least those concerning fisheries exploiting the vital prey stocks of these species, and we continue to take issue with the extent to which this has been taken account of in the PCDR.

Rather than complete the stakeholder template, we have elected to respond by letter, as the outstanding issue we have focuses largely on the single issue of whether current management properly accounts for the needs of marine predators apart from piscivorous fish. While we welcome the intent of the PCDR's recommendations to undertake closer examination of the existing modelling procedures to determine whether they adequately account for the needs of dependent seabirds and marine mammals, they place no obligation on a certified fishery or its associated agencies to conduct this work. We believe there is sufficient evidence available to compel fisheries managers to examine the ecosystem linkages and ensure the fishery is truly sustainable in all regards.

For a score of 80, 1.2.2a requires that the HCR keeps key LTL stocks fluctuating around a **level consistent with ecosystem needs** (similarly, 1.1.1a requires it to be **highly likely that the stock is above the point where serious ecosystem impacts could occur**). While there is an assumption that ecosystem needs are met because the TAC is precautionary, it is acknowledged (under the rationale for 1.2.1b) that there is an *'unquantified degree of predation on capelin by whales'* (the same of which could be stated for seabirds). While the assessment team goes on to state that 'this is seasonal and not considered to be significant', the existing (albeit limited) evidence points to the contrary (see Vilhjálmsson and Sigurjónsson ([http://www.hafro.is/Bokasafn/Greinar/lmr\\_Pinro\\_10-16.pdf](http://www.hafro.is/Bokasafn/Greinar/lmr_Pinro_10-16.pdf) and <http://icesjms.oxfordjournals.org/content/59/5/870.full.pdf>, which indicate that at least half of the capelin consumed by all predators is taken by marine mammals and seabirds). Our previous submissions indicate the scale of seabird declines in Iceland, thought to be largely driven by oceanographic change and consequent impacts on prey fish species (including capelin). Of

course, we agree that it is often complex to assign seabird declines to an individual source. However, this is all the more reason to require management of the capelin stock in Iceland to consider and take appropriate account of the potential impacts on dependent predators, particularly given the severity of these recent seabird declines and the prospect of other prey sources declining concurrently.

With this in mind, we therefore **strongly advise** that the appropriate scores under 1.1 and 1.2 be adjusted to reflect the lack of inclusion of critical elements of the ecosystem (seabirds and marine mammals) in the setting of the HCR, and that the 'recommendations' to incorporate seabirds and marine mammals into the modelling procedure be changed to conditions.

There are numerous academic institutes and biologists well-equipped to provide input to developing appropriate HCRs that take into account ecosystem needs (some of whom have advised MSC on Lower Trophic Level fishery policy and standard setting).

We trust that our continuing concerns will be given serious attention, and please feel free to contact us for further dialogue on this issue.

Kind regards,



Rory Crawford  
Gillnets Programme Manager  
BirdLife International



SAI Global response to BirdLife International submission (6<sup>th</sup> January 2017)

January 18<sup>th</sup>, 2017

Rory Crawford  
Gillnets Programme Manager  
BirdLife International/Fuglavernd Islands  
C/O RSPB, The Lodge, Potton Road, Sandy, Bedfordshire. SG19 2DL  
United Kingdom

***Re: Response to the Public Comment Draft Report (PCDR) comments on January 6<sup>th</sup> 2017***

Dear Rory,

The assessment team appointed to conduct the MSC full assessment of the ISF Iceland Capelin Fishery has reviewed your last submission and discussed the concerns you have raised in relation to PIs 1.1.1 A LTL key species and 1.2.2 scoring issue a) Harvest Control Rules design and application. We do take your concerns seriously and would like to make the following responses.

**PI 1.1.1 A -The stock is at a level which has a low probability of serious ecosystem impacts  
SG 100-**

***a) There is a high degree of certainty that the stock is above the point where serious ecosystem impacts could occur.***

Giving full regard to your submission, the team has determined that SG 100 is not fully met because the potential for variable recruitment and the unquantified predation by cetaceans and seabirds means that the more rigorous requirements of a high degree of certainty (95% probability) that the stock is above a point where serious ecosystem impacts could occur.

The assessment team has re-considered the option to set up a condition in this PIs but following the MSC requirements:

**SG 80-**

- a) It is highly likely that the stock is above the point where serious ecosystem impacts could occur.***  
***b) The stock is at or fluctuating around a level consistent with ecosystem needs.***

MSC defined that LTL species are important for other predators dependent on the LTL species as food may for example see a decrease of more than 70% in their abundance.

