

Iceland Responsible Fisheries (IRF) Certification Programme

Re-assessment Report

For The

Icelandic Herring Commercial Fisheries

Facilitated By

Iceland Responsible Fisheries Foundation (IRFF)

Assessors: Deirdre Hoare, Lead Assessor

Rasmus Hedeholm, Assessor

Vito Romito, Assessor

Christos Maravelias, Assessor

Report Code: ICE/HER/002/2024

Date: 23rd July 2025



Global Trust Certification

First Floor, Room 5
Block 5 Quayside Business Park,
Mill Street, Dundalk,
Co. Louth, Ireland.
T: + 353 42 932 0912



Glossary

AIS	Automatic Identification System
B ₄₊	Biomass of 4 years and older fish

B_{lim} The biomass limit reference point below which there is a high risk that recruitment will be impaired and that the stock could collapse

 B_{loss} The biomass below which there is no historical record of recruitment

B_{MSY} SSB that is associated with Maximum Sustainable Yield (MSY)

B_{pa} Precautionary reference point designed to have a low probability of being below B_{lim}

EEZ Exclusive Economic Zone

EU European Union

TEP Endangered, Threatened and Protected species*
FAO United Nations Food and Agriculture Organization

Fishing mortality which in the long term will result in an average stock size at B_{lim}

F_{max} Fishing mortality rate that maximizes equilibrium yield per recruit

F_{MGT} Management elected fishing mortality target/limit; usually specified in FMP

FMP Fishery Management Plan

F_{MSY} Fishing mortality which in the long term will result in an average stock size at B_{MSY}

F_{pa} Precautionary reference point for fishing mortality to avoid true fishing mortality being above F_{lim}

HCR Harvest Control rule

ICES International Council for the Exploration of the Sea

ICG Icelandic Coast Guard

ITQ Individual Transferable Quota

IUU Illegal, Unreported and Unregulated fishing

IWC International Whaling Commission

kt kilo tonnes

MCS Monitoring, Control and Surveillance
MII Ministry of Industries and Innovation

MFRI Marine and Freshwater Research Institute (formerly MRI)



MRI Marine Research Institute (now MFRI)

MSY $B_{trigger}$ ICES MSY framework parameter that triggers advice on a reduced fishing mortality relative to F_{MSY} MSY Maximum Sustainable Yield; the largest average catch or yield that can continuously be taken from a

stock under existing environmental conditions NAFO Northwest Atlantic Fisheries Organisation

NAMMCO North Atlantic Marine Mammal Commission

NEAFC North East Atlantic Fisheries Commission

NPA National Program Action

NWWG North-Western Working Group (within ICES)

SSB Spawning stock biomass; total weight of all sexually mature fish in the stock

SSB_{MGT} Management elected SSB target/limit; usually specified in FMP

SSB_{trigger} SSB level that acts as a trigger when the stock fall below a certain level

TAC Total Allowable Catch

UN United Nations

VMEs Vulnerable Marine Ecosystems
VMS Vessel Monitoring System



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i. Summary and Recommendations

The Iceland Responsible Fisheries Foundation (IRFF) on behalf of Fisheries Iceland and the National Association of Small Boat Owners, Iceland (NASBO) requested that the conformity of Icelandic commercial fisheries targeting Icelandic summer spawning herring (*Clupea harengus*) to the FAO-based Icelandic Responsible Fisheries Management (IRFM) Certification Programme be assessed.

The purpose of the Programme is to provide the fishing industry with a; "Certification of Responsible Fisheries Management" at the highest level of market acceptance. Certification to the Programme demonstrates a commitment that will communicate to customers and consumers the responsibility of fishers and fisheries management authorities and the provenance of Icelandic fish. The Iceland Responsible Fisheries Foundation, established in February 2011, owns and operates the brand of Iceland Responsible Fisheries.

The Certification Programme is accredited to the international standard ISO/IEC 17065, confirming that consistent, competent and independent certification practices are applied. Formal ISO/IEC 17065 accreditation by an IAF (International Accreditation Forum) Accreditation body gives the Programme formal recognition (since September 2014), credibility in the international marketplace and ensures that products certified under the Programme are identified at a recognised level of assurance.

The unit of assessment in this report, which represents the proposed unit of certification, is comprised of all Icelandic vessels using purse seine nets, pelagic trawls and other legal fishing gears to fish for Icelandic summer spawning herring within the Icelandic EEZ and managed by the Icelandic Ministry of Food, Agriculture and Fisheries. The proposed unit of certification was deemed appropriate and practical for the purpose of full assessment.

Based on the evidence reviewed the Assessment Team during this Assessment, most areas score highly against the IRFM Standard v2.1. However, one area (essentially related to potential non-compliance with reporting requirements for non-commercial bycatch species) scored less than full conformance to the IRFM Standard Revision 2.1, Issue date 3rd of April 2023. This issue was raised during the initial assessment of herring and non-conformance raised. Progress against this non-conformance was deemed to be behind target at the 4th surveillance and this re-assessment. The applicant was given 28 days to submit evidence to close out this non-conformance. Further evidence was submitted to Global Trust and was provided to the Assessment Team for review. The assessment team accepted the information as sufficient to close the non-conformance. Therefore, the assessment team has decided that the Fishery can be Certified based on the evidence submitted as their concerns have been resolved.

The key outcomes of this Assessment have been summarized in the Summary of Assessment Outcomes.

ii. Schedule of Key Assessment Activities

Month and Year	Assessment Activity
17 th May 2024	Assessment Announced
22 nd May 2024	Notice of Assessment Team
18 th -27 th June 2024	On-site meetings
16 th October	Provisional scoring by Assessment Team
18 th October	Requests for Clarification Issued



14 th November	Further information received from the applicant
22 nd November	Assessment Team meeting to confirm rejection of certification
24 th December	Notification of intention to withdraw certificate
21 st January	Further information received from the applicant
06 th February	Assessment team meeting to approve
February 2025	Client Review
June 2025	Peer Review
July 2025	Certification Committee review/decision
July 2025	Final Re-Assessment Report (published)



iii. Assessment Team Details

Deirdre Hoare, Lead Assessor

NSF International/Global Trust Certification Ltd. Quayside Business Centre, Dundalk, Co. Louth, Ireland.

T: +353 (0)42 9320912

E-mail: dhoare@nsf.org

Vito Romito, Assessor

NSF International/Global Trust Certification Ltd. Quayside Business Centre, Dundalk, Co. Louth, Ireland.

T: +353 (0)42 9320912 E-mail: vromito@nsf.org

Rasmus Hedeholm, Assessor

Skørping, Denmark E-mail: rhedeholm@nsf.org

Christos Maravelias

Greece

E-mail: cmaravelias@nsf.org

The Assessment Team for this assessment was as follows; and further details are provided in Appendix 1:

- Deirdre Hoare Lead Assessor, responsible for Section 3 (Ecosystem Considerations).
- Rasmus Hedeholm Assessor, responsible for Section 1 (stock assessment and fish stock biology/ecology).
- Vito Romito Assessor, responsible for Section 3 (Ecosystem Considerations).
- Christos Maravelias Assessor, responsible for Section 2 (Compliance and monitoring).



1. Introduction

This assessment of Icelandic summer spawning herring (*Clupea harengus*) fulfils part of the procedure for the certification of the fishery to the Iceland Responsible Fisheries Foundation (IRFF) Responsible Fisheries Management (RFM) Certification Programme (hereafter IRFM Programme). The IRFM Programme is a voluntary program for Icelandic fisheries initially established by the Fisheries Association of Iceland (FAI) and now owned and administered by the IRFF. The IRFF was established in February 2011 and operates on a cost basis, as a non-profit organisation.

IRFF wishes to provide the Icelandic fishing industry with a "Certification of Responsible Fisheries Management" at the highest level of market acceptance. The purpose of the Programme is to provide Certification to requirements under the Programme that demonstrates a commitment that will communicate to customers and consumers the responsibility of fishers and fisheries management authorities and the provenance of Icelandic fish.

This assessment utilizes the FAO-based Icelandic Responsible Fisheries Management (IRFM) Certification Programme Standard Revision 2.0 (July, 2016) which in turn is based on the 1995 FAO Code of Conduct for Responsible Fisheries (CCRF) and FAO Guidelines for the Eco-labelling of Fish and Fishery Products from Marine Capture Fisheries adopted in 2005 and amended/extended in 2009. The assessment process constitutes an assessment of the applicant fisheries' management systems against the FAO-based IRFM conformance criteria outlined in IRFM Standard Revision 2.1, Issue date 3rd of April 2023.

Available evidence has been analysed with respect to each and every scoring element of the IRFM Standard and whether or not the fishery meets applicable requirements outlined in Revision 2.0 of the IRFM Standard.

The Assessment is based on the 3 major Sections of responsible fisheries management:

- Section 1: Fisheries Management
- Section 2: Compliance and Monitoring
- Section 3: Ecosystem Considerations



2. Standard version

This full assessment has been conducted against the following Iceland Responsible Fisheries Foundation (IRF) document version:

• Iceland Responsible Fisheries Foundation Responsible Fisheries Management Standard, Revision 2.1, Issue date 3rd of April 2023. The standard can be downloaded from the IRFF website at https://www.responsiblefisheries.is/certification/standards

The revisions from the previous standard versions are the following:

- 1. Articles 1.1.1 and 1.1.2 were unified into one article.
- 2. Article 1.2.5 is moved up and unified into one article with 1.2.1
- 3. Articles 1.5.3 and 1.5.4 are unified into one article.
- 4. Articles 2.2.2 and 2.2.3 are unified into one article.
- 5. The reference within article 3.2.3.3 has been corrected to reference article 3.2.3.2.



2.1. Recommendations of the Assessment Team

The assessment team recommends that the management system of the applicant fisheries, the Icelandic Summer Spawning Herring commercial fisheries under state management by the Icelandic Ministry of Food, Agriculture and Fisheries, fished directly by Samtök fyrirtækja í sjávarútvegi (SFS) (Fisheries Iceland), The National Association of Small Boat Owners, Iceland (NASBO), fished directly by pelagic trawls and purse seines within Iceland's 200 nautical miles Exclusive Economic Zone (EEZ), be granted re-certification to the Icelandic Responsible Fisheries Certification Programme.



3. Fishery Applicant Details

Table 1. Fishery applicant details.

Organisation/Company Name:	Samtök fyrirtækja í sjávarútvegi (SFS) (Fisheries Iceland)							
Date:	May 2024							
Correspondence Address:	Samtök fyrirtækja í sjávarútvegi (SFS)							
Street:	Borgartún 35							
City:	Reykjavík							
Country:	Iceland							
Postal Code:								
Phone:	(354) 591 0300							
Web:	<u>www.sfs.is</u>							
E-mail Address	info@sjavarutvegurinn.is							
	The National Association of Small Boat Owners, Iceland (NASBO)							
Organisation/Company Name:	The National Association of Small Boat Owners, Iceland (NASBO)							
Organisation/Company Name: Date:	The National Association of Small Boat Owners, Iceland (NASBO) May 2024							
Date:	May 2024							
Date: Correspondence Address:	May 2024 Landssamband smábátaeigenda							
Date: Correspondence Address: Street:	May 2024 Landssamband smábátaeigenda Hverfisgötu 105							
Date: Correspondence Address: Street: City:	May 2024 Landssamband smábátaeigenda Hverfisgötu 105 101 Reykjavik							
Date: Correspondence Address: Street: City: Country:	May 2024 Landssamband smábátaeigenda Hverfisgötu 105 101 Reykjavik Iceland							
Date: Correspondence Address: Street: City: Country: Postal Code:	May 2024 Landssamband smábátaeigenda Hverfisgötu 105 101 Reykjavik Iceland IS-101							

4. Units of Certification

The Unit of Certification (i.e., what is covered by the fishery certificate) is described here below.

Table 2. Unit of Certification (UoC).								
	Common name	Atlantic herring/herring (Síld)						
Species:	(ENG and ISL):							
	Latin name:	Clupea harengus						
Geographical Area(s)		Iceland 200-mile EEZ within FAO Fishing Area 27						
Stock(s)		Herring in ICES Division 5a (Iceland grounds)						
Management System		Ministry of Industries and Innovation (Iceland)						
Fishing gear(s)/method(s)		Purse seine net						
		Pelagic trawl						
		Gears from other Icelandic fisheries legally landing summer-spawning herring*						
Client Group		Samtök fyrirtækja í sjávarútvegi (SFS) (Fisheries Iceland), The National						
		Association of Small Boat Owners, Iceland (NASBO)						

^{*} Comprised of all other gears contributing <1% to total Icelandic landings of the target species.



5. Background to the Fishery

5.1. Fishery Location and Method

5.1.1. Location

Icelandic Summer Spawning Herring (ISS herring) completes its life cycle in the Icelandic Exclusive Economic Zone (EEZ) and this is where the entire fishery takes place. The location of the fishery within Icelandic waters is highly variable over time (Figure 1). The fishery is primarily a winter fishery, targeting the dense schools of herring from September-February. In the early 1990's the fishery concentrated southeast of Iceland, then from 1997 to around 2007 there was a fishery both west and east off Iceland, with gradual increase off the west coast. In the period 2006 to 2013, most of the catches were taken in a small coastal area west of Iceland, in the southern part of the Breiðafjörður bay. However, since 2014, the directed herring fishery has taken place in offshore areas west of Iceland and recently increasingly so east of Iceland. The fishery west of Iceland takes place in the autumn/winter while the east coast catches take place in the autumn months. The eastern fishery is to some degree a mixed fishery with vessels targeting both Atlanto-Scandic (AS) herring (also known as the Norwegian spring spawning herring) and ISS herring. A small proportion of the ISS catch (<1%) is taken as bycatch in the summer fishery for mackerel south of Iceland.

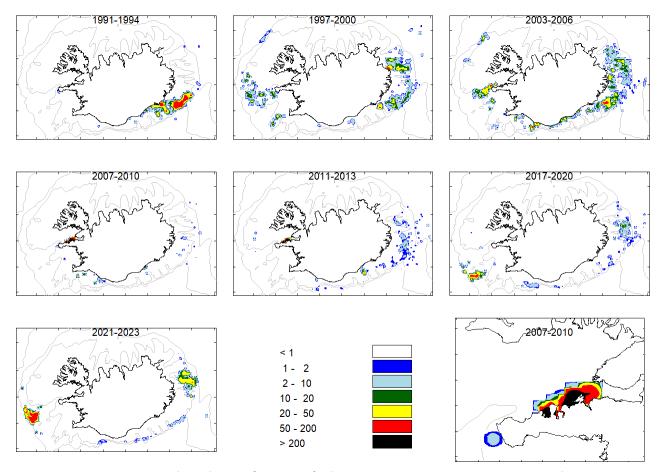


Figure 1: The distribution of the fishery (in tonnes) of Icelandic summer spawning herring for the period 1991-2023. For the years 2007-2010 the distribution in Breiðafjörður is also shown. From MFRI (2024).



5.1.2. Method

During the years when herring were caught inshore, the fishery was nearly all conducted using purse seines (1990's), while the pelagic trawls, first introduced in 1997/98, now contribute to the entire catch (**Figure 2**) as the fishery has moved offshore. There was a short period when drift nets were used in 1970-1980's but this is not the case today with almost 100% of the catch coming from pelagic trawls in recent years (ICES 2024).

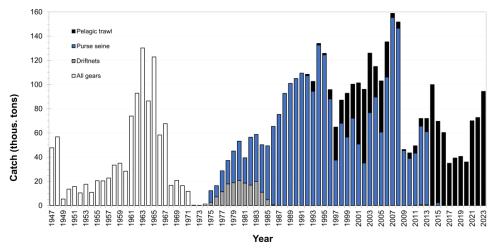


Figure 2: Total landings (in thousand tonnes) from 1947 by different fishing gears from 1975 onwards. From MFRI (2024).

When trawling for pelagic species a vessel first locates a target shoal. The vessel then shoots its trawl, pays out an appropriate lengths of trawl wire and steams towards the target shoal (Figure 3). Pelagic trawls are towed at the appropriate level in the water column to intercept the herring. The depth of net relative to the surface is indicated by a net monitor or net sounder mounted on the net headline and gear depth is controlled by changing the length of warp and/or altering towing speed. Single boat pelagic trawls are spread horizontally using specialised otter boards while floats on the headline, a weighted footrope and heavy weights on each lower bridle maintain the net's vertical spread. Net gape is continuously monitored by a netsounder. The specialised otter boards (trawl doors) used by pelagic trawlers are hydrodynamically efficient and provide not only high horizontal spreading forces but also increased lift with increasing towing speed. This allows a vessel to raise its net when aiming for a shoal of herring.