The fishery of capelin in this assessment is not happening in the entire capelin stock so the component of the capelin stock under evaluation is unlikely to reduce the population of puffin in two generation times by 70%. The population size of Puffin in Europe is estimated and projected to decrease by 50-79% during 2000-2065, three generations time, (BirdLife International 2015). The population of puffin in the area is not the entire stock of this seabird in Europe.

Black-legged Kittiwake prey on capelin too but it is not the main prey in its diet. Several studies have shown that its diet consists predominantly of marine invertebrates (squid and shrimps) and fish, although during the breeding season it may also take intertidal molluscs, crustaceans, earthworms, small mammals and plant matter (Burger et al. 2013 and Flint et al. 1984). Many species of fish have been recorded in diet, but sandeels (*Ammodytes*), capelin (*Mallotus villosus*) and herring (*Clupea harengus*) are particularly important (Burger et al. 2013). Therefore, Capelin is an important prey but among others. Following the definition of MSC, Capelin has not reduced the population of kittiwake by 70 %. The studies show that kittiwake is decreasing by 30-49% in the entire Europe stock is not just in Iceland.

The maps reported in the last BirdLife International (2015) European Red List of Birds has shown a small decrease of kittiwake in Iceland (<20%)

We feel it is also important to take in account that a decline in kittiwake population has been reported since 1983 to 2010, 3 generations time. This trend is not consistent with the population trend of Capelin ICES has reported that after the initial decrease in 1989 of Capelin stock, the stock size increased and has been fluctuating well above the  $B_{lim}$  (ICES 2016). Capelin landings during this period have not increased and actually, they have been reduced in the last x years. Therefore, we consider that there is no coherent overlap or correlation with the declining trend in these seabird populations. There are multiple factors reported in IUCN (reference).

MSC defines the default precautionary reference points for management of key LTL species as either a biomass that is 75% of the unexploited level in the system, or a target exploitation rate of 0.5FMSY or 0.5M (natural mortality of the species). In fisheries where there is sufficient understanding of the system, these default reference points can be adjusted to specific levels appropriate to the fishery, which are shown not to have adverse ecosystem effects through the use of credible ecosystem models (as defined in SA2.2.13).

Following the guidepost, if the species under assessment shows that no decline has been observed in two proxies of biomass for one generation time and if at least one proxy indicates that the stock is at highly productive level, then SG 80 is met.

The capelin fishery is fluctuating over the last ten years well above the  $B_{lim}$  and the ecosystems needs are taken into account the models because the precautionary approach is set up when uncertainties occur during the surveys to estimate the recruitment.

Due to the circumstances (the component of stock under assessment and the data available), there is objective evidence to score at the 80 guidepost and hence, the assessment team cannot rationally, reduce the score for this PI to a conditional score. However, the assessment team has concluded that a recommendation is appropriate since activities that provide greater certainty in the models could be helpful and would lead to >80 scores. Recommendations, as you are aware are not 'conditional on certification. However, your submission will be included in the Public Report and will remain a focus of future surveillance work.

**PI 1.2.2 –Harvest Control Rules and Tools- There are well defined and effective harvest control rules (HCRs) in place**

**a) HCRs design and application**

**SG 100-**

*The HCRs are expected to keep the stock fluctuating at or above a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, most of the time.*



The assessment team determines that the requirements at SG 80 are met although, the rationale for scoring at 100 (current practice takes account of a range of uncertainty) is not met; hence a reduction in the original team determination is warranted. The assessment team has determined that there is sufficient precaution in the HCR at this score, allowing for the uncertainty in the requirements for cetaceans and seabirds. However, further data on the seasonal coincidence of their distributions with capelin aggregations would be useful in reducing this uncertainty, still further. Hence, the data available by several institutions such as Birdlife could be useful in developing? Models and the assessment team has again, made this the subject of a recommendation and also related to the existing models applied in the assessment. The assessment team also has encouraged more collaboration between the scientific bodies such as ICES and IMR which are involved in the prediction model development.

#### **SG 80 –**

*Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.*

Following the MSC requirements at the SG 80 level, HCRs should ensure that the stock is likely to fluctuate around  $B_{MSY}$  level. Testing may show that this is achieved by inclusion of a  $B_{MSY}$  consistent reference point as a trigger in the HCRs at a point that would deliver  $B_{MSY}$  in the long term. HCRs are often applied on frequent basis, such as with the annual setting of TACs or effort restrictions.

Capelin fishery complied with that. There are two TACs set up every fishing year and depends on the results of the surveys the precautionary approach is in place. Restrictions in the fishing areas are established to protect juveniles which are potential preys in the ecosystems.