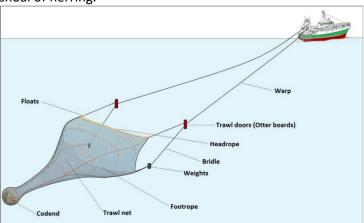


Figure 3: Schematic of a single boat pelagic trawl. From Global Trust (2019).



Purse-seining is often carried out at night when herring are more likely to form denser shoals close to the surface and be within range of the purse seine gear. As with pelagic trawls, purse seiners first locate a target shoal using its fish finder before shooting its net in a circle, surrounding the target shoal with a deep curtain of netting (**Figure 4**). The top of the seine is maintained on the surface by floats while small lead weights on the underside of the curtain ensure that the bottom of the net (leadline) sinks quickly surrounding the target shoal. The net is then "pursed" (closed) under the shoal by heaving on the purseline which runs through steel rings attached to the lower edge of the net. When the net has been pursed and fish can no longer escape, it is hauled lengthwise until the fish are packed tightly in the last remaining section of the net, known as the bunt. The catch is then pumped or brailed aboard the vessel. A large purse seine can be up to 1 km long and 200 m deep. Purse seiners generally try to avoid bottom contact as the small mesh nylon netting is easily damaged.

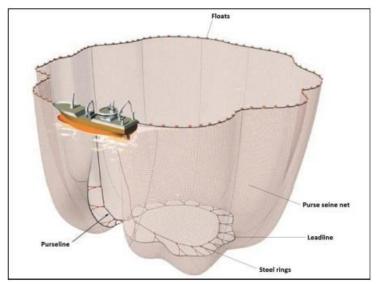


Figure 4: Schematic of purse seine. From Global Trust (2019)



5.2. Species Biology

The Atlantic herring (*Clupea harengus*) is a member of the Clupeidae family. Herring is a pelagic species which is widespread throughout the shelf sea areas of the temperate North Atlantic (**Figure 5**).

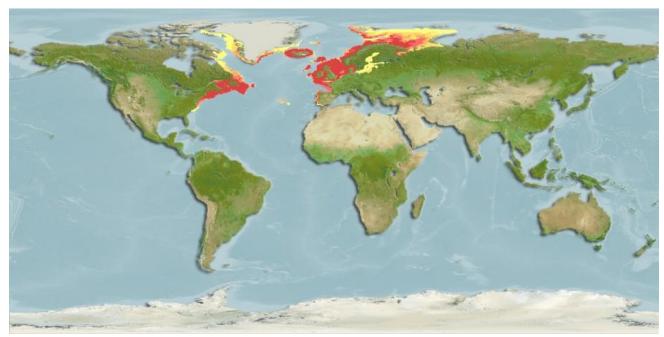


Figure 5: Distribution of Atlantic herring. From Aquamaps (2019).

Herring are pelagic zooplankton feeders, mostly feeding on abundant crustaceans, mainly copepods (Calanus finmarchicus), euphausids and hyperiids (Figure 6) (Kvaavik et al. 2021). They are commonly between 30 and 40 cm in length and the largest herring measured in Icelandic waters was 46.5 cm¹. Icelandic herring are long-lived, reaching up to 25 years of age although in Iceland they tend to not be older than 15-20 years of age (Froese and Pauly 2024). They first appear in the catches around age 3, but fish older than 15 are still a common part of the catches (Figure 7) (MFRI 2024).



Figure 6: Atlantic herring (Clupea harengus)²

Herring spawn multiple times in their lifetime. They generally spawn in shallow waters in spring or summer producing eggs which are attached to benthic, usually firm gravely, substrates. The need for suitable substrates

¹ https://www.sjavarlif.is/en/project/herring/

² https://featurefoods.ca



to which eggs can attach, limits spawning to small spatially discrete areas. The ISS herring spawns southwest of Iceland in relatively distinct areas (Figure 8).



Figure 7: Catch at age from commercial samples (left) and survey numbers at age (right) from acoustic surveys (1973-2023). Bars are coloured by year class. From MFRI (2024).



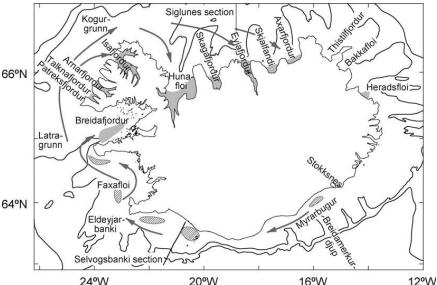


Figure 8: Spawning and nursery areas for Icelandic summer spawning herring. Grey shading indicates the nursery areas, and stripes the spawning areas, and the arrows show the directions of larval drift. From ICES (2024b).

5.2.1. Stock structure

There are several herring stock in the North Atlantic and in Iceland. They differ in spatial distribution, spawning period and migration patterns (**Figure 9**). In addition to the Icelandic Summer Spawning herring (ISS herring) two other herring stocks are known from Icelandic waters: the Atlanto-Scandic herring (AS herring, also known as the Norwegian spring spawning herring) and the Icelandic Spring Spawning herring (ISpS herring).

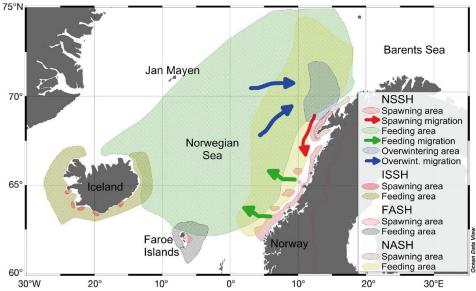


Figure 9: Distribution and spawning areas for Eastern North Atlantic herring stocks. From Pampoulie et al. (2015).

AS Herring: The AS herring mature along the coast of Norway and adjacent waters. When it reaches maturity at age 6-8 it undertakes feeding migrations to Icelandic waters (**Figure 9**). During winter the stock condenses into large schools in the waters east of Iceland before migrating to its Norwegian spawning grounds in spring. Precise



migration patterns do however change with oceanographic conditions, stock size and stock composition. Currently AS herring appear in Icelandic waters but are mostly separate from the Icelandic summer spawning herring but there is a significant overlap East of Iceland (Figure 9).

ISS herring: The ISS herring under assessment in this report differs from the AS herring stock in that it is a coastal stock that does not leave Icelandic waters. It spawns in the summer period (July) along the southern and southwestern coast (Figure 8 and Figure 9) (Oskarsson et al. 2009). After the eggs hatch at the bottom, the larvae drift north of Iceland and the main nursery areas are found in fjords northwest and north of the country (Guðmundsdóttir et al. 2007). The IIS herring has in recent years overlapped considerably with AS herring east of Iceland in the autumn and winter months (MFRI 2024; Bjarnason 2024). Because of the difference in spawning strategy (summer vs spring) individual fish are easily separated in surveys and catches by visual inspection of the gonads.

ISpS herring: Historically, the third major herring stock in Icelandic waters was the Icelandic spring spawning herring. The life cycle of this stock was quite similar to that of the AS herring stock except that it spawned locally in Icelandic waters and did not migrate to Norwegian waters to spawn. The ISpS herring collapsed in the late 1960's and has never recovered again and is suggested to be seeded from the AS herring stock or at least require migration from that stock to persist (Óskarsson 2018).

5.2.2. Ichthyophonus infection

The outbreak of Ichthyophonus infection in the ISS herring stock started in the 2000's and has been very important for the understanding of the stock development since. Ichthyophonus is a genus of unicellular eukaryotic parasites of fish. Ichthyophonus has low host specificity, with records from over 80, mainly marine, species of fish including haddock (*Melanogrammus aeglefinus*), plaice (*Pleuronectes platessa*) and Atlantic herring. Despite its wide geographic distribution and broad host range, reports of epidemics associated with high mortality are restricted to Atlantic herring and have been linked to significant decreases in population sizes. Infection occurs by oral intake of Ichthyophonus spores present in the environment. The infection rate in the most recent survey is estimated <4.1% for ages 2-4 and 4-25% for ages 5-12 (**Figure 10**).



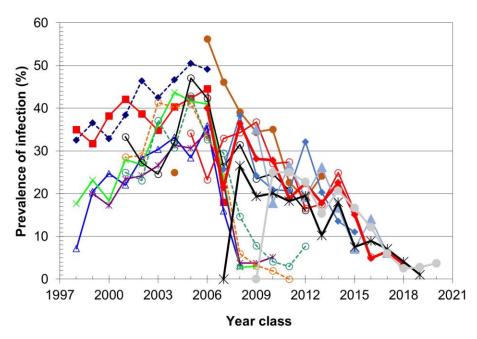


Figure 10: The prevalence of the Ichthyophonus infection for each year-class 1999-2020. Estimated from catch samples in the west and, when available, samples from the acoustic survey in the east of Iceland. From MFRI (2024).

The prevalence of Ichthyophonus infection in the 2003 - 2006 year classes was high (30 - 40%) while the current infection is slightly lower, now around 20-30%. Because of the *Ichthyophonus* infection in the stock the natural mortality has increased, and this has been incorporated into the analytical assessment of the stock. As part of the 2024 benchmark assessment on herring, a multiplier on the natural mortality was applied for the whole time series, and the used natural mortalities are shown in the table below (**Table 3**). The natural mortality without the infection is estimated at 0.1, so all higher values indicate the level of mortality by age and year class.

During the winter of 2012/2013, two incidents of mass mortalities of ISS herring, unrelated to *Ichthyophonus* infection, took place on the stock's main overwintering grounds. During that winter the herring stock overwintered in Kolgrafafjörður, a small fjord in the north-west of Iceland. Routine acoustic measurements on 30th of November and 12th of December 2012 indicated that around 300,000 t of herring were present in the inner part of the fjord. On the 14th of December 2012 and again on 1st February 2013 two mass mortality events occurred in the inner part of the fjord resulting in the deaths of an estimated 175 million herring, representing a biomass of 53,000 t (or 12% of the estimated spawning stock biomass). The mass mortalities most likely resulted from low oxygen concentration in some areas of the inner part of the fjord (Óskarsson et al. 2018). Similar incidents cannot be excluded in the future should the herring again decide to overwinter in Kolgrafafjörður, or another similar fjord.

Table 3: Estimates of natural mortality in herring with the Ichthyophonus infection included. From ICES (2024b).



Year\age	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1987– 2007	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
2008	0.100	0.163	0.170	0.176	0.186	0.169	0.163	0.162	0.156	0.180	0.164	0.164	0.164	0.164
2009	0.100	0.188	0.190	0.184	0.177	0.184	0.170	0.160	0.167	0.160	0.161	0.161	0.161	0.161
2010	0.100	0.134	0.180	0.177	0.173	0.164	0.170	0.176	0.170	0.158	0.164	0.161	0.161	0.161
2011	0.100	0.106	0.130	0.166	0.152	0.161	0.156	0.152	0.141	0.146	0.138	0.113	0.127	0.161
2012	0.100	0.106	0.105	0.144	0.174	0.176	0.179	0.166	0.150	0.152	0.134	0.143	0.133	0.161
2013	0.100	0.110	0.107	0.107	0.142	0.163	0.156	0.158	0.149	0.145	0.144	0.132	0.137	0.161
2014	0.100	0.100	0.104	0.106	0.111	0.149	0.161	0.175	0.173	0.175	0.153	0.153	0.161	0.161
2015	0.100	0.114	0.106	0.108	0.115	0.127	0.154	0.160	0.178	0.157	0.168	0.143	0.146	0.161
2016	0.100	0.100	0.130	0.139	0.146	0.144	0.158	0.149	0.177	0.185	0.159	0.146	0.150	0.161
2017	0.100	0.100	0.145	0.135	0.142	0.164	0.163	0.171	0.183	0.200	0.155	0.146	0.155	0.155
2018	0.100	0.121	0.125	0.138	0.159	0.138	0.139	0.145	0.170	0.148	0.155	0.155	0.155	0.155
2019	0.100	0.110	0.130	0.146	0.133	0.131	0.151	0.150	0.167	0.163	0.160	0.143	0.163	0.155
2020	0.100	0.112	0.126	0.113	0.131	0.149	0.136	0.149	0.133	0.164	0.155	0.155	0.155	0.155
2021	0.100	0.106	0.112	0.109	0.128	0.142	0.133	0.142	0.135	0.151	0.152	0.167	0.140	0.173
2022	0.100	0.102	0.108	0.113	0.117	0.114	0.134	0.119	0.136	0.134	0.137	0.136	0.149	0.155
2023	•	0.102	0.108	0.113	0.117	0.114	0.134	0.119	0.136	0.134	0.137	0.136	0.149	0.155



5.3. Historic Biomass and Removals in the Fishery

5.3.1. Removals

Prior to the First World War (1914 – 1918), Icelandic herring catches were less than 30,000 t. After the First World War catches gradually increased to more than 200,000 t annually. Catches declined following the Second World War before increasing rapidly after 1960 as technology improved (**Figure 2**). This included the development of the purse seine fishery off the south coast of Iceland (ICES 2024b) and a rapidly increasing exploitation rate and catches above 100,000 t. This caused a stock collapsed in the late 1960s and catches declined just as rapidly. After the collapse, a near moratorium was established on Icelandic herring fisheries including an outright fishing ban on ISS herring from 1972 to 1975. As the stock recovered, the moratorium was partially lifted in 1976 with limited fishing being allowed under a quota system. In 1979 a system of Individual Transferable Quotas (ITQs) was introduced into the herring fishery. This ITQ system was extended to the main Icelandic groundfish fisheries in 1984 and is now an important component of the Icelandic fisheries management system. The focus on management and stock recovery lead to a gradual increase in the catches.

In the 2000's the catch increased from around 100,000 t to more than 150,000 t, with the pelagic trawlers starting to take a significant part of the catch (Figure 2). Then came the period where the *Ichthyophonus* infection started to impact the stock and annual catches declined to less than 50,000 t and since then there has been a period of relatively low catches, but with an increase in recent years, close to 100,000 t (ICES 2023).

Both the AS herring and the ISpS herring have always been part of the Icelandic fishery for herring. In recent years the AS herring has been increasingly caught in Icelandic waters in a mixed fishery with the ISS herring with catches in ICES Va (Iceland) exceeding 100,000 t (Figure 11) (ICES 2023).

The ISpS herring collapsed at the same time as the AS and ISS herring stocks in the late 1960s. However, unlike the AS and ISS herring stocks the ISpS never recovered and there is virtually no fishery for the stock today (**Figure 12**).

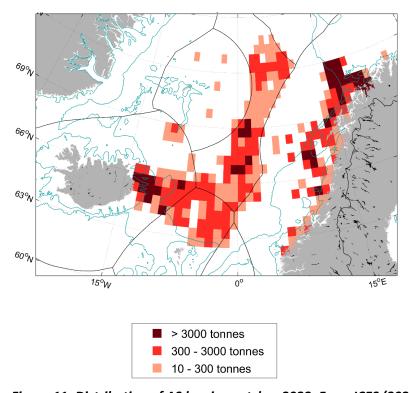


Figure 11: Distribution of AS herring catches 2022. From ICES (2023).



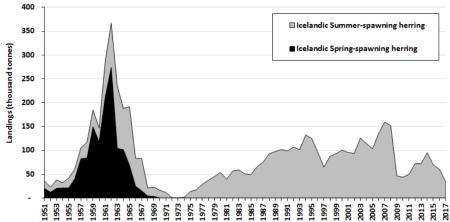


Figure 12: Total catch of Icelandic summer and Icelandic Spring spawning herring in Icelandic waters (1950 to 2017)³.

5.3.2. Biomass

The assessment time period for ISS herring starts in 1980. This was just after the stock started to recover from the collapse in the 1960's. Accordingly, the biomass at this time was low, and even below the current estimate of 200,000 t for the lower limit reference point, B_{lim} (Figure 13) (ICES 2024). With some variation the biomass steadily increased to the mid 1990's, where good recruitment led to a biomass peak in the mid 2000's. With the onset of the *Ichthyophonus* infection around 2006 the biomass gradually declined for 15 years, but that trend has now been reversed with improved recruitment and a reduced infection rate.

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³ http://dt.hafogvatn.is/astand/2018/30 sild.html).