Therefore, as the assessment team has conclude in the rationale of the amended PCDR , the current strategy is based on harvesting surplus production once the ecosystem requirements and minimum spawning stock levels have been satisfied. This is achieved in a precautionary way by assessing stock status acoustically with a series of surveys throughout the autumn and winter periods. These quantitative surveys assess the abundance of juveniles (1-2yrs old) and adults which will spawn in that fishing season. The preliminary and intermediate TACs are very precautionary and based on the numbers of juveniles assessed during the autumn surveys. A precautionary abundance level has to be met before any harvesting is permitted. Even, as in the 2015 autumn surveys, if immature capelin abundance levels are assessed as low because of poor survey coverage, no preliminary TAC is granted. When juvenile abundance is very high on these surveys a trigger level is set to restrict the initial and intermediate TAC to 400,000t.

The eventual surplus fishable biomass for the season is based on the January acoustic survey taking into account catches taken before that survey, subtracting the biomass limit (the minimum biomass to be left to spawn) and also subtracting 150Kt for predation. This final TAC is set at the catch which will generate a SSB which has a 95% probability of being above the biomass limit level of 150Kt.

There are other harvest control rules in place to further protect the ecological role of the stock and permit a sustainable harvest of the surplus production. These include the facility to quickly close areas where there is a high abundance of juveniles (1-2yrs old) as assessed by on board observers. There is a legal requirement to carry these inspectors when fishing in certain designated areas. There are also restricted areas where pelagic trawling is not permitted in order to avoid disturbance of capelin shoals.

This whole strategy, backed by the harvest control rules to set the TAC, is considered by ICES to be precautionary. These well defined and practised rules are expected to keep the stock fluctuating around a target level consistent with ecosystem needs.

The assessment team has concluded with this response and previous that:

1. Capelin stock has not declined over the period where Atlantic puffin populations have shown a declining trend, (ICES 2016 and BirdLife International. 2016. *Fratercula arctica*)
2. Capelin landings have not increased (actually reduced) over the years (ICES 2016)
3. The component of the capelin stock, under the UoAs, is not the entire capelin stock (<http://firms.fao.org/firms/resource/10353/en>)
4. The distribution/migration patterns of Atlantic puffin and capelin do not show significant spatial or temporal overlap. During the nesting/chick feeding season, capelin is not available to Atlantic puffin and when capelin is within this regions (more southerly/south-westerly) region of Iceland, they are adult. Atlantic puffin feed on juvenile capelin (ICES advice 2014).
5. Previously, when capelin stocks were smaller during the 1980's, Atlantic puffin did not show a decline (ICES advices 2015-2016)
6. Sandeel stocks have declined during the period of declining Atlantic puffin population decline and Kittiwake. Its distribution overlaps more with these two species and is an important prey in their diet, more than Capelin. Other factors, environmental and anthropogenic have been affecting the populations of seabirds around Europe. (IUCN- BirdLife International. 2015). Furthermore, the distribution of Mackerel in the Icelandic waters in recent years has become an issue on the competition for sandeels. Mackerel feeding in Icelandic waters gained around 43% on average in weight during the summers. Based on swept-area abundance estimates of mackerel from an international survey in 2011 and available estimates of food conversion efficiency in mackerel, the weight gain in Icelandic waters in 2011 corresponded to a total consumption of around 3.4 (2.4–4.5) million tonnes (Óskarsson, J. G et al., 2015). Therefore the mackerel predation on Sandeel could be an effect on the population and other competitors for Puffin.

The assessment team has considered that the recommendations set up regarding 1.1.1A and 1.2.2 are appropriate and will not be escalated to conditions in this assessment. In summary, the assessment team determines that there is sufficient evidence available to satisfy 80 scores for PI's 1.1.1A and 1.2.2 and hence, we are obliged to score in this way.

However, and this is important to stress, your submission will serve to ensure that future surveillance and assessment work on this stock component or additional components of the overall capelin stock distribution will by MSC procedure, remain a central focus to the evaluation of the fishery and require that any further declines or information that is made available is taken into account with respect to the outcome of the assessment. Your submission, which will be included in the final report, also ensures that we or subsequent CAB's working on this or associated capelin fisheries; will ensure that Birdlife is included as a valuable and concerned stakeholder in this fishery and consulted with directly. To also reiterate, we do make these recommendations carefully and we are committed to reporting on these at future surveillance audits. As noted previously, whilst we are not procedurally able to prescribe a conditional score, we do hope that you take the fact that your contribution will definitely serve to highlight your concerns in a meaningful way, as a positive outcome to your contribution.

SAI Global hopes that these responses have dealt with the comments and concerns as outlined in your last letter. Thank you again for having taken the time to communicate with the assessment on relation with this matter.

Yours sincerely,

Virginia Polonio

**Fisheries Technical Officer**

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### 13 Appendix 5. Surveillance Frequency

The fishery has a surveillance plan that it was determined by the CAB following the FCR 7.23.4. Table 19 and Table 20 show the level of surveillance settled by the CAB and the timing planned for the next surveillance.

**Table 19. Timing of surveillance audit**

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 4	Off-site surveillance audit	On-site surveillance audit	Off-site surveillance audit	On-site surveillance audit & re-certification site visit

The level of surveillance has been settled as **level 4** by the Cab due to the fishery comply with the FCR 7.24. No conditions are established and the ability to verify information remotely is possible. Icelandic fisheries have a transparent a clear system of management. The most of the data are available in different websites and the data can be obtained on request.

**Table 20. Surveillance level rationale**

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
1	January 2018	May 2018	Scientific advice to be released in May 2018, proposal to postpone audit to include last report of scientific advice and final TAC established for 2018/2019 after the winter survey.

## 15 Appendix 6. MSC Review and Report on Compliance with the scheme requirements

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Date: 18/01/2017

**SUBJECT: MSC Review and Report on Compliance with the scheme requirements**

Dear

Please find below the results of our partial review of compliance with scheme requirements.

<b>CAB</b>	SAI Global (SAI)
<b>Lead Auditor</b>	
<b>Fishery Name</b>	ISF Iceland capelin
<b>Document Reviewed</b>	Public Comment Draft Report

Ref	Type	Page	Requirement	Reference	Details	PI
25825	Minor	72	FCR-7.15.1 v.2.0	The Public Comment Draft Report (PCDR) shall include: a. The scores and weightings; b. The draft determination on whether or not the applicant will be recommended for certification; c. The eligibility date; d. The surveillance programme; e. Any conditions, and f. The client action plan for any conditions.	Please clarify the specific eligibility date for the fishery. The report states both November and December 2016 in Section 5.5.1 on page 72. If the intention is for the eligibility date to be the date of publication of the PCDR, 22 December 2016, please state this and ensure it is consistent throughout the report."	

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25826	Guidance	73	FCR-7.12.1.5 v.2.0	The CAB shall identify and document: a. The UoC b. The point of intended change of ownership of the product, and c. The point from which Chain of Custody is required.	Please clarify whether any auctions are covered by the fishery certificate (if so, which ones). In Section 5.6 on page 74, the report suggests auctions may be covered by the fishery certificate. However page 76 states CoC will commence from landing. It is not clear whether any risks were identified in relation to auction activities and whether auctions require CoC. If they are covered by the fishery certificate, the traceability systems used by these operators need to be assessed and documented in the report and the wording about when CoC starts should be amended.	
25827	Minor	73	FCR-7.12.1.5b v.2.0	The CAB shall identify and document: a. The UoC, b. The point of intended change of ownership of product, and c. The point from which subsequent Chain of Custody is required.	The report must state the point of intended change of ownership of product. Please clarify the statement on page 76 as to when ownership changes ("...and/or sold via (first sale) fish auction and/or kept in cold store facilities in Iceland or in a Third Country).	

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25829	Major	94	FCR-7.10.6.1 v.2.0	A rationale shall be presented to support the team's conclusion.	<p>PI 1.2.2; scoring issue c: At SG80: First, the team states that the evidence used to assess the effectiveness of the HCR (TAC setting based off an ecosystem model output) is "in the form of the status of dependent demersal stocks cod, haddock and saithe." However, it is not clear if the status of these stocks supports the team arguments, as per section 4.3.4. These are given in response to the Peer Review 2, but it would be more appropriate to include these in the rationale.</p> <p>Second, section 4.3.3.2 states that "ICES has recommended that at some time in the future, once experience of the operation of the new HCR has been gained, assumptions and practical operation of the rule should be evaluated." It appears, therefore, that there has been insufficient time to show the tools are appropriate and effective in achieving the exploitation levels required under the HCRs.</p>	1.2.2
25836	Major	103-108	FCR-7.10.6.1 v.2.0	A rationale shall be presented to support the team's conclusion.	<p>PI 2.1.1 scoring issue a and b: The assessment team uses stock status and HCR to conclude that primary species are above PRI. This is insufficient evidence, and reference should be made to biomass-related reference points where available in considering the point of recruitment impairment (PRI). See Guidance GSA3.4.6 which refers to GSA2.2.3.1 (Use of proxy indicators and reference points for PRI and Bmsy) where it states "the term 'reference point' is used in relation to determination of status, not in relation to harvest control rules."</p>	2.1.1
25837	Major	109-110	FCR-7.10.6 v.2.0	To contribute to the scoring of any PI, the team shall verify that each scoring issue is fully and unambiguously met.	<p>PI2.1.2 scoring issue a: Rationale does not support the SG100 scoring level as no explicit reference is made to minor primary species.</p>	2.1.2