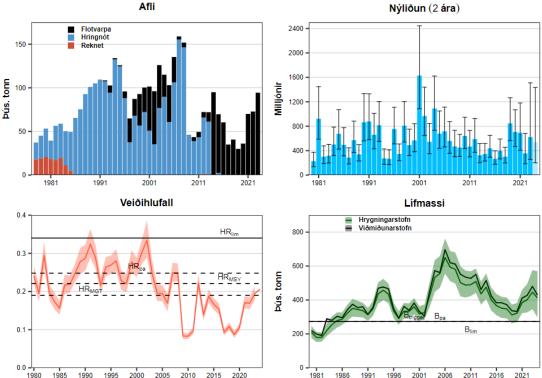


Figure 13: Catch by gear type, recruitment, harvest rate based on reference stock biomass (B_{4+}). All biomass reference points refer to SSB levels (MSY $B_{trigger} = MGT B_{trigger} = B_{pa}$). From MFRI (2024).

5.4. Survey and Stock Assessment Activities

5.4.1. Surveys

The ISS herring is surveyed annually from acoustic surveys, which have been ongoing since 1973 (Figure 14) with varying coverage and objectives. These surveys are conducted in October-January and March-April. The surveyed area each year is decided based on available information on the distribution of the stock in the previous and the current year, which include information from the fishery. Thus, the survey area varies spatially as the survey is focused on the adult and incoming year classes, but the survey is usually considered to cover the whole stock each year. The winter 2023/2024 the autumn survey did not manage to cover the recently growing portion of the stock that resides in the east and are therefore lacking from the survey index. The reason for this unsuccessful survey is due to increasing ISS herring and AS herring mixing in the east of Iceland in recent years. To separate the measurements of the stocks, the autumn survey was delayed by several weeks in hopes that the AS herring had migrated out of Icelandic waters and ISS herring would remain. When surveying the area, no herring was found in the east and it was assumed that the ISS herring had migrated with NSS herring east, at least to some extent. Thus, the acoustic index for the adult ISS herring in the winter 2023/2024 derives from one dedicated survey on RV Bjarni Sæmundsson in the end of March 2024 and from a capelin survey in the south-east of Iceland in February 2024 (MFRI 2024). The surveys are described in detail in the ISS stock annex published by ICES (ICES 2024b). In 2009, 2010 and 2011, acoustic surveys were conducted on the spawning grounds just before the maximum of the spawning activity, around the middle of July, covering all the known spawning grounds of the stock. The main purpose of these surveys was to get estimates of the prevalence of *Ichtyhophonus* infection in the stock, but also to get acoustic abundance estimates of the stock. These estimates are not, however, used for assessment directly.



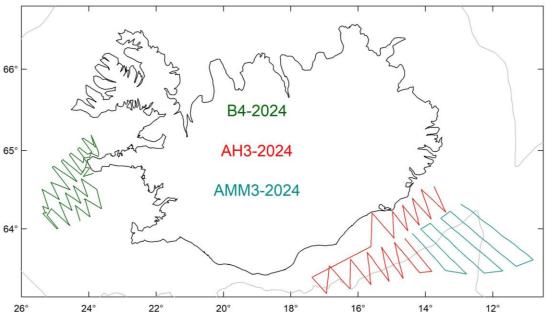


Figure 14: The survey tracks of three acoustic surveys on Icelandic summer-spawning herring in the southeast (AH3-2024 and AMM3-2024; younger part of the stock; red and blue) and in the west (B4-2024; adults; green) in 2023/24. From MFRI (2024).

In addition to the acoustic survey aimed at the fishable part of the stock, there have been occasionally acoustic surveys to estimate the year class strength of the juveniles. This survey was undertaken from 1980 to 2003 and 2009-2018. At the 2024 benchmark it was estimated that the juvenile index was useful for the retrospective analysis of the assessment model but has no effect in current assessments due to lack of new data (ICES 2024c).

In addition to providing indices of stock trend and size, the surveys collect biological information that feed into the assessment of the stocks. This includes length-weight measurements, determination of maturity and infection levels with *Ichtyhophonus*. Additionally, scales are collected to allow for ageing which provides the basis for the statistical catch-at-age models that are used for the assessment. Prior to 2006 the maturity was estimated annually from commercial samples, but due to the risk of sampling bias that approach was changed and currently the maturity ogive is assumed to be fixed across the years 2006-present. The weight-at-age remains based on commercial samples.

5.4.2. Assessment

The assessment of Icelandic summer spawning (ISS) herring stock is done annually by the ICES North-Western Working Group (NWWG) based on data and assessments provided by MFRI. The assessment from NWWG is used by the advisory committee (ACOM) at ICES, to formulate the formal international advice. This process ensures transparency and international acceptance and quality control. MFRI is the advisor to the Ministry of Food, Agriculture and Fisheries that is responsible for Icelandic fisheries management. The MFRI provides data to ICES and participates in the assessment in NWWG and in the advisory process in ACOM. Normally, the advice from MRFI will be in accordance with that of ICES. The advice is published both on MFRI⁴ and ICES⁵ websites when finalized.

⁴ https://www.hafogvatn.is/en/moya/extras/categories/radgjof/sild

⁵ https://ices-library.figshare.com/articles/report/Herring



The stock is considered to reside solely in Icelandic waters throughout its lifecycle. Results from various research including tagging experiments around middle of last century (Jakobsen 1961), studies on larval transport (Einarsson H. 1956), and studies on migration pattern and distribution, all suggest that the stock is local to Icelandic waters. Recent studies on stock structure on herring in the Northeast Atlantic support this distinction, both on basis of otoliths shape analyses (Libungan et al. 2015) and micro-satellite analyses (Pampoulie et al. 2015). Information about landings of the fishery fleet is collected by the Icelandic Directorate of Fisheries. The primary source is reported landings in the harbours (the official landing). Logbooks that provide information about timing (day and time), location (latitude and longitude), fishing gear, catch size, and species composition in the catch of each fishing operation for each vessel are primarily used for control purposes, but the information is accessible for MFRI. Biological samples from the catch are taken at sea by the fishers or in the harbours by people from MRI and/or inspectors from the Directorate of Fisheries, according to a detailed sampling protocol. The samples are analysed by MFRI (at least the fish length, weight, age (from scales), sex, maturation, and weight of sexual organs are recorded). The annual estimates of catch at age are obtained by applying age-length keys to length distributions. Based on difference in length-at-age between the summer months and the winter, two length-age keys were applied. The intensity of biological sampling has increased in recent years, which was needed (MFRI 2024), and is currently considered sufficient by MFRI (MFRI, site visit)

Discarding is prohibited in Iceland⁶. Normally, discards are considered to be insignificant in the fishery of ISS herring and surveillance by inspectors from the Directorate of Fisheries during each fishing season is considered adequate in verifying if a discard is ongoing. ICES considers the discarding to be negligible (ICES 2024). There are few exceptions in the past 35 years where discards were estimated to be significant, in years with large year classes entering the fishery caused high juvenile abundance in the catch (ICES 2024b). Iceland continues to develop drone technology, and this may in the future provide more independent data on discarding including high-grading (site visit information).

The assessment method for ISS herring was updated at the recent ICES benchmark (ICES 2024c). This led to substantial changes to the assessment:

- The NFT-ADAPT model was replaced by a SAM assessment model (Nielsen and Berg 2014).
- The age range of catch indices used in the assessment were extended and a plus group is not included as before.
- The Stock recruitment relationship was defined as a "piecewise constant" which reduces the uncertainty
 of incoming recruitment.
- The model now uses the juvenile index that does not affect the assessment currently, as the index is not up to date, but it provides valuable recruitment information historically and also currently if reinstated.
- *Ichthyophonus* infection mortality was revaluated at the benchmark for the period 2008-2023 resulting in applying lower *Ichthyophonus* infection mortality than before in the assessment.

The State-space Assessment Model (SAM) is a statistical catch-at-age model that allows for forward projection and incorporates uncertainty. A major improvement using the SAM model for assessment is, that the SAM model includes uncertainty estimates, which the NFT model did not.

The model set-up and input data are described in detail in the benchmark report (ICES 2024c). The assessment model runs from 1980-present and is based on the following data:

Catch data: 1980-present, ages 2-15Survey index: 1987-present, ages 3-15

⁶ https://www.althingi.is/lagas/nuna/1996057.html



- Weight at age, ages 2-15
- Maturity: fixed ogive
- Natural mortality: fixed at 0.1 and then additional mortality added 2009-present to account for infection (See **Table 3**)

The Stock-recruitment relationship was set as a random walk with a piecewise constant and no breaks. The assessment no longer includes a plus group as this improved the model performance (AIC score).

The shift in assessment model led to some change in stock perception. There was a downward revision of biomass, but the overall trend remains much the same. The retrospective pattern from the SAM model indicates that the model performs well as there was little bias within the five-year peel (**Figure 16**). Hence, the Mohn's rho values for biomass and fishing mortality were -0.05 and 0.09, respectively, and this is well within the ICES guideline limits of -015 and 0.2 (Carvalho et al. 2021). The leave-one-out analyses illustrated that the assessment relies heavily on the catch time-series, but that the survey is important, especially with regard to incoming recruitment.

A key input is the mortality rate caused by the *Ichthyophonus* infection. There was a thorough re-analysis of the infection during the benchmark, and the infection rates and associated mortalities were revised. Different from the previous estimation, the infection mortality was assumed to have taken place in all years, also in the years 2012–2016. This was considered appropriate because thorough inspection on the development of the infection stages and prevalence of the infection has not been done for recent years. It means that instead of a subjective approach, a simpler approach was taken. The resulting multiplier for the years 2008–2023, and for the coming years until revised again, is 0.19. This is considered an improvement to the assessment.

The reference points were also re-evaluated at the benchmark following standard ICES procedure (ICES 2021). It was decided to keep the lower limit reference point, B_{lim}, at 200,000 t. The other reference points were derived from standard ICES procedure, also considering the *Ichthyophonus* infection. The MSY harvest rate was estimated at 0.22. The full list of reference points and their rationale is given in the benchmark report (ICES 2024c) (**Table 4**). Hence, the herring assessment is robust, of high quality, consistent with the precautionary approach and provides the necessary basis for implementing a harvest control rule based on the assessment.



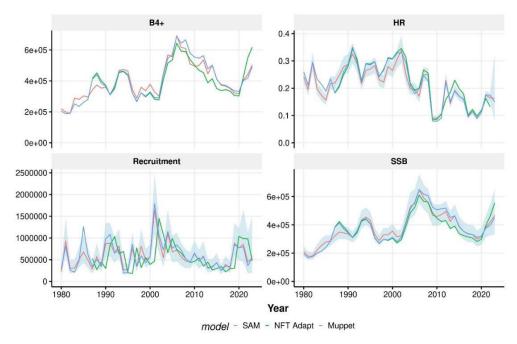


Figure 15: Comparison of assessment results from three different models (SAM model, previously used NFT Adapt model and Muppet). Recruitment in NFT Adapt is set at age 3, but age 2 in SAM and Muppet. Uncertainty estimates are from the proposed SAM model. From ICES (2024c).

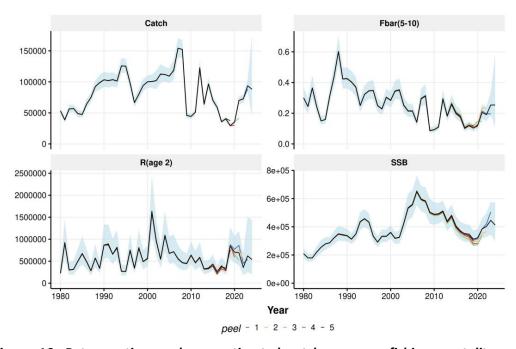


Figure 16: Retrospective analyses: estimated catch, average fishing mortality over ages 5 – 10 (Fbar), recruitment (R (age 2)), and spawning stock biomass (SSB). From MFRI (2024).



5.5. Stock status and fishing mortality

There are estimates of herring abundance back to 1946 which clearly shows the stock increase followed by the 1960's stock collapse, and stock increase from around 1970 to the mid-1990's (ICES 1997) (**Figure 17**). After the 1960's stock collapse, the stock biomass peaked in 2005-2008 as a result of good recruitment in 1999 – 2002 in a period with no *Ichthyophonus* infection to increase the natural mortality (**Figure 18**). After the infection started to increase the natural mortality from 2006, the stock gradually declined for almost 15 years, in part also driven by a reduced recruitment over the same period. From 2021 the recruitment increased again, and the stock grew and is currently well above the limit reference points. The most recent spawning stock biomass (412,137 t) estimate is twice the lower limit, Blim, reference point (200,000 t).

The fishing mortality (here expressed as harvest rate) (**Table 4**) was relatively high before 2003. Since then, the harvest rate has been at, or below, the management target except for the most recent assessment year, where the harvest rate (0.195) is slightly above the management target (0.190) but it remains below the HRmsy reference point (0.22) and within the expected HR range (Figure 18). The recruitment has been reasonable in recent years and the herring stock is thus currently neither overfished nor experiencing overfishing.

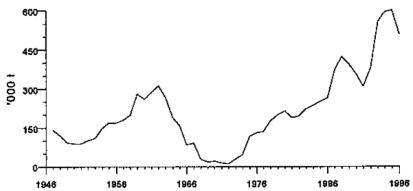


Figure 17: Long term history of stock abundance as estimated in 1997. From ICES (1997).

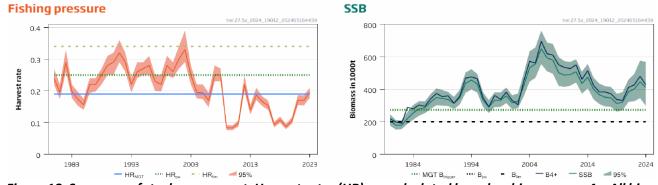


Figure 18: Summary of stock assessment. Harvest rates (HR) are calculated based on biomass age 4+. All biomass reference points refer to SSB levels (MSY Btrigger = MGT Btrigger = Bpa). From ICES (2024).

Table 4: Herring reference points, values and their technical basis. From ICES (2024).



Framework	Reference point	Value	Technical basis	
MCV approach	MSY B _{trigger}	273 000	B _{pa} ; tonnes	
MSY approach	HR _{MSY}	0.22	Stochastic simulations	
	O.	200 000	SSB below which there is a high probability of impaired	
Ducasutianami	B _{lim}	200 000	recruitment; tonnes	
Precautionary approach	B _{pa}	273 000	$B_{pa} = B_{lim} \times exp(1.645 \times \sigma)$, where $\sigma = 0.19$; tonnes	
approach	HR _{lim}	0.34	The harvest rate that leads to SSB = Blim	
	HR_{pa}	0.25	Harvest rate leading to P (SSB > B _{lim}) > 95% with ICES advice rule	
Management	MGT B _{trigger}	273 000	Stochastic simulations; tonnes	
plan	HR _{mgt}	0.190	Management plan	



5.6. Harvest control rules and tools

The first act of the Icelandic fisheries management act states: "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 utilisation". This overall objective is made concrete in management plans and harvest control rules. ISS herring is considered strictly an Icelandic stock and are managed under the overarching responsibility of the Ministry of Food, Agriculture and Fisheries⁸. All Icelandic management plans have the same general objectives:

- A harvest control rule, that outlines the mechanism for setting the total allowable catch (TAC)
- Decrease the risk of short-term interests influencing the level of exploitation
- Ensure that the available information on the resource is used in the most rigorous manner
- Long term sustainable yield
- Ensure that stocks are above save biological limits

The key element in the harvest control rules and the primary management method is output control through a total allowable catch that is distributed on the participating vessels by an ITQ system. There is a suite of monitoring and control measures in place, to keep catches in conformity with the allowed amounts.

Discarding is prohibited by law in Iceland for all species⁷ and commercial species can only be landed in designated ports, where they are weighed and reported by authorized personnel. No fish can be landed without being accounted against a quota. The quota status is strictly monitored and enforced by the Directorate of Fisheries. There are several arrangements in place to reduce the incentive for discarding, including control at sea by the Coast Guard, observers, drones, temporal and area closures and an obligation/opportunity to land undersized fish for a reduced price. Hence, there is a suite of tools to ensure that all catch is registered and that is registered correctly.

The management plan and harvest control rule has evaluated by ICES and are in line with precautionary principles (ICES 2024c). The harvest control rules are generally evaluated in connection with benchmarks where the assessments and reference points also are updated and revised. After this evaluation ICES provides the scientific advice in accordance with the management plan annually. Hence, by all measures the harvest control rule are designed to meet the overall objective of sustainability.

The harvest control for ISS herring is stated in the ICES advice as:

of herring of ages 4 and older, and the target harvest rate (HR $_{MGT}$) is set to 0.19.

$$TAC_{Y/Y+1} = HR_{mgt} \times B_{4+,Y} \text{ if SSB}_{Y} \geq MGT \text{ } B_{trigger}$$

$$TAC_{Y/Y+1} = HR_{mgt} \times (\frac{SSB_{Y}}{MGT \text{ } B_{trigger}}) \times B_{4+,Y} \text{ if SSB}_{Y} < MGT \text{ } B_{trigger} \text{:}$$
 The spawning-stock biomass trigger (MGT $B_{trigger}$) is defined as 273 000 tonnes; B_{4+} is defined as the biomass

If the stock size is above the MSY $B_{trigger}$ limit reference point (SSB_y \geq MGT $B_{trigger}$) then the TAC for a given fishing season is derived at by multiplying the reference biomass ($B_{4+,Y}$) by the management harvest rate of 0.190. If the stock size is below the MSY $B_{trigger}$ limit reference point (SSB_y \leq MGT $B_{trigger}$) the HCR dictates that the TAC harvest rate shall be reduced linearly to zero based on the ratio of the estimated SSB (SSB_y) and MGT $B_{trigger}$. The HCR has a clear mechanism for reducing the TAC when the stock declines, and there is no stabilizer meaning that the TAC is set in accordance with the advice with no delay.

⁷ https://www.althingi.is/lagas/nuna/2006116.html

⁸ https://www.government.is/ministries/ministry-of-food-agriculture-and-fisheries/



The management plan for herring was adopted by the Icelandic government in 2024 and has been evaluated as precautionary by ICES (2024c).

5.7. Ecosystem considerations

Fish in Icelandic waters is caught by various types of fishing gear, depending on species sought, type of seabed, depth of water and numerous other factors. Selectivity is a key issue when deciding on appropriate fishing gears. Minimum mesh sizes are strictly regulated to allow the smaller fish to escape. Besides, various additional techniques are in place, such as rigid square grids over which codends (the bag at the end of the trawl) made of T90 meshes seem to be an improvement. Moreover, good results for avoiding juvenile fish are being achieved by short term and long-term closures of fishing grounds based on constant monitoring (Government of Iceland, https://www.government.is/).

Pelagic species are mainly caught with midwater-trawls but in shallower water purse seines are still used. Small mesh trawls are the most common gear for shrimp and Nephrops fisheries (Government of Iceland, https://www.government.is/).

5.7.1. Associated catch and fishery bycatch

The fishery has been dominated by pelagic trawls in recent years, but both purse seine and pelagic trawls are considered 'clean' fisheries with relatively little bycatch. The Treatment of Commercial Marine Stocks Act No. 57 1996 effectively prohibited discarding of most fish species within the Icelandic fishery management system. The system also includes a variety of provisions which add flexibility and are designed to facilitate the matching of catch composition and quota portfolios such that incentives for discarding of catch are reduced.

There is always a risk of slippage of catch in pelagic fisheries purse seine and trawl fisheries (meaning that the catch is release from the net toward the end of the fishing operation but before being brought aboard the vessel). Slippage is generally prohibited by law in Iceland (although it is permissible from purse seines if the catch has a high proportion of juveniles). Small or poor-quality fish retained in the catch are processed for fish meal. Both the Directorate of Fisheries and MFRI consider that slippage is an exceptionally rare event in the herring fishery.

As noted in the previous assessment some mixing of herring stocks occurs. Icelandic spring-spawning herring (ISPH) mix with Icelandic summer-spawning herring in the autumn. ISPH amount to, on average, 1.4% of the combined catches over the period 1970-2016. The Icelandic summer-spawning herring caught as bycatch in the fisheries targeting Norwegian-Icelandic spring-spawning herring and mackerel, in the last three years has formed between 9% and 13% of the combined catches.

The available data related to retained catches are therefore thought to be accurately reflect the situation on the ground; these are readily available on the Directorate of Fisheries website with catches from each in the last five fishing seasons (2019 - 2023) being present in **Table 5.**

The fishery complies with the enforcement and compliance system described analytically in Section **5.10**. All commercial Icelandic fishing vessels are required to keep an electronic logbook and report catches to the Directorate of Fisheries using an electronic recording and reporting system (ERS). AlS and VMS are obligatory for all vessels regardless of size, also inshore. Inspectors/on board observers from the Directorate are accompanying



fishing vessels on trips or operate from Coast Guard vessels. The Coast Guard has three offshore patrol vessels, as well as a number of smaller boats, helicopters and a surveillance aircraft. Drone surveillance was introduced in 2022 giving additional information. At-sea inspections include among others, control of the logbook, catch and gear. If a certain amount of the catch is found to be below size limit, the inspector can initiate a short-term close (usually two weeks) for the fishery of that particular species, vetted by the Marine Research Institute and confirmed by the Directorate of Fisheries. Observed bycatch by onboard inspectors/observers has been reported annually in reports by the ICES Working Group on Bycatch (WGBYC). No estimates are available based on those numbers, as they are very low. In the last report of the Working Group on Bycatch of Protected Species (WGBYC) in 2023, in the Iceland Sea ecoregion in 2022, 22 days at sea were observed on seines from a total of 1,286 fishing days (1.7% coverage).

Table 5 Catch composition of all fishing trips by Icelandic vessels using pelagic trawls and purse seine which landed Icelandic summer-spawning herring during the calendar years 2019 to 2023 inclusive. (Data provided by the Directorate of Fisheries. The target species is highlighted in orange and species making up more than 1% of the catch are highlighted in green.

Icelandic									
name	English	Scientific name	2019	2020	2021	2022	2023	Total	%
					1465	4499	3257	92225	44.2
Loŏna	Capelin	Mallotus villosus	0	0	68	34	50	2	5
			1097	1298	1795	1754	1837	77838	37.3
Síld	Herring	Clupea harengus	18	37	39	89	98	1	5
			6363	4486	2169	3379	7491	23889	11.4
Makrill	Mackerel	Scomber scombrus	2	0	7	3	3	5	6
		Micromesistius		1105	3811	2934	5672	13899	
Kolmunni	Blue whiting	poutassou	3755	9	2	6	0	2	6.67
Spaerlinger	Norway pout	Trisopterus esmarkii	681	925	1053	199	191	3049	0.15
	Greater silver								
Gulllax	smelt	Argentina silus	537	85		38	187	847	0.04
Þorskur	Cod	Gadus morhua	9	11	30	232	334	616	0.03
	female								
Grásleppa	lumpsucker	Cyclopterus lumpus	47	81	45	45	134	352	0.02
Ufsi	Saithe	Pollachius virens	28	34	23	31	137	253	0.01
Karfi /									
Gullkarfi	Redfish	Sebastes norvegicus	43	41	47	36	75	242	0.01
		Melanogrammus							
Ýsa	Haddock	aeglefinus	0	5	3	15	45	68	0.00
Smokkfisku									
r	Squid	Loligo pealei	0	0	17	1	4	22	0.00
Urrari	Brown trout	Salmo trutta	1	9		1		11	0.00
	Beaked								
Djúpkarfi	redfish	Sebastes mentella	1	1	5	0	0	7	0.00
		Merlangius							
Lysa	Whiting	merlangus	0	0	1	0	0	1	0.00
Tindaskata	Starry ray	Amblyraja radiata	0	0	0	0	1	1	0.00



	Greenland	Reinhardtius							
Grálúða	halibut	hippoglossoides	0	0	0	0	0	0	0.00
			1784	1869	3871	6891	6422	20839	100.
Total			52	48	40	60	89	89	00

The bycatch species /associated catch (those above 0.1% of the catch) to the ISS herring fishery are blue whiting, capelin, mackerel and Norwegian spring spawning herring. The status of these species is shown below.

KOLMUNNI – BLUE WHITING (Micromesistius poutassou)⁹

Fishing pressure on the stock is above FMSY and Fpa but below Flim; spawning-stock size is above MSY Btrigger, Bpa, and Blim.

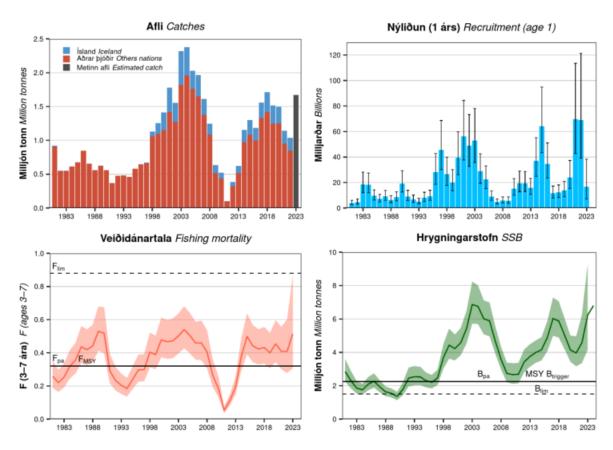


Figure 19 Total and Icelandic catches, recruitment at age 1, fishing mortality and spawning stock biomass (SSB).

LOĐNA – CAPELIN (Mallotus villosus)¹⁰

⁹ https://www.hafogvatn.is/static/extras/images/34-blue whiting1407347.pdf

¹⁰ https://www.hafogvatn.is/static/extras/images/31-capelin-autumn1408221.pdf



MFRI advises that when the harvest control rule agreed by the Coastal States is applied, there should be zero catch in winter 2023/2024. This advice will be revised based on results of acoustic measurements of the fishable stock in early 2024.

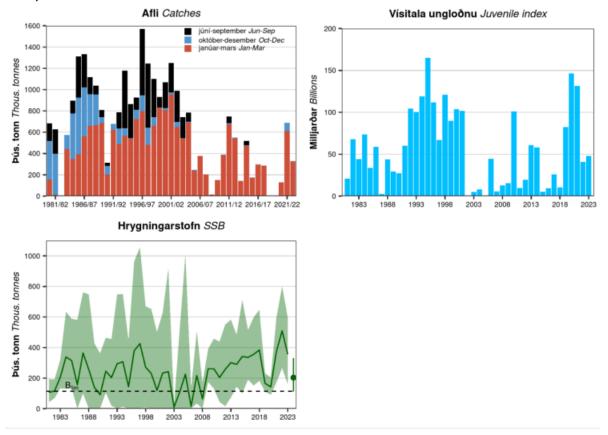


Figure 20 Capelin. Catches, acoustic index for immatures from autumn surveys, and SSB at spawning time (with 90% confidence limits). The estimate of the SSB in 2024 is a projected value.

MAKRÍLL - MACKEREL (Scomber scombrus)¹¹

ICES advises that when the MSY approach is applied, catches in 2024 should be no more than 739 386 tonnes. Fishing pressure on the stock is above FMSY but below Fpa and Flim; spawning-stock size is above MSY Btrigger, Bpa, and Blim.

¹¹ https://www.hafogvatn.is/static/extras/images/36-mackerel1407353.pdf



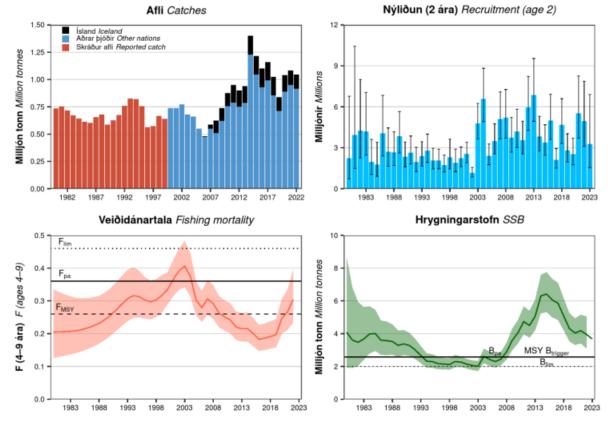


Figure 21. Mackerel harvest rate and biomass.

NORSK-ÍSLENSK VORGOTSSÍLD NORWEGIAN SPRING-SPAWNING HERRING (Clupea harengus)¹²

Fishing pressure on the stock is above FMSY and between Fpa and Flim, and spawning-stock size is above MGT Btrigger, Bpa, and Blim.

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¹² https://www.hafogvatn.is/static/extras/images/830-nss herring1407351.pdf



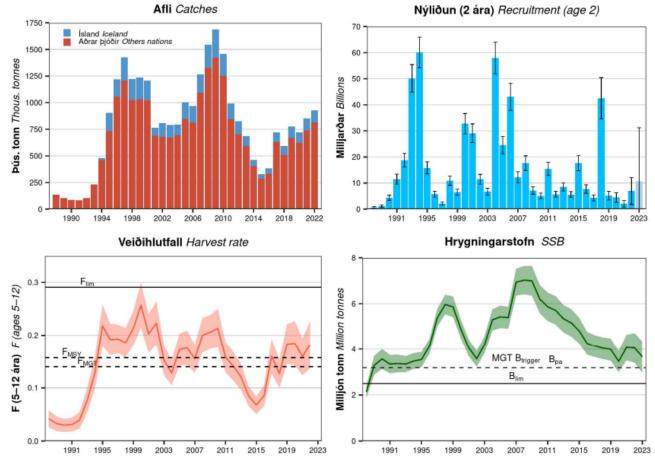


Figure 22 Norwegian spring-spawning herring. Summary of the stock assessment. The assumed recruitment value for 2023 is shaded in light blue.

5.7.1.1. Effects on Threatened, Endangered and Protected (TEP) species 5.7.1.1.1. National TEP legislation

The Icelandic summer-spawning herring fishery takes place entirely within the Icelandic EEZ. Consequently, only Icelandic TEP legislation needs to be considered.

Iceland is not an EU Member State, and consequently the list of "prohibited species" set out in the annual TAC Regulation (currently Article 14 of Regulation 124/2019 (EU, 2019)) does not apply to Icelandic vessels or to the fisheries under assessment as it would within the EU EEZ.

Iceland

The Icelandic Government signed the UN Convention on Biological Diversity in 1992 and it entered into force in 1994. The Government of Iceland adopted a biological diversity strategy in 2008 and a corresponding action plan in 2010.

Statutory protection of species and habitats is provided by the Nature Conservation Act (Government of Iceland, 1999). This Act applies to all of the territory of Iceland, the EEZ and the continental shelf. It enables the Minister



for the Environment to protect species and their supporting habitats & ecosystems (at §53). The protection and hunting of wild birds and wild mammals in Iceland are regulated by separate legislation (Government of Iceland, 1994) (as amended), which defines "wild animals" as "allir fuglar og spendýr, önnur en selir, hvalir, gæludýr og bústofn" [all birds and mammals other than seals, whales, pets and livestock].

Certain vulnerable fish species are protected in law namely Atlantic halibut *Hippoglossus hippoglossus* under Regulation No. 470, 2012¹³, and porbeagle *Lamna nasus*, basking shark *Cetorhinus maximus* and spurdog *Squalus acanthias* under Regulation No. 456, 2017¹⁴ and spotted wolffish as per Regulation 1256/2020¹⁵. These must be recorded in logbooks and landed under the VS catch provisions set out in Act No. 37 1992¹⁶,¹⁷; unless they are captured alive in which case they must be released. No other marine species have been protected under Icelandic domestic legislation as 'Endangered, Threatened or Protected'. Hunting for seals is permitted in Iceland, and whaling is also permitted (for fin and minke whales within the EEZ), subject to strict controls applied by the Government (ICES, 2019).

Two new regulations entered into force in 2023 (849/2023¹⁸ and 307/2023¹⁹), which both can constitute additional evidence in the steps made for protecting and preserving marine mammals and seabirds.

According to Article 16 of the Regulation 849/2023 on commercial fishing in the 2023/2024 fishing year and the 2024 calendar year, captains are obliged to keep fish on board fishing vessels separated by species. Moreover, on board fishing vessels there must be equipment to prevent birds and mammals from getting stuck in fishing gear when fishing gear is put into the sea. Article 17 sets an obligation to the captains of fishing vessels to keep special catch logs, cf. regulation on registration and electronic submission of catch information.