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25838	Major	113-114	FCR-7.10.6.1 v.2.0	A rationale shall be presented to support the team's conclusion.	PI 2.1.3: It is not clear that the 'data triangulation' of three sources is sufficient to determine with a high degree of certainty that the impact of the UoA on main and minor species with respect to status nor that this information is adequate to support a strategy to manage primary species. Evidence provided suggests all data sources rely on fishery dependent data, particularly landings data, with no mention of observer data or other fishery independent data to support this conclusion.	2.1.3
25839	Major	120	FCR-7.10.6.1 v.2.0	A rationale shall be presented to support the team's conclusion.	PI2.2.2 scoring issue a: It is not clear how the coast guard ensures that illegal activity such as discarding is managed in this fishery.	2.2.2
25840	Major	126-139	FCR-7.10.6.1 v.2.0	A rationale shall be presented to support the team's conclusion.	<p>PI 2.3.x: It is unclear which ETP species are considered as scoring elements under PI2.3.x. The assessment team do not include ETP species in Table 9, and inconsistently refer to different ETP species in PI 2.3.1 scoring issues.</p> <p>For example, PI 2.3.1 scoring issue a refers to minke whales and grey skate, while PI 2.3.1 scoring issue b refers to seabirds and humpback whales. Similar inconsistency in consideration of ETP species occurs in PI2.3.2 and PI2.3.3.</p> <p>PI 2.3.3 scoring issue b refers to killer whales, blue whales and harbour porpoises for first time.</p> <p>Additionally, there is inconsistent reference to use of logbooks to record potential interaction with ETP species in PI 2.3.1, under scoring issue a (page 126) the assessment team state: "the vessels in Iceland are not obligated to have e-logbook to report the catches" but in scoring issue b (page 128) they state: "In addition Icelandic legislation (557/2007) states that all fishing vessels must keep a Fishery Log-book".</p>	2.3.1, 2.3.2, 2.3.3

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25841	Major	149-150	FCR-7.10.6.1 v.2.0	A rationale shall be presented to support the team's conclusion.	PI 2.5.1 scoring issue a: Rationale does not fully support the score. The assessment team point to uncertainties in impact of capelin fishery and shift in distribution has had on capelin predators and state that: "However any study consulted has proved that the fishery causes an irreversible harm". Following this it is not clear that the rationale supports the SG100 score. Additionally, no explicit reference to ecosystem models is provided.	2.5.1
25842	Major	151	FCR-SA3.17.2 v.2.0	SA3.17.2: The team shall note that the plan and measures in place at SG100 should be based on well-understood functional relationships between UoA and the components and elements of the ecosystem. SA3.17.2.1: The plan should provide for the development of a full strategy that restrains impacts on the ecosystem to ensure the UoA does not cause serious or irreversible harm.	PI 2.5.2 scoring issue a: The assessment team has not presented evidence based on well-understood functional relationships to demonstrate at SG100 that the strategy consists of a plan in place which contains measures to address all main impacts of the UoA on the ecosystem and at least some of these measures are in place.	2.5.2
25843	Guidance				As guidance, the evaluation tables for Principle 2 contain multiple spelling errors. The report would have benefited from a more careful review and editing before publishing.	

This report is provided for action by the CAB and ASI in order to improve consistency with the MSC scheme requirements; MSC does not review all work products submitted by Conformity Assessment Bodies and this review should not be considered a checking service. If any clarification is required, please contact Emily McGregor on +44 020 7246 8938 for more information.

If you have any questions regarding this response, please do not hesitate to contact the relevant Fisheries Assessment Manager for this fishery.