The above obligation is described analytically in Regulation 307/2023 on digital registration and submission of catch information. Article 1 of the latter Regulation obliges the captains of vessels that have a commercial fishing license according to the Fisheries Management Act, or a special fishing license, to record the catch information stipulated in this regulation, and send it digitally to the Directorate of Fisheries' web service before the end of the fishing trip. The number and species of marine mammals and seabirds must be recorded, among the other information, as accurately as possible, as mentioned in Article 3. This information must be sent to the web service of the Directorate of Fisheries before the ship docks at the port of landing after the fishing trip (Article 4).

http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Sveigjanleiki i aflamarkskerfinu

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¹³ Regulation 470/2012: https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/18302

¹⁴ Regulation 456/2017: https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/0456-2017

¹⁵ Reglugerð um (2.) breytingu á reglugerð nr. 468/2013, um nýtingu afla og aukaafurða. https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/22242

¹⁶ For further information see Fiskistofa website, 'Flexibility in the catch system':

¹⁷ Act 37/1992 on a Special Fee for Illegal Marine Catch. https://www.althingi.is/lagas/149a/1992037.html

¹⁸ Regulation 849/2023 on commercial fishing in the 2023/2024 fishing year and the 2024 calendar year (in Icelandic: https://island.is/reglugerdir/nr/0849-2023.

¹⁹ Regulation 307/2023 on digital registration and submission of catch information (in Icelandic): https://island.is/reglugerdir/nr/0307-2023.



No other marine species have been protected under Icelandic domestic legislation as 'Endangered, Threatened or Protected'. Hunting for seals and certain species of whales is permitted in Iceland (Regulation No. 1100/2019). None of these species has appeared in the catch records of the Icelandic pelagic fleet catching Icelandic summerspawning herring between 2019 and 2023 (**Table 5**).

5.7.1.1.2. CITES Appendix 1

The Convention on International Trade in Endangered Species of Wild Fauna (CITES) entered into force in Iceland on 2nd April 2000, subject to reservations for some Appendix I species (rorquals including minke, blue, fin and humpback whales; also, sperm whales & bottle nosed whales) (CITES, 2024a). This means that Iceland is not bound by CITES provisions on trade for these species.

The species recorded in landings from the Icelandic summer-spawning herring fisheries (Table 5) have been cross-referenced with CITES Appendix I (CITES 2024b) using the Species+ database (Species+ 2024). None of the species landed from the herring fishery are listed in Appendix I. **Table 6** shows marine/marine-related seabird species are both listed in Appendix I of CITES and present in Iceland.

It is noted that killer whale (*Orcinus orca*) are listed in CITES Appendix II and that Iceland has made a reservation to this listing which means that the relevant provisions do not apply within Iceland. Killer whale in Iceland mainly prey upon herring and mackerel. There are on-going studies documenting this association (Sammara *et al.*, 2017a,b, cited in NAMMCO, 2017). Fishers report that killer whale are generally not seen during trawling for herring. They are frequently observed during the purse seine fishery but fishers report that interactions with the gear are rare. Adult killer whales are generally able to make their own way out of the net but could cause significant damage if they are caught and need to be cut free. If it looks likely that a killer whale will be caught the gear is released to prevent damage to it.

Table 6. Species listed in Appendix 1 of CITES relevant to the UoAs under assessment.							
Group	Common name	Scientific Name	Listing	Reservation			
	Bowhead whale	Balaena mysticetus	I				
	North Atlantic right whale	Eubalaena glacialis	I				
	Common minke whale	Balaenoptera acutorostrata	I (all other populations)	Yes			
Common minke whale		Buldenoptera acatorostrata	II (West Greenland population)				
Cetaceans	Sei whale	Balaenoptera borealis	I	Yes			
Cetaceans	Blue whale	Balaenoptera musculus	I	Yes			
	Fin whale	Balaenoptera physalus	I	Yes			
	Humpback whale	Megaptera novaeangliae	I	Yes			
	Sperm whale	Physeter macrocephalus	I	Yes			
	Northern bottlenose whale	Hyperoodon ampullatus	I	Yes			
Birds	White-tailed sea-eagle	Haliaeetus albicilla	I				
Sea turtles	Leatherback sea turtle	Dermochelys coriacea	I				
Fishes	European sea sturgeon	Acipenser sturio	I				



5.7.1.1.3. Convention on Migratory Species

The Convention on Migratory Species (CMS) is an environmental treaty drawn up under the UN Environment Programme. It provides a global platform for the conservation and sustainable use of migratory animals and their habitats. Details of the CMS, its signatories and the agreements that have been drawn up under the convention are available on the CMS website (CMS, 2024a).

Iceland is not a party to CMS, but is a party to the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) which is a CMS instrument (CMS, 2024b). AEWA covers 254 species of birds that are ecologically dependent on wetlands for at least part of their annual cycle (including many species of divers, grebes, cormorants, waders, gulls, terns, auks and even the South African penguin).

Of the seabird species observed as impacted by Icelandic fisheries (primarily the lumpfish fishery), some such as common eider, long tailed duck and common loon are listed in Appendix II of the CMS itself while others such as black guillemot, Atlantic puffin, long tailed duck, black-legged kittiwake, razorbill, and common loon are listed in Table 1 Column A of AEWA (**Table 7**). Listing in either of which requires them to be considered as candidate TEP species.

Additionally, a number of the marine mammal species commonly observed in the area of operations of the UoAs under assessment are listed in either the CMS itself or in other binding agreements concluded under it. However, these listings apply to areas not relevant to this assessment (e.g. Western North Atlantic, Black Sea, Northwest African and Baltic and North Seas).

There is no evidence of any interaction between the UoAs and any of the species listed in AEWA²⁰. By-catch of seabirds in the fisheries under assessment are considered very low. Although a number of bird species are recorded as incidental catch in Icelandic fishing gears, this recorded catch has been confined to gillnets, demersal trawls and long-lines rather than the gears used in the fisheries under assessment (Pálsson *et al.*, 2015; ICES WGBYC, 2023).

Table 7. Species relevant to the UoAs under assessment and listed in binding agreements concluded under the Convention on Migratory Species (CMS).

Group	Common name	Scientific Name	Listing	Notes
Seals	Grey seal	Halichoerus grypus	П	Baltic Sea pop.
Seals	Harbour seal	Phoca vitulina	П	Baltic and Wadden Sea pops
	Bowhead whale	Balaena mysticetus	ı	
	North Atlantic right whale	Eubalaena glacialis	I	
Catalana	Sei whale	Balaenoptera borealis	1/11	
Cetaceans	Blue whale	Balaenoptera musculus	I	
	Fin whale	Balaenoptera physalus	1/11	
	Humpback whale	Megaptera novaeangliae	I	

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²⁰ Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA). Species list. https://www.unep-aewa.org/en/species



Table 7. Species relevant to the UoAs under assessment and listed in binding agreements concluded under the Convention on Migratory Species (CMS).

Group	Common name	Scientific Name	Listing	Notes
	Short-beaked common	Delphinus delphis	1/11	I Mediterranean pop.; II North and
	dolphin			Baltic Sea, Mediterranean, Black Sea
				and eastern tropical Pacific pops.
	Long-finned pilot whale	Globicephala melas	II	North and Baltic Sea pops.
	Atlantic White-sided	Lagenorhynchus acutus	II	North and Baltic Sea pops.
	Dolphin			
	White-beaked Dolphin	Lagenorhynchus	11	North and Baltic Sea pops.
		albirostris		
	Killer whale	Orcinus orca	II	
	Beluga whale	Delphinapterus leucas	H	
	Narwhal	Monodon monoceros	II	
	Harbour porpoise	Phocoena phocoena	II	Western North Atlantic and Black
				Sea, North and Baltic Sea and North
				West African pops.
	Sperm whale	Physeter macrocephalus	1/11	
	Northern bottlenose whale	Hyperoodon ampullatus	H	
	Cuvier's beaked whale	Ziphius cavirostris	I	Mediterranean pop. only
Ducks	Common eider	Somateria mollissima	II	
Loons	Common loon	Gavia immer	H	Northwest European pop.
Turtles	Leatherback sea turtle	Dermochelys coriacea	1/11	I Leatherback; II All migratory
rurties				Dermochelyidae spp.
	Tope	Galeorhinus galeus	II	
	Basking Shark	Cetorhinus maximus	1/11	
Elasmobranchs	Porbeagle	Lamna nasus	II	
	Giant devil ray	Mobula mobular	1/11	
	Spiny dogfish	Squalus acanthias	II	Northern hemisphere pop.
Fishes	European Sturgeon	Acipenser sturio	1/11	
Fishes	European eel	Anguilla anguilla	II	

5.7.1.1.4. IUCN Red List species

The Icelandic Institute for Natural History has compiled Red Lists for the biota of Iceland to identify species that are threatened or at risk of extinction. The latest Red Lists were published in 2018 for vascular plants, birds and mammals²¹. Although based upon the IUCN criteria these lists do not constitute the IUCN Red List, neither have they recognised in national legislation, and so are not considered further as TEP.

One of the species listed in the Directorate of Fisheries landings data from the Icelandic summer-spawning fisheries, namely golden redfish, is classified as "vulnerable" (VU) on the IUCN Redlist. However, as shown in **Table** 5 the landings of golden redfish by the UoA are, in any case, negligible.

²¹ Icelandic Institute of Natural History. Red Lists. https://en.ni.is/resources/publications/red-lists



5.7.1.1.5. TEP Data

The MFRI provided further bycatch estimates for marine mammals and seabirds in 2024 for years 2022 -2023. Observed bycatch by onboard inspectors and in surveys in 2022 was reported in the 2023 ICES Working Group on Bycatch (WGBYC) report²². The 2023 ICES WGBYC report⁹³ stated that in the Iceland Sea Ecoregion in 2022, 113 days at sea were monitored in nets and 327 days in bottom trawls, with a monitoring coverage of 3.47%. All monitoring was performed by at-sea observers. During the site visit the following observer coverage was confirmed by Fiskistofa staff:

- 3% purse seine coverage from 9 trips
- 2.2% midwater trawl coverage from 11 inspected trips

The MRFI provided the assessment team with data from logbooks provided by the Directorate of Fisheries for the year 2023 (**Table 9**). Earlier years were not available, due to the transition from paper logbooks to logbook apps and electronic logbook forms. Data from onboard inspectors were provided by the Directorate of Fisheries for the last 5 years, or from 2020-2023. Additionally, data from three MFRI surveys were also used to calculate bycatch rates.

In midwater trawl, only common guillemots were reported by the inspectors, while no bycatch was reported in the logbooks. In demersal trawl, grey seal and medium sized whale were reported in logbooks, while no bycatch was observed by the inspectors or in surveys (**Table 9**).

Table 8 Reported number of bycaught specimens in Icelandic waters in 2021-2023 provided through the ICES WGBYC 2023 data call by ecoregion for all reported species and MFRI data 2024.

Gear		Common name	Scientific name	2021	2022	2023
Longlines	Birds	Northern Fulmar	Fulmarus glacialis		7	
	Teleostei	Northern wolffish	Anarhichas denticulatus			3
Nets	Birds	Razorbill	Alca torda		3	3
		Black guillemot	Cepphus grylle	3	6	
		Northern fulmar	Fulmarus glacialis	4	2	3
		Northern gannet	Morus bassanus	1	1	
		Great cormorant	Phalacrocorax carbo	2	3	
		Common eider	Somateria mollissima	3	43	
		Guillemot	Uria aalge	277	17	28
		Long-tailed duck	Clangula hyemalis	1	0	
		Red-throated diver	Gavia stellata	1	0	
		European shags	Phalacrocorax aristotelis	1	0	
		Brünnich's guillemot	Uria lomvia	1	0	
	Elasmobranchii	Black dogfish	Centroscyllium fabricii		1	58
		Blue skate	Dipturus batis		17	20
		Velvet belly	Etmopterus spinax		9	15

²² ICES (2023). Working Group on Bycatch of Protected Species (WGBYC). ICES Scientific Reports. Report. https://doi.org/10.17895/ices.pub.24659484.v2

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	Holocephali	Rabbit fish	Chimaera monstrosa		390	508
	Mammals	Harbour seal	Phoca vitulina	7	9	
		Arctic ringed seal	Pusa hispida			1
		Harbour porpoise	Phocoena phocoena	36	31	45
		Grey seal	Halichoerus grypus	2	0	2
		Harp seal	Pagophilus groenlandicus	2	0	
		White-beaked dolphins	Lagenorhynchus albirostris)	2	0	
	Teleostei	Greater eelpout	Lycodes esmarkii		1	0
		Pollack	Pollachius pollachius		9	12
ОТВ	Elasmobranchii	Arctic skate	Amblyraja hyperborea		45	57
		White ghost catshark	Apristurus aphyodes		38	46
		Iceland catshark	Apristurus laurussonii		20	18
		Black dogfish	Centroscyllium fabricii		730	889
		Longnose velvet dogfish	Centroselachus crepidater		182	282
		Birdbeak dogfish	Deania calceus		16	82
		Blue skate	Dipturus batis		72	75
		Great lanternshark	Etmopterus princeps		282	327
		Malanthall	Etmopterus spinax		OFF	783
		Velvet belly	Limopierus spinux		855	
		Mouse catshark	Galeus murinus		124	118
			' '			118 0
		Mouse catshark	Galeus murinus		124	
		Mouse catshark Deep-water ray	Galeus murinus Rajella bathyphila		124 1	0
		Mouse catshark Deep-water ray Round ray	Galeus murinus Rajella bathyphila Rajella fyllae		124 1 1631	0 94
	Holocephali	Mouse catshark Deep-water ray Round ray Sailray	Galeus murinus Rajella bathyphila Rajella fyllae Rajella lintea		124 1 1631 15	0 94 5
	Holocephali	Mouse catshark Deep-water ray Round ray Sailray Greenland shark	Galeus murinus Rajella bathyphila Rajella fyllae Rajella lintea Somniosus microcephalus		124 1 1631 15 1	0 94 5 1
	Holocephali	Mouse catshark Deep-water ray Round ray Sailray Greenland shark Rabbit fish	Galeus murinus Rajella bathyphila Rajella fyllae Rajella lintea Somniosus microcephalus Chimaera monstrosa		124 1 1631 15 1 1424	0 94 5 1 1512
	Holocephali Teleostei	Mouse catshark Deep-water ray Round ray Sailray Greenland shark Rabbit fish Large-eyed rabbitfish	Galeus murinus Rajella bathyphila Rajella fyllae Rajella lintea Somniosus microcephalus Chimaera monstrosa Hydrolagus mirabilis		124 1 1631 15 1 1424 5	0 94 5 1 1512 0
	·	Mouse catshark Deep-water ray Round ray Sailray Greenland shark Rabbit fish Large-eyed rabbitfish Straightnose rabbitfish	Galeus murinus Rajella bathyphila Rajella fyllae Rajella lintea Somniosus microcephalus Chimaera monstrosa Hydrolagus mirabilis Rhinochimaera atlantica		124 1 1631 15 1 1424 5 53	0 94 5 1 1512 0 50
	·	Mouse catshark Deep-water ray Round ray Sailray Greenland shark Rabbit fish Large-eyed rabbitfish Straightnose rabbitfish Northern wolffish	Galeus murinus Rajella bathyphila Rajella fyllae Rajella lintea Somniosus microcephalus Chimaera monstrosa Hydrolagus mirabilis Rhinochimaera atlantica Anarhichas denticulatus		124 1 1631 15 1 1424 5 53 144	0 94 5 1 1512 0 50 136

Table 9 Bycatch in other fishing gears as reported by onboard inspectors between 2020 and 2023, and by the fishing fleet in 2023. The numbers are standardized by the number of landings (inspected and total). (Source MRFI, 2024)



Species	Fishing gear	Observed bycatch rate	Reported bycatch rate
Орослов	Tioning godi	(n/observed landings)	in logbooks (n/total
		(landings)
Common guillemot	Midwater trawl	0.021 (2/96)	0.000 (0/2855)
Grey seal	Demersal trawl	0.000 (0/165)	0.00002 (1/44566)
Unidentified medium	Demersal trawl	0.000 (0/165)	0.00002 (1/44566)
sized whale			, , ,
Harbour porpoise	Cod gillnets	0.893 (134/150)	0.009 (30/32549)
Humpback whale	Cod gillnets	0.013 (2/150)	0.000 (0/3254)
White-beaked dolphin	Cod gillnets	0.013 (2/150)	0.000 (0/3254)
Harbour seal	Cod gillnets	0.047 (7/150)	0.002 (5/3254)
Ringed seal	Cod gillnets	0.007 (1/150)	0.000 (0/3254)
Harp seal	Cod gillnets	0.020 (3/150)	0.000 (0/3254)
Alcids, not identified to	Cod gillnets	0.000 (0/150)	0.005 (16/3254)
Species	Cod sillnato	2.027 (204/150)	0.000 (0/2254)
Common guillemot	Cod gillnets	2.027 (304/150)	0.000 (0/3254)
Fulmar	Cod gillnets	0.053 (8/150)	0.000 (0/3254)
Razorbill	Cod gillnets	0.027 (4/150)	0.000 (0/3254)
Northern gannet	Cod gillnets	0.007 (1/150)	0.000 (0/3254)
Common loon	Cod gillnets	0.007 (1/150)	0.000 (0/3254
Eider	Cod gillnets	0.007 (1/150)	0.000 (0/3254)
Long tailed duck	Cod gillnets	0.007 (1/150)	0.000 (0/3254)
Grey seal	Greenland halibut gillnets	0.000 (0/150)	0.001 (1/860)
Fulmar	Longline	0.194 (7/36)	0.128 (1000/7796)
Northern gannet	Longline	0.000 (0/36)	0.004 (31/7796)
Great black-backed gull	Longline	0.000 (0/36)	0.004 (32/7796)
Glaucous gull	Longline	0.000 (0/36)	0.0004 (3/7796)
Black legged kittiwake	Longline	0.000 (0/36)	0.0004 (3/7796)
European herring gull	Longline	0.000 (0/36)	0.0012 (9/7796)
Great skua	Longline	0.000 (0/36)	0.0003 (2/7796)
Lesser black-backed	Longline	0.000 (0/36)	0.0024 (19/7796)
gull			
Black guillemot	Longline	0.000 (0/36)	0.0001 (1/7796)
Alcids, not identified to	Longline	0.000 (0/36)	0.0004 (3/7796)
species		, , , , ,	, ,
Seagulls, not identified	Longline	0.000 (0/36)	0.0003 (2/7796)
to species			
Common dolphin	Handline	0.000 (0/6)	0.001 (1/18296)

Relevant updates for species for which data is available is provided below. All the species below were identified and analyzed as vulnerable or TEP species in the full assessment that resulted in the current certificate for this fishery (see relevant audit report at https://www.responsiblefisheries.is/certification/certified-fisheries).