Marine Stewardship Council  
cc: Accreditation Services International

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### 15.1 Assessment Team response to the Appendix 6. MSC Review and Report on Compliance with the scheme requirements

Sub ID	Grade	Requir. Version	Oversight Description	CAB Comment
25825	Minor	FCR-7.15.1 v2.0	Please clarify the specific eligibility date for the fishery. The report states both November and December 2016 in Section 5.5.1 on page 72. If the intention is for the eligibility date to be the date of publication of the PCDR, 22 December 2016, please state this and ensure it is consistent throughout the report."	The eligible date for the fishery was set up following the FCR 7.6 of V2.0. The eligibility date for this fishery is the date when first PCDR was posted on MSC website, <b>December 1<sup>st</sup> 2016</b> . Corrections were made throughout the document to ensure the consistency of this date.
25826	Guidance	FCR-7.12.1.5 v2.0	Please clarify whether any auctions are covered by the fishery certificate (if so, which ones). In Section 5.6 on page 74, the report suggests auctions may be covered by the fishery certificate. However page 76 states CoC will commence from landing. It is not clear whether any risks were identified in relation to auction activities and whether auctions require CoC. If they are covered by the fishery certificate, the traceability systems used by these operators need to be assessed and documented in the report and the wording about when CoC starts should be amended.	The assessment team has modified the section 5.6 in order to clarify when the CoC is starting and how the MSC certified catches, are segregated and the track record is done. All catch is separated by species and weighed on certified scales. Inspectors from the DoF regularly monitor the landing of catches to ensure that catch is weighed and recorded according to precise applicable rules. This provides an extra check on accuracy of vessel logbooks for all landings in Iceland. Therefore substitution with other species is most unlikely. Fish caught directly or purchased by members of the client group from vessels, auctions or processors, is traceable to catch dates, catch areas and vessels. Chain of custody will commence as of the first point of sale, change of ownership and/or processing after landing. Auctions that may or may not take possession of the fish and merely serve <b>as facilitators of trade</b> do not need chain of custody certification (CoC).
25827	Minor	FCR-7.12.1.5b v2.0	The report must state the point of intended change of ownership of product. Please clarify the statement on page 76 as to when ownership changes ("...and/or sold via (first sale) fish auction and/or kept in cold store facilities in Iceland or in a Third Country).	The Assessment Team has made some changes in the traceability section to define when the product changes ownership. The point of intended change is set up when the product is handled outside the client grouping list, and therefore is not part of the shareholders.
25829	Major	FCR-7.10.6.1 v2.0	PI 1.2.2; scoring issue c: At SG80: First, the team states that the evidence used to assess the effectiveness of the HCR (TAC setting based off an ecosystem	Regarding PI 1.2.2 issue c the Assessment Team has provided a justification for each species, explaining the main aspects of the stock status as it was done for the peer review 2. Secondly, the Assessment Team believes that The HCRs are in place and adequate to meet SG 80. The model

Sub ID	Grade	Requir. Version	Oversight Description	CAB Comment
			<p>model output) is "in the form of the status of dependent demersal stocks cod, haddock and saithe." However, it is not clear if the status of these stocks supports the team arguments, as per section 4.3.4. These are given in response to the Peer Review 2, but it would be more appropriate to include these in the rationale.</p> <p>Second, section 4.3.3.2 states that "ICES has recommended that at some time in the future, once experience of the operation of the new HCR has been gained, assumptions and practical operation of the rule should be evaluated." It appears, therefore, that there has been insufficient time to show the tools are appropriate and effective in achieving the exploitation levels required under the HCRs.</p>	<p>used in the last assessment is different than the data series but for that reason is not comparable with the previous data, the precautionary approach is in place to avoid underestimation and uncertainties in the models. The revision in the models is appropriate even if they working well. ICES has approved its development is it was an advise. On the other hand, as it was explained in the report, there are other harvest control rules in place in supporting of the harvest strategy which provide further protection for the ecological role of the stock and permit a sustainable harvest of the surplus production. These include the facility to quickly close areas where there is a high abundance of juveniles (1-2yr olds) as assessed by on board observers. There is a legal requirement to carry these inspectors when fishing in certain designated areas. There are also restricted areas where pelagic trawling is not permitted in order to avoid disturbance of capelin shoals. Furthermore, areas with known high abundances of juvenile capelin (on the shelf region off NW, N and NE Iceland) have usually been closed to the summer and autumn fisheries.</p>
25836	Major	FCR-7.10.6.1 v2.0	<p>PI 2.1.1 scoring issue a and b: The assessment team uses stock status and HCR to conclude that primary species are above PRI. This is insufficient evidence, and reference should be made to biomass-related reference points where available in considering the point of recruitment impairment (PRI). See Guidance GSA3.4.6 which refers to GSA2.2.3.1 (Use of proxy indicators and reference points for PRI and Bmsy) where it states "the term 'reference point' is used in relation to determination of status, not in relation to harvest control rules."</p>	<p>In the scoring issue a the assessment team has shown different plots with the main data from ICES e.g. last report of Cod stock status where it can see that the stock is above the Blim and the catches advice from ICES comply with the strategy that the HCRs must follow to ensure achieving their objective. Reviewing the information under this performance indicator the assessment team has decided to move Cod into minor species because the % of "all" species, included target species, award catches of cod less than 5%. In the last fishing season the % it was 0.086%. For all minor primary species the rationale used is the same that for the example of Cod, using the last data from ICES which normally include reference points to set up the maximum catches. Although, the catches coming from Capelin fleet, are almost insignificant the assessment team has justified that the TAC established for most of these species are set up in accordance with the stock status, TACs recommendations of these species are linkage with the reference points, where the stock status has been analysis with uncertainty,</p>