TEP conclusion

Although evidence of the degree to which ISSH fisheries and marine mammals interact is sparse, available evidence would indicate that, in Icelandic waters, direct mortality of marine mammals as a result of interactions with pelagic fishing gears used in the fishery is likely to be low and unlikely to have detrimental effects at the population level.



Notwithstanding the above we provide here below some updates on vulnerable and TEP species bycatch that have a bearing on information availability from the Icelandic fleets and risk from the most important gear types (gillnet and longline) and show no interaction with purse seine or mid-water trawl.

5.7.1.1.1. Mammals

According to the Icelandic Institute of Natural History (IINH, NáttúrufræðistofnunÍslands), two seal species (grey seal, *Halichoerus grypus*) and harbour seal (*Phocavitulina*)) are resident in Iceland. Four more species (Arctic ringed seal (*Pusahispida*), harp seal (*Pagophilusgroenlandicus*), hooded seal (*Cystophora cristata*) and bearded seal (*Erignathus barbatus*)) represent regular visitors while walruses (*Odobenus rosmarus*) are occasional visitors. Population estimates of marine mammals can be found in the Icelandic Institute of Natural History (https.//www.ni.is/is/midlun/utgafa/valistar/spendyr/valisti-spendyra).

23 cetacean (whales and dolphins) species have also been identified within Icelandic Waters. Sighting of many of these are rare but some are regularly observed in Icelandic Waters. Resident or commonly observable species in Icelandic waters include blue (*Balaenoptera musculus*; ISL. Steypireyður), bottlenose (*Hyperoodon ampullatus*; ISL. Andarnefja), fin (*Balaenoptera physalus*; ISL. Langreyður), humpback (*Megaptera novaeangliae*; ISL. Hnúfubakur), killer (*Orcinus orca*; ISL. Háhyrningur), long-finned pilot (*Globicephala melas*; ISL. Gindhvalur), minke (*Balaenoptera acutorostrata*; ISL. Hrefna), sei (*Balaenoptera borealis*; ISL. Sandreyður) and sperm (*Physetmacrocephalus*; ISL. Búrhvalur) whales, white-beaked (*Lagenorhynchusalbirostris*; ISL. Hnýðingur/Höfrungur) and white-sided (*Lagenorhynchusacutus*; ISL. Leiftur) dolphins and harbour porpoise (*Phocoenaphocoena*; ISL. Hnísa).

Observed bycatch by onboard inspectors/observers has been reported annually in reports by the ICES Working Group on Bycatch (WGBYC). No estimates are available based on those numbers, as they are very low. In the last report of the Working Group on Bycatch of Protected Species (WGBYC) in 2023, in the Iceland Sea ecoregion in 2022, 520 days at sea were observed from a total of 14,983 fishing days (3.47% coverage). Harbour porpoise was the largest proportion of cetacean bycatches in 2021, 2022 and 2023 (36, 30 and 45 respectively) (MFRI data 2024). Compared with other fisheries, purse-seine fishing does not seem to be among the most damaging to marine mammals (Wise et.al. 2007).

Bycatch information of marine mammals and birds from fisher logbooks by gear type in 2022-2024 was provided after the site visit by MFRI **Table 9.**

Grey seal (Halichoerus grypus)

As with harbour seals, grey seals do not meet the MSC definition of an **TEP** species by virtue of their not being protected by national legislation, listed in CITES Appendix 1, listed in the IUCN Red List as vulnerable (VU), Form 13c Issue 6 January 2021 Page 70 of 237 endangered (EN) or critically endangered (CE) and while they are listed in the CMS, this listing applies only to Baltic Sea populations and hence does not apply. Grey seals are therefore not an **TEP** species.



Harp seal (Pagophilus groenlandicus)

While they occasionally occur in the area, harp seals are not resident in Iceland. As with harbour and grey seals, harp seals do not meet the definition of an **TEP** species by virtue of their not being protected by national legislation or listed in CITES Appendix 1, the CMS or the IUCN Red List as vulnerable (VU), endangered (EN) or critically endangered (CE).

White-beaked dolphin (Lagenorhynchus albirostris)

With respect to national **TEP** species legislation, white-beaked dolphins are not specifically protected in Iceland. Additionally, with respect to relevant binding international agreements, white-beaked dolphins are listed in Appendix II (i.e. not Appendix I) of CITES, in Annex II of the CMS (but this listing only applies to Baltic and North Sea populations) and on the IUCN Red List as Least Concern (i.e. not vulnerable (VU), endangered (EN) or critically endangered (CE)). Therefore, white beaked dolphins do not meet the definition of an **TEP**.

Harbour Porpoises (*Phocoena phocoena*)

Harbour porpoises are classified as Least Concern in the IUCN Red List²³ (population trend stable, last assessed in 2023). They are also classified as Least Concern in the Icelandic National Red list (based on a 2016 assessment)²⁴. The 2019 Report of the NAMMCO Scientific Committee Working Group on Harbour Porpoise (19-22 March 2019)²⁵ reported the following about the Icelandic harbour porpoise population. Annual estimates of harbour porpoise by-catch have decreased in recent years as gillnet effort has decreased, from a high of 7,300 animals in 2003 to about 1600 animals in 2009–2013²⁶ and down to about 750 animals in 2014-2015. Harbor Porpoise abundance in Iceland was estimated by aerial surveys in 2007 as 43,179 (CV 0.45) individuals; however, since the survey was not designed for Harbor Porpoises this estimate should be treated with caution as it is likely to have underestimated abundance (Gilles et al. 2011, IMR/NAMMCO 2019).

Results based on close kin mark recapture genetics indicates that the population has increased substantially in recent years.²⁷

In 2022 the same group provided the following update²⁸:"Sigurdsson informed the WG about plans to conduct an aerial survey in July 2023 to obtain updated abundance estimates for harbour porpoise in Iceland. The group commanded the planning of such a survey. Given that abundance estimates from the NASS surveys may not be usable for harbour porpoise in Iceland, the group agreed that the 2023 abundance estimate be the one used in the future Icelandic assessment.

²³ Braulik, G.T., Minton, G., Amano, M. & Bjørge, A. 2023. Phocoena phocoena (amended version of 2020 assessment). The IUCN Red List of Threatened Species 2023: e.T17027A247632759. https://dx.doi.org/10.2305/IUCN.UK.2023-1.RLTS.T17027A247632759.en. Accessed on 24 July 2024.

²⁴ https://www.ni.is/node/27406

²⁵ NAMMCO (2019). Report of the NAMMCO Scientific Committee Working Group on Harbour Porpoise, 19-22 March, Copenhagen, Denmark. https://nammco.no/wp-content/uploads/2019/02/final-report hpwg-2019.pdf

²⁶ Pálsson ÓK, Gunnlaugsson Th, and Ólafsdóttir D. 2015. By-catch of seabirds and marine mammals in Icelandic Fisheries. Marine Research no 178. https://www.hafogvatn.is/static/research/files/fjolrit-178pdf

²⁷ North Atlantic Marine Mammal Commission and the Norwegian Institute of Marine Research. (2019). Report of Joint IMR/NAMMCO International Workshop on the Status of Harbour Porpoises in the North Atlantic. Tromsø, Norway. https://nammco.no/wp-content/uploads/2020/03/final-report hpws/2018/rev2020.pdf

²⁸ NAMMCO-North Atlantic Marine Mammal Commission (2022). Report of the Scientific Committee Working Group on Harbour Porpoise. November 2022, Oslo, Norway. https://nammco.no/wp-content/uploads/2023/01/final-report-hpwg-2022 with-exsum.pdf



Sigurdsson indicated that previous work using close kin Mark-Recapture genetics and presented at the 2018 NAMMCO/IMR International Workshop on harbour porpoise indicated that the Icelandic population was increasing. Sigurdsson informed the WG that around 500 animals were by-caught annually in the Icelandic lumpsucker fishery and 1500-2000 in the cod fishery, noting that by-catch levels were much higher in the past. Sigurdsson informed the WG that Iceland was also conducting isotopic work and investigating the diet of harbour porpoise using samples from by-caught and stranded animals. Life history parameters and age distribution histograms are possible to infer from these samples. The group recommended that an assessment for Iceland be made when the new abundance estimate becomes available.

Sigurdsson informed the WG of the by-catch time series available in Iceland, including some back calculated by-catch estimates, and presented at the international harbour porpoise workshop in 2018. As in the case of Norway, the group recommended Iceland to generate the best back-calculated bycatch estimates (i.e., generate a time series going back to the beginning of the fishery) for the upcoming Icelandic assessment, planned for 2024."

The results of a recent paper on Atlantic populations of harbour porpoise support genetic differentiation between North Atlantic and Baltic Sea populations, with Kattegat as a transition zone (Autenrieth et al. 2024). Across the North Atlantic the population differentiation is subtle from west to east, congruent with an isolation-by-distance pattern, but indicates a separation of southern North Sea harbour porpoises. Although abundances in the North Atlantic shelf distribution area are quite high, the genetic differentiation shown here, as well as the identified morphological and behavioural differences previously observed may warrant consideration of more regional management units for which specific abundance estimates would be desirable. Our data generally supports the assessment areas of NAMMCO and warrants consideration of the southern NOS, BES and IBS as separate populations/management units, with a recommendation to include further samples from neighbouring areas in future studies.

The North Atlantic Sightings Surveys (NASS) series is an international effort to monitor cetacean abundance and distribution. As cetaceans are able to travel long distances and do not remain within national borders, each country conducting its own national survey would only capture a fraction of their range and distribution. In NASS, several countries coordinate their surveys to cover as wide a range as possible at the same time (that is, synoptic surveys)²⁹. NASS 2024 will be the 7th such survey since 1987. The primary focus of NASS 2024 is on four target species (fin whales, humpback whales, minke whales, and pilot whales). The result will give an overview of trends in abundance and any changes in distribution that may have occurred over almost four decades.

All four NAMMCO member countries are participating in NASS 2024. The Greenlandic surveys will be conducted by plane, while the Faroe Islands, Iceland, and Norway will be using ships. In fact, they will be using both dedicated vessels and opportunistic ones, i.e., vessels that are being deployed for a different reason, including redfish and mackerel surveys.

²⁹ https://nass.nammco.org/2024/



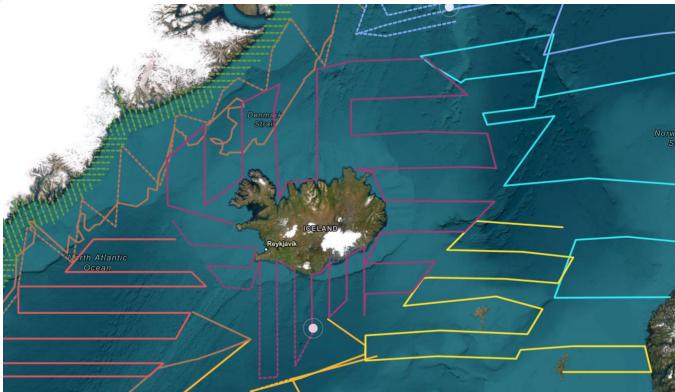


Figure 23. NASS-North Atlantic Sightings Survey 2024. (Source https://nass.nammco.org/2024/)

A preliminary estimate of 1,841 Harbor Porpoises a year is considered as an upper bound for the bycatch in cod gillnets in Iceland over the period 2013-2017 (IMR/NAMMCO 2019).

Harbour seal (*Phoca vitulina*)

The MFRI 2021 advice for harbour seals³⁰ indicates that the 2020 harbour seal census resulted in a population estimated of 10,319 animals (95% confidence intervals: 6,733-13,906). The current population estimate is 69% lower than the first abundance estimate from 1980 and the estimate is 14% under the management objective of 12 thous. Animals (Hafrannsóknastofnun 2021). In 2019, new regulation regarding seal hunting in Iceland was enacted (Atvinnuvega- og nýsköpunarráðuneytið 2019). All seal hunting is banned, but it is possible to obtain an exemption for traditional hunt. It is also forbidden to sell Icelandic seal products. Bycatch in gillnets is probably the highest mortality risk for harbour seals in Iceland currently. Limited data are available on seal bycatch, but data collected by on-board observers of the Directorate of Fisheries, and in the MFRI gillnet survey, indicate that on average, 1389 (coefficient of variation, CV=35) harbour seals have been bycaught annually in the lumpfish fishery between 2014 and 2018. Bycatch in cod gillnet fishery and bottom trawls is less common and more uncertainty associated with the bycatch estimates in those fisheries. Between 2014 and 2018, it has been estimated that annually, 15 harbour seals were bycaught in cod gillnet fisheries (CV=102) and 17 harbour seals in bottom trawls (CV=100) (Hafrannsóknastofnun, 2019). There are no recorded interactions with purse seine or mid-water trawl.

³⁰ https://www.hafogvatn.is/static/extras/images/radgjof-landselur20201286028.pdf



Other marine mammals

The MFRI confirmed that no interaction with Blue whales and Northern right whales recorded in recent years.

There are no further updates from NAMMCO or the MFRI in relation to other marine mammal species (i.e. seals), aside from what we reported in the previous surveillance report.

Pearl net trials

A series of trials of pingers have been conducted in recent years, and the last one using wideband PAL pingers was quite successful. No new pinger trials have been done, but pearl nets were tested in a cod fishery last April. Pearl nets have also been trialled with promising results. One reason why small, echolocating cetaceans entangle in gillnets may be their inability to acoustically detect gillnets and classify them as obstacles. To increase the overall acoustic reflectivity as well as alter the perceived image to simulate an impenetrable barrier, small reflective objects – 8 mm wide acrylic glass spheres – were attached to standard gillnets (Kratzner et. al. 2022, 2021, Kindt-Larsen et. al 2024).

5.7.1.1.2. Elasmobranchs

Leafscale gulper shark

No catch of leafscale gulper shark has been reported for the last 5 years in the fishery. Deepwater autumn survey trends show increasing trend (see **Figure 24**).

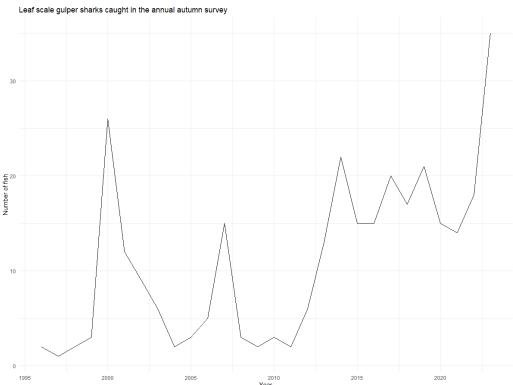


Figure 24. Leaf scale gulper sharks caught in the annual autumn survey 2023.



Blue skate (Dipturus flossada / batis)

Investigation of the common skate complex in Icelandic waters indicated that the dominant species currently found in Icelandic waters is the smaller *D. batis* now currently referred to as the common blue skate or blue skate (Bache-Jeffreys,2021) and Pálsson & Jakobsdóttir (2018). It is not a frequent catch in any of the MFRI surveys and it is less abundant on the shelf in autumn than in spring. However, occurrence has been increasing in spring survey. The increase is also reflected in increasing trend in the biomass index since 2010 (**Figure 25**). The mean biomass in annual spring survey is estimated around 600 tonnes.

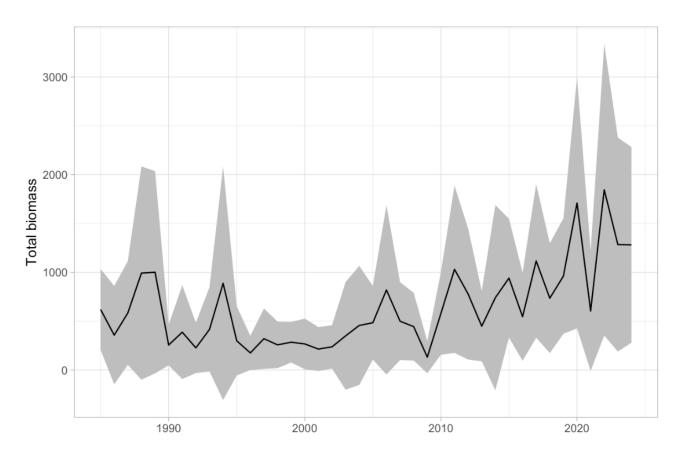


Figure 25. Blue skate. Biomass estimates based on IS-SMB survey. 31

Dogfish (Squalus acanthias)

Between 7 and 23 dogfish have been caught in surveys or observed bycaught annually in the last 5 years while between 1000 and 3000 kgs of it have been landed annually (**Figure 26**). Since 2017, a regulation has been in force banning the fishing of dogfish, porbeagle (*Lamna nasus*) and basking shark (*Cethorhinus maximus*) (https://www.regulgerd.is/reglugerdir/allar/nr/456-2017). In stock measurements, dogfish are mainly found in shallow waters and down to a depth of 200 m. In SMB, dogfish have been caught on average at ~ 3% of stations, but since 2002 it has only been caught at a few stations **Figure 27**.

³¹ https://www.hafogvatn.is/static/extras/images/15-skate_techreport_en.html



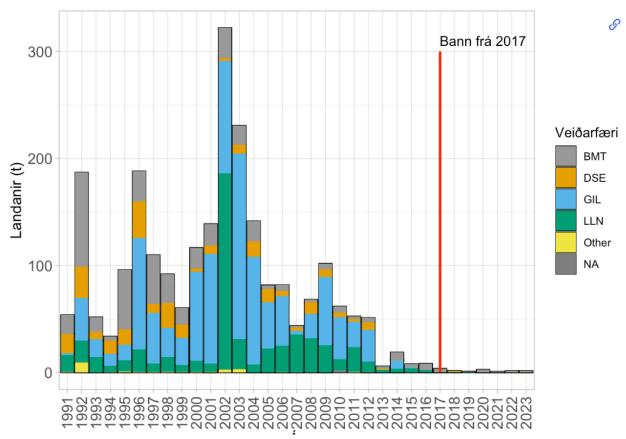


Figure 26 Landings of dogfish divided by fishing gear since 1991 according to the catch registration system of the Fiskistofa. BMT: Bottom trawler, DSE: Dragnet, GIL: Net LLN: Line, NA: unknown



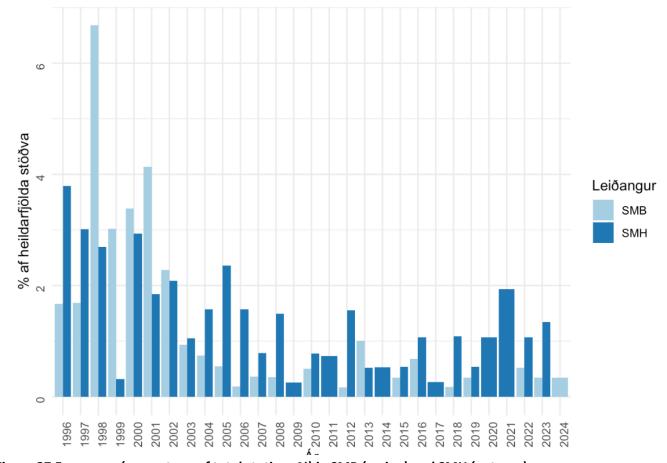


Figure 27 Frequency (percentage of total stations %) in SMB (spring) and SMH (autumn).

Greenland sharks (Somniosus microcephalus)

Between 1-4 Greenland sharks have been caught in surveys or observed bycaught annually in the last 5 years. There is a small artisanal fishery for Greenland shark in Iceland, and catch has been between 15 and 30 tonnes annually in the last 5 years (MRFI site visit information).

Porbeagle (Lamna nasus)

Two porbeagles have been observed bycaught in the last 5 years while between 2050 and 4000 kg of it have been landed annually by Icelandic fisheries by bottom trawl fisheries (MRFI site visit information).

5.7.2. Habitat effects of the fishery

5.7.2.1. Habitats management

Iceland has a detailed management strategy for protecting certain areas (permanent, seasonal or temporary closures), in order to protect both fish spawning areas (Fisheries Management Act: 116/2006) or vulnerable habitats such as cold-water corals or hydrothermal chimneys (Ministry of Fisheries Act: No. 942/2016; Nature Conservation Act: 44/1999) or other VME when these are identified (Figure 28).



Iceland has also ratified numerous international conventions intended to protect habitats and ecosystems, such as the OSPAR Convention, the CITES Convention and the Convention on Biological Biodiversity and is a Contracting Party to the Northeast Atlantic Fisheries Commission (NEAFC) which, in 2014, adopted Recommendation 19 which requires vessels to move 2 nm when encountering the presence of >30 kg of live coral and/or >400 kg of live sponges.

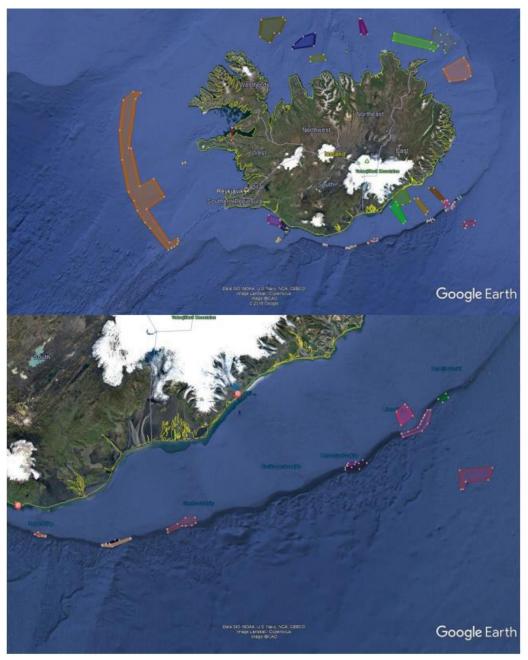


Figure 28. Top: closed areas for otter trawling (note there are small parts of this area which are open for certain periods of the year). Bottom: permanently closed areas for all fishing to protect cold-water corals (Source: ICES



2022, Fisheries overview). For an interactive map of closures with detailed information on each closure including regulations see the Hafsjá hyperlink on the Fiskistofa homepage (http://atlas.lmi.is/mapview/?application=haf).

A new Regulation (188/2023) was released on setting protective measures for sensitive ocean areas and benthic ecosystems. Protection on specific areas was set for all fishing except with gillnet, pelagic trawl and purse seine or for all fishing except with pelagic trawl and purse seine.

5.7.2.2. Marine habitats and the UoA

The Icelandic pelagic fleet use mainly pelagic trawls and occasionally purse seine nets. Herring are a pelagic fish which live in the upper part of the water column. The nets used in the fishery are designed only for use in the water column, and not for contact with the seabed.

The herring fishery is confined to the "epipelagic habitat" – the uppermost 200 m of the water column, often called the "sunlit zone", where most of the ocean's primary production takes place. The extent of this and other pelagic habitats is shown in **Figure 29**.

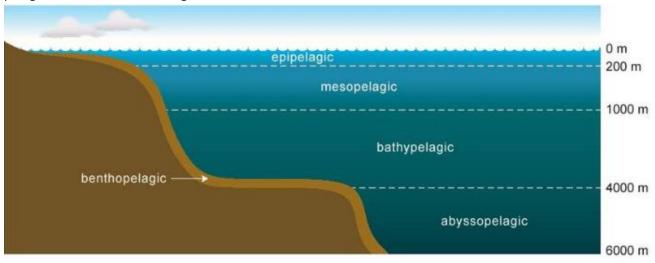


Figure 29 Definitions of pelagic habitats. The uppermost 200 m are the "epipelagic zone" (source: Game, 2008).

Landings data from the Icelandic pelagic fleet and the herring fishery in particular shows that demersal fish species are caught in extremely low volumes (see **Table 5**), which supports the view that interactions with benthic habitats are very rare. Gear loss is reported to be very rare.

On this basis, the "commonly encountered marine habitat" for the Icelandic herring fishery is the epipelagic zone of the water column. The key features of this habitat are the different water bodies (warm Atlantic seawater and colder Arctic waters (see **Figure 30**) which mix together in the NE Atlantic and create a thriving ecosystem (see section 5.7.3 of this report).



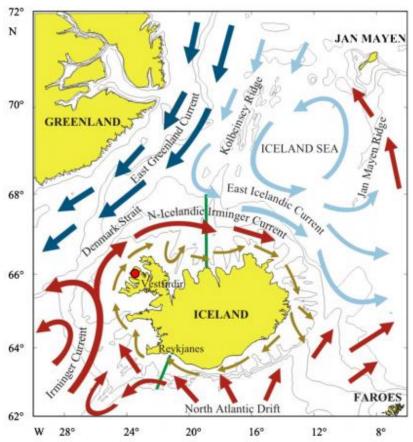


Figure 30 Ocean currents around Iceland (red = warm & saline Atlantic water; blue = cold & low salinity water; green = Arctic water; yellow = Icelandic coastal water) (source: Astthorsson et al. 2007)

Distribution of herring

In the seasons 2007/2008 to 2012/2013, most of the catch (~90%) was caught in Breiðafjörður, but before that, it was mainly caught off the south, southeast and east coast. The year 2013/2014 was an indication of changes in this pattern, with a smaller proportion in Breiðafjörður, and since 2014/2015, most of the fishing has taken place in the west of the country (**Figure 31**). Herring fishing in the fishing year 2023/2024 was conducted in the west and east of Iceland (MFRI, 2024 advice for herring).



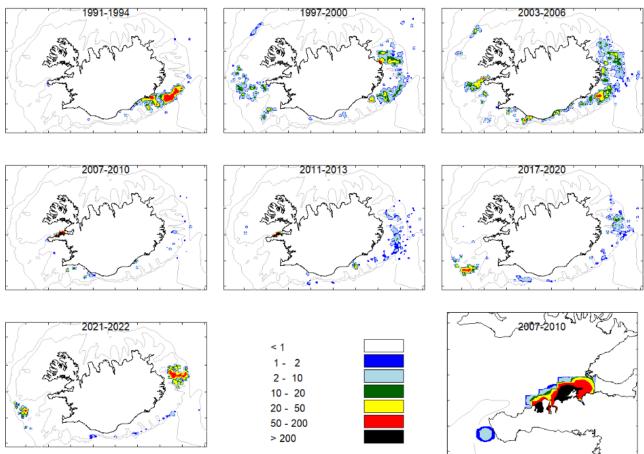


Figure 31 The distribution of the fishery (in tonnes) of Icelandic summer spawning herring for the period 1991–2022. For the years 2007–2010 the distribution in Breiðafjörður is also shown (Source: MFRI, 2024 technical report for herring).

5.7.2.3. Main habitat type in the Icelandic marine ecosystem

The main substrate types around Iceland are mud, gravel, and lava (rock and other hard substrates) (**Figure 32**) with differences in the oceanographic regimes off northern and southern Iceland being a major driver of the spatial distribution patterns of benthic habitats. All-in-all the various geomorphological and substrate features of the seafloor around Iceland provide a broad range of habitat types (**Figure 33**).



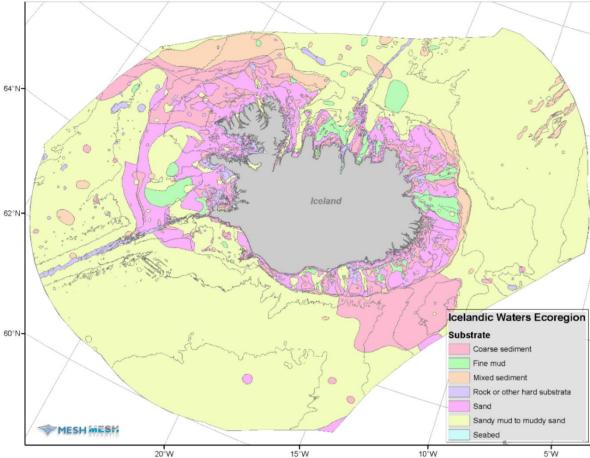


Figure 32 Major substrates in the Icelandic Waters ecoregion (Source: ICES Ecosystem Overviews, 2021, original data compiled by EMODNET substrate habitats; www.emodnetseabedhabitats.eu).



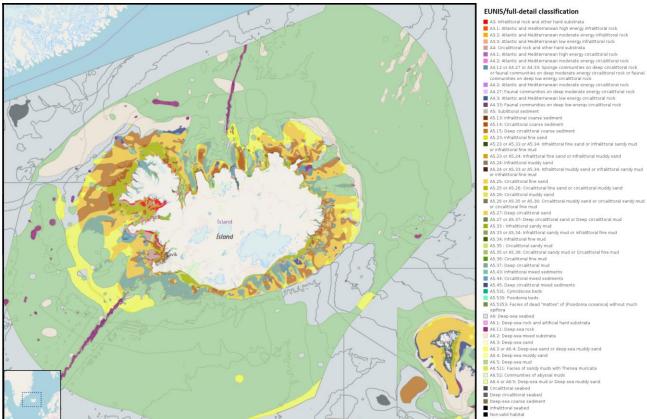


Figure 33 EUNIS/full-detail classification map of habitats in Icelandic waters (Source: EMODNET <u>www.emodnet-seabedhabitats.eu</u>).

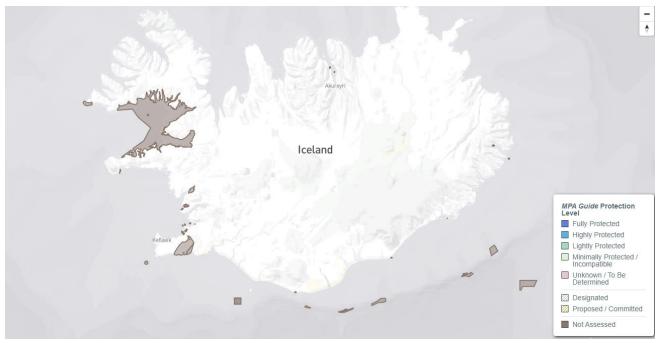


Figure 34 Map of MPAs in the UoA areas. (source: Atlas of Marine Protection, 2024).



The impacts of fishing on marine VME habitats in NE Atlantic has recently been reviewed by ICES. This review considered that only benthic fishing gear was likely to cause significant harm to VMEs (ICES 2021). This view is consistent with other reviews of the impacts of fishing gear on marine habitats (Jennings and Kaiser 1998a, ICES 2018a, ICES 2018b, Hiddink *et al.* 2017).