Sub ID	Grade	Requir. Version	Oversight Description	CAB Comment
				the TAC established has been set up with precautionary approach. Furthermore, more information of each stock status and the reference points established, is recorded in the section 4.4.1 and some re-wording was done in the tables of each rationale to clarify this point. The assessment team has linked these rationale (a,b and c) with the section 4.4.1 where more information is noted to make easy the reading and understanding of the rationale regarding PRI.
25837	Major	FCR-7.10.6 v2.0	PI2.1.2 scoring issue a: Rationale does not support the SG100 scoring level as no explicit reference is made to minor primary species.	The Assessment team has explained that the Icelandic vessels have the obligation to report all the catches that they land. They have a rigid monitoring system to control all the catches in several stages and the vessels have to report the logbook to DoF. In that obligation, all the catches are included, even if they are primary main or minor species for MSC requirements. In the rationale the assessment team concluded that "Translating this management system to primary species, each vessels targeting Capelin need quota to land cod and other retained species, therefore all non-target species, no matter if they are main or minor. All the species landing must be reported and an obligations of landing is implemented in the fishery" and has made reference to other retained species in the fishery. Although an specific mention to minor species has been included in the rationale to clarify this issue.
25838	Major	FCR-7.10.6.1 v2.0	PI 2.1.3: It is not clear that the 'data triangulation' of three sources is sufficient to determine with a high degree of certainty that the impact of the UoA on main and minor species with respect to status nor that this information is adequate to support a strategy to manage primary species. Evidence provided suggests all data sources rely on fishery dependent data, particularly landings data, with no mention of observer data or other fishery independent data to support this conclusion.	The Icelandic system of quotation is a well-defined strategy to control the catches of non-target species in the fisheries. There are inspections on port, as a part of the Surveillance programme established by DoF (Fisheries management Act), to control the weight of these catches reported, and then the accuracy of these quantitative data is reliable. On the other hand, some of the species classified as primary minor are MSC certified in the area where capelin fishery takes place. There is no reason to believe that the catches come up from capelin fleet can be a risk for those stock status that are MSC certified in the area and the capelin fishery was not evaluated as a risk for these certification. The % of catches is less than 0.01% . The assessment team believes that there are evidences to support the rationale.

Sub ID	Grade	Requir. Version	Oversight Description	CAB Comment
25839	Major	FCR-7.10.6.1 v2.0	PI2.2.2 scoring issue a: It is not clear how the coast guard ensures that illegal activity such as discarding is managed in this fishery.	The DoF has a complete surveillance program in which the Coast guard is involved. There are inspection at sea where the coast guard choose randomly a vessel to be monitor. Further, in this surveillance program there are a number of on board observer that checks the catches of the vessels. All the vessels have to report the logbook, even if it is a manually logbook. Any unregulated activity can be checked in the coast guard central where the vessels are VMS monitored 24 hours per day. The set can be track back, and the Coast Guard can check where the set is taking place to ensure that fishing activities are not out limits. All these data are quantitative data that are reported by Coast Guard to DoF within the process of surveillance. Therefore, the Icelandic Coast Guard monitors all fishing activities in Icelandic waters, including surveillance of areas closed for fishing. More wording has been added to the rationale in terms of explaining the role of Coast Guard in Icelandic waters
25840	Major	FCR-7.10.6.1 v2.0	PI 2.3.x: It is unclear which ETP species are considered as scoring elements under PI2.3.x. The assessment team do not include ETP species in Table 9, and inconsistently refer to different ETP species in PI 2.3.1 scoring issues. For example, PI 2.3.1 scoring issue a refers to minke whales and grey skate, while PI 2.3.1 scoring issue b refers to seabirds and humpback whales. Similar inconsistency in consideration of ETP species occurs in PI2.3.2 and PI2.3.3.PI 2.3.3 scoring issue b refers to killer whales, blue whales and harbour porpoises for first time. Additionally, there is inconsistent reference to use of logbooks to record potential interaction with ETP species in PI 2.3.1, under scoring issue a (page 126) the assessment team state: "the vessels in Iceland are not obligated to have e-logbook to report the	Regarding the eLogbook the assessment team want to clarify that is not mandatory for vessels smaller than 6 GT to have an electronic logbook and they can have a paper logbook. However, the fact of reporting the catches using one either type of logbook is mandatory. All the Icelandic vessels have to report the catches to the Directorate of Fisheries. In the PI 2.3.1 the assessment team only evaluate the species that have a limit set up, and for that reason the assessment team has added in the rationale the minke whales and skate, the species in the assessment which have a limit set up for landing. The rest of the species are evaluated under issue b because no limit is place for these species following the MSC requirements SA3.10.1.1. Skate has no a TACs at the moment but it must be reported in any type of fishery and there is an agreement. In the issue c, it has been evaluated the species that could have any indirect impacts due to the role of capelin in the ecosystem as TL species. In the following sections, the assessment team has evaluated the species depends on 2.3.1 and if they have a limit set up. All the ETPs species are listed in the background section, 4.4.3. However, a checking and rewording in some part of the rationales have been done to make easy the understanding of



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			cathes' but in scoring issue b (page 128) they state: "In addition Icelandic legislation (557/2007) states that all fishing vessels must keep a Fishery Log-book".	these Pls.
25841	Major	FCR-7.10.6.1 v2.0	<p>PI 2.5.1 scoring issue a: Rationale does not fully support the score. The assessment team point to uncertainties in impact of capelin fishery and shift in distribution has had on capelin predators and state that: "However any study consulted has proved that the fishery causes an irreversible harm". Following this it is not clear that the rationale supports the SG100 score.</p> <p>Additionally, no explicit reference to ecosystem models is provided.</p>	The scoring was re-wording to clarify the last sentence. The Assessment team wanted to express that there is no evidence that the capelin fishery is an irreversible harm for the ecosystem. It is a pelagic fishery therefore the direct impacts on ecosystems are insignificant because no contact with the bottom surface is noted. The changes in Capelin distribution are due to climate changes, there is no evidence that these changes are due to fishing activities. The indirect effects by removal of prey for other species are not recorded. In the ETP section ait was explained that when Capelin was depleted in the 80's the population of species prey on capelin showed a good stock status. Further, some populations of seabirds has showed a decreasing in the populations, Capelin has reported a stable fluctuation around Blim, further the landings of capelin has been decreasing over the last years. Therefore, the assessment team believes, that the rationale to meet SG 100, can be justified and we encourage in one recommendation to improve the models but the assessment team cannot confirm that at this stage the fishery has no evidences regarding ecosystems status.
25842	Major	FCR-SA3.17.2 v2.0	PI 2.5.2 scoring issue a: The assessment team has not presented evidence based on well-understood functional relationships to demonstrate at SG100 that the strategy consists of a plan in place which contains measures to address all main impacts of the UoA on the ecosystem and at least some of these measures are in place.	Following the MSC criteria the assessment team has to evaluate broader ecosystem elements such as Trophic structure, community composition and Biological diversity to meet SG80 and SG 100. In this fishery the biological composition and community composition are well-known and there are no impacts on those elements. The composition of the ecosystem is controlled by the obligation of landing all the catches, the DoF has quantitative data to know which species can be retained or affected by the fishery. The Biological community is not affected by the fishery because is a pelagic fishery with no interaction with the bottom surface. The methodology of the fishery is very clear and no interactions to damage key elements are reported. The thropic structure is known and in



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				the last assessment ICES has decided to introduce the species that were considered the most important species which prey on Capelin. These species were identified as: cod, haddock and saithe. However, the assessment team has set up a recommendations to improve the knowledge of the trophic structure, it cannot be confirmed that there is no understanding regarding the trophic structure and function of capelin in the ecosystems and therefore the fishery can meet 80 but SG 100 cannot be fully met because a recommendations was written to understand better the inclusion of seabirds and mammals in the trophic structure. The Assessment Team due to this needs to get more data regarding trophic structure, has scored SG 80 in ecosystems information and several recommendations through the document are set up regarding this issue as can be consulted in the summary of this report.
25843	Guidance		As guidance, the evaluation tables for Principle 2 contain multiple spelling errors. The report would have benefited from a more careful review and editing before publishing.	A revision of the document will be done before posting the final report

## 16 Appendix 7. Objections Process

(REQUIRED FOR THE PCR IN ASSESSMENTS WHERE AN OBJECTION WAS RAISED AND ACCEPTED BY AN INDEPENDENT ADJUDICATOR)

The report shall include all written decisions arising from an objection.

*(Reference: FCR 7.19.1)*