The herring fishery being conducted with pelagic gear is not considered to affect bottom sea habitats in any significant way.

5.7.2.4. Vulnerable Marine Ecosystems (VMEs)

It is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs; sponge communities, coldwater corals and hydrothermal vents), from significant adverse impact from bottom contacting gear. Large areas within the Icelandic EEZ are closed, either temporarily or permanently, to fishing for a variety of reasons; these include the protection of juveniles, spawning fish and VMEs.

Pelagic gears are designed to operate above the seabed in the water column and are not designed to make contact with the seabed. Herrings are pelagic fish which live in the upper part of the water column. The nets used in the fishery are designed only for use in the water column, and not for contact with the seabed. However, there may be some interaction with the seabed as evidenced by very small amounts (negligible) of benthic species in the catches, i.e. Greenland halibut. So, on a precautionary basis, VME habitats will be examined further for mid-water trawl.

Information and monitoring

Seabed mapping is one of the Marine and Freshwater Research Institute's projects which started with the launching of the research vessel, Arni Fridriksson RE 200, in the year 2000. The vessel is equipped with a multibeam echo sounder which enables a detailed mapping of the seabed. Until spring 2017 the multibeam echo sounder was of the type Kongsberg EM 300 (30 kHz, 135 beams, 2°x2°) but was then updated to Kongsberg EM 302 (30 kHz, 432 beams, 1°x2°, water column data) and a subbottom profiler, Kongsberg TOPAS PS18.

From the year 2017 the seabed mapping project is one of MFRI's major initiatives for the next 12 years. The main emphasis is to gain information within the economic zone which is useful for multifaceted purpose and is a prerequisite for scientific approach for sustainable utilization, protection and research of resources in the ocean, on, in and under the seabed. The detailed mapping has been valuable for the research of the marine environment, the physical properties of the ocean and the marine geology. Mapping fishing grounds and vulnerable areas, i.e. benthic communities and habitats, has played a significant role. About 50% of the economic zone has been mapped, or approximately 377,000 square kilometers of the country's total 754,000 square kilometer economic zone see **Figure 35** below.



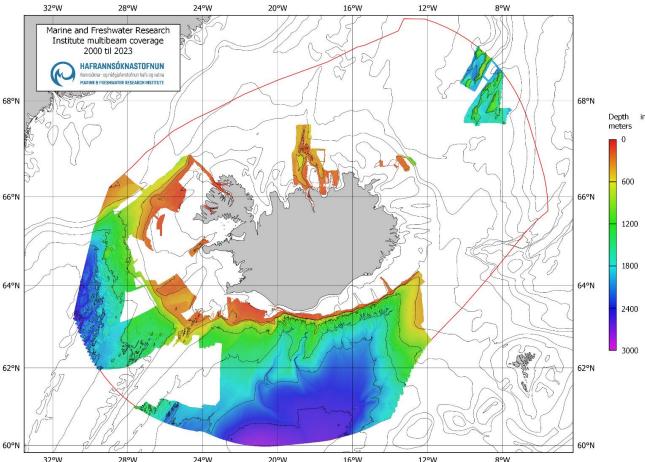


Figure 35 The image shows an overview of MFRI's seabed mapping with multibeam measurements in the years 2000-2023. (https://www.hafoqvatn.is/en/research/seabed-mapping)

NovasArc project

In NovasArc I spatial distribution of VMEs within the sub-arctic waters were predicted. NovasArc II updated the predictions with new observations to produce spatial estimates of the predictive uncertainty and the outputs of the earlier models were updated and validated. NovasArc predicted the distribution of eleven VMEs and generated estimates of the area at risk from bottom fishing for these. This co-operation has resulted in successful data and knowledge sharing of VMEs and fishing effort.

During NovasArc II, a new set of 12 models were fitted combining the indicator taxa from each VME that had similar predicted distributions according to Burgos et al., (2020). In this way, the overprediction was controlled but also produced more robust models that incorporated a larger number of samples. The environmental predictors were the same as used in the previous models. Distribution of suitable habitat for VME indicator taxa was predicted using the maximum entropy algorithm MaxEnt (Radosavljevic & Anderson 2014).

Fishing pressure map based on trawling data (VMS records) was produced for the study area. Fishing intensity estimates were derived from Vessel Monitoring System (VMS) and Automatic Identification System (AIS) data (see Buhl-Mortensen et al. 2019). NovasArc has generated spatial estimates of the degree of risk from bottom fishing



on seafloor integrity, e.g. areas where there is high overlap between the spatial distribution of VME indicators (based on their predicted suitability) and fishing effort (Buhl-Mortensen et. al. 2023).

Corals, coral gardens and Lopheliapertusa reefs

In the North Atlantic, deep-water corals are predominantly distributed along the outer margins of the continental shelf, on slopes, rises, undersea ridges and seamounts and in deep-water canyons. The BIOICE programme found that while Gorgonacea corals occur all around Iceland they were relatively uncommon on the continental shelf (<500 m) but found in relatively high numbers in deeper waters (>500 m) off the South, West and North Iceland. Similar patterns were observed in the distribution of Pennatulaceans which were relatively rare in water <500 m but more common in deeper waters, especially off South Iceland. *Lophelia pertusa* is mainly confined to the Reykjanes Ridge and near the shelf break off the south of Iceland in depths of approx. 100 m – 900 m with most occurrences between 500 m and 600 m (Copley et al. 1996; Garcia et al., 2007).

Predicted distribution of corals in the Nordic Seas (from Burgos et al. 2020), including the locations of records, are presented in **Figure 36**Figure 36 below.

Several coral areas have been specifically protected in Iceland and more are defined as new areas warranting such protection are discovered. The 'coral water closures' as they are known are ten areas to the southeast of Iceland that were permanently closed to fishing to protect aggregations of *Lophelia pertusa* identified during the BIOICE research project mapped coral areas off Iceland and as a result.

Although pelagic trawls are designed to operate above the seabed and not come into contact with it there is some indication that they may have some interaction with the seabed in the herring mid-water trawl so on a precautionary basis, corals coral gardens and *Lophelia pertusa* reefs are considered a VME of relevance to mid-water trawl.



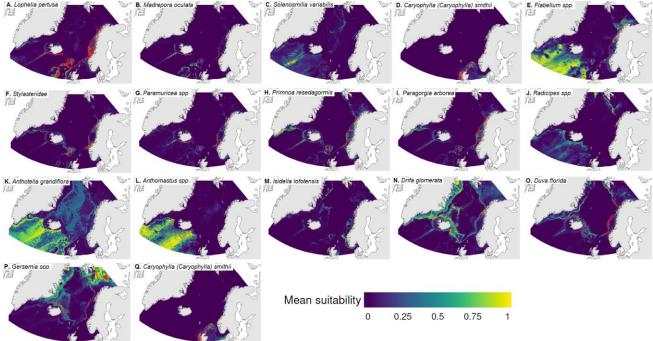


Figure 36 Predicted distribution of corals in the Nordic Seas including scleractinean corals (A - E), hydrocorals of the family Stylasteridae (F), Gorgonians (sea fans) (G - M), 'cauliflower' corals (N - P) and the cup coral Caryophylla (Caryophylla) smithii (Q). Red dots indicate locations of records (Source: Info from supplemental materials to Burgos et al. 2020).

Deep-sea sponge aggregations

Aggregation of large sponges (ostur or sponge grounds) are known to occur off Iceland in depths between 300 and 1,300 m (Garcia et al. 2006; Klitgaard and Tendal 2004). Significant ostur and sponge grounds occur outside the areas of operation of the shrimp fishery off south Iceland, especially around the Reykjanes Ridge. Relevant to the shrimp fishery, sponges have also been found at several locations at depths of 300 to 750 m off the North of Iceland, particularly in the Denmark Strait implying an overlap with the shrimp fishery which takes place in depths of up to 700 m. Predicted distribution of sponges in the Nordic Seas from Burgos et al., 2020, including the locations of records, are presented in **Figure 37** below.

Bycatch of sponges is recorded during bi-annual groundfish surveys allowing managers to estimate the distribution of mass sponge occurrences. Currently, there are no strategic conservation plans in place for sponges; however, there are a number of different closures which, while not designed specifically for the purpose, provide de facto protection to sponges including closure of coastal areas within 4 - 12 nm to bottom trawls, permanent regulatory fisheries closures outside of 12nm in which otter trawls are banned and cold water coral protection areas, some of which have considerable abundance of sponges.

Although pelagic trawls are designed to operate above the seabed and not come into contact with it there is some indication that they may have some interaction with the seabed in the herring mid-water trawl so on a precautionary basis, deep-sea sponge aggregations are considered a VME of relevance to mid-water trawl.



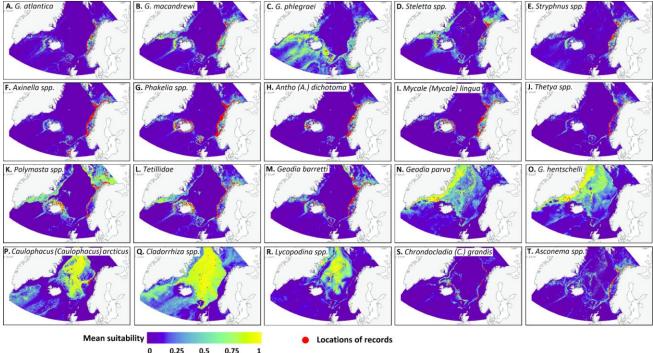


Figure 37 Predicted distribution of sponges in the Nordic Seas. Red dots indicate locations of records. Burgos et al., (2020) assigned each to groups/subgroups as follows (a textual description of each group has been added); Group 2 'soft-bottom sponge aggregations' (A - E), Group 3 'hard bottom sponge aggregations' including subgroups 3a (F - I) and 3b (I - M), Group 6 'cold water-associated sponges' (N - R) and Group 7 'continental slope-associated sponges mostly north of the Greenland-Iceland-Scotland Ridge (GISR) including sub-groups 7a (S) and 7b (T) (Source: Info from supplemental materials to Burgos et al. 2020).

Sea pens

In some locations with soft sediments sea pens can be found in high densities. Predicted distribution of sea pens in the Nordic Seas (from Burgos *et al.* 2020), including the locations of records, are presented in **Figure 38** below. Like sponges there are no strategic conservation plans in place for sea-pen communities; however, as with sponges they derive *de facto* protection from other closures.

Although pelagic trawls are designed to operate above the seabed and not come into contact with it there is some indication that they may have some interaction with the seabed in the herring mid-water trawl so on a precautionary basis, deep-sea sponge aggregations are considered a VME of relevance to mid-water trawl.



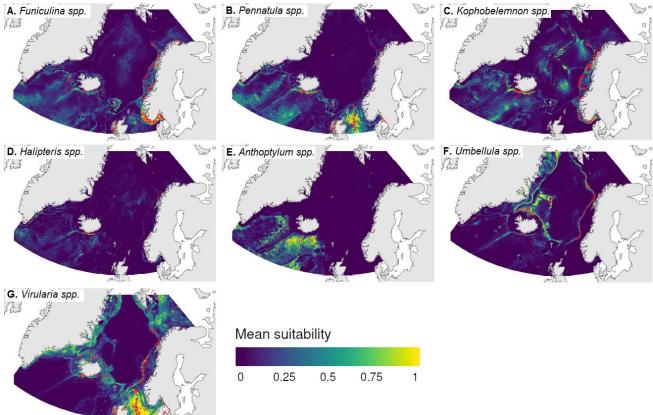


Figure 38 Predicted distribution of sea pens in the Nordic Seas. Red dots indicate locations of records (Source: Info from supplemental materials to Burgos et al. 2020).

Carbonate mounds, oceanic ridges, hydrothermal vents/fields and seamounts

According to Hall-Spencer and Stehfest (2009), carbonate mounds do not occur in Iceland's maritime area therefore they are not discussed further.

Analysis of bathymetric data has identified more than 325 large seamounts within the North Atlantic, the majority occur along the Mid-Atlantic ridge off Portugal, Spain and the UK (Santos *et al.* 2010). 104 are in the official OSPAR database with records from the High Seas and within territorial waters of Norway, Sweden, Faroe Islands, UK, Ireland, France, Spain and Portugal. Based on current understanding, the fisheries under assessment here do not interact with seamounts.

The Icelandic EEZ straddles the junction of the Mid-Atlantic and the Greenland–Scotland Ridges. These can clearly be seen in **Figure 39**. There are two known shallow hydrothermal vent areas on the Icelandic continental shelf both of which are inside Eyafjörður to the north of the island. Eyafjörður is not one of those fjords where inshore shrimp fishing occurs. Both areas are fully protected under the Nature Conservation Act (Notices 249/2001³² and

³² Notice 249/2001 protecting hot springs in Eyjafjörður: https://www.stjornartidindi.is/Advert.aspx?RecordID=6e1cf8c7-d6de-449f-8924-a9627265c8cb.



510/2007³³). Other known hydrothermal vents in deeper waters to north, south and southwest of Iceland are in more remote areas and have less surface structure such that they are not considered threatened by fishing.

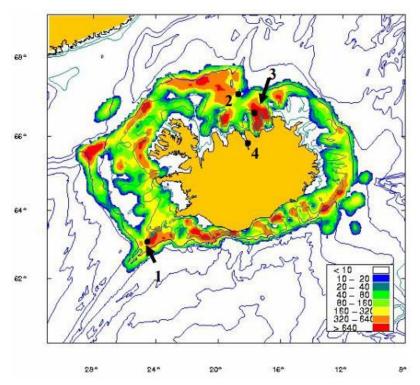


Figure 39 Location of areas of hydrothermal activity in Icelandic waters in relation to bottom trawling effort (total trawling hours 2003 [combined groundfish, shrimp and Nephrops fisheries]). (1) Steinahóll on theReykjanes Ridge (2) Kolbeinsey vent fields, (3) Grímsey vent fields and (4) in Eyjafjörður. Map: S.A. Steingrímsson (source: Steingrímsson & Einarsson 2004).

^{510/2007} Notice Eyjafjörður, Arnarnesnöf: protecting hot springs north https://www.stjornartidindi.is/Advert.aspx?RecordID=df0afbbe-e2b5-4b5e-887b-15fb83bf0f2e.



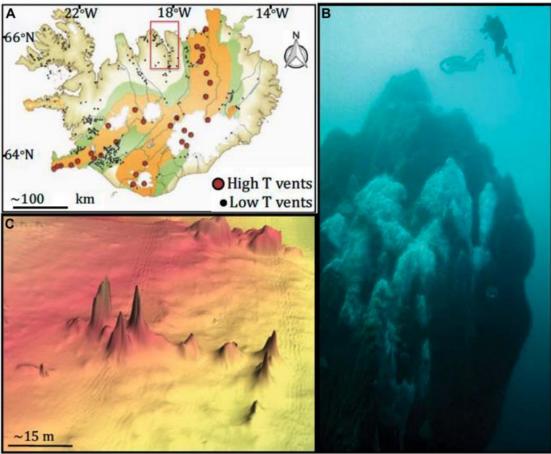


Figure 40 (A) Map of Iceland, highlighting hydrothermal vents. Eyjafjördur, where Big Strýtan and Arnarnesstrýtan are located, highlighted by the red box; (B) photograph of Big Strýtan chimney (courtesy of E. Bogason); (C) bathymetric map of Arnarnesstrýtan. Figure from Price et al. (2017).

Although pelagic trawls are designed to operate above the seabed and not come into contact with it there is some indication that they may have some interaction with the seabed in the herring mid-water trawl so on a precautionary basis, carbonate mounds, oceanic ridges, hydrothermal vents/fields and seamounts are considered a VME of relevance to mid-water trawl.

5.7.3. Ecosystem

The Icelandic Waters ecoregion covers the shelf and surrounding waters of the Icelandic EEZ and is located at the junction of the Mid-Atlantic Ridge and the Greenland—Scotland Ridge just south of the Arctic Circle (ICES 2021a).

The ecoregion is heavily influenced by oceanic inputs with water masses of differing origins mixing. Relatively warm and saline Atlantic water enters the area, both in the southwest as a branch of the Irminger Current and in the east from the Norwegian Sea and over the Jan Mayen Ridge while the East Greenland Current carries cold, low salinity water from the Greenland Sea in the north into the ecoregion.

The ecoregion is considered to be made up of four key subareas (**Figure 41**) defined by difference in bathymetry, hydrography, and species composition:



- 1. Southern shelf: Coastal areas south and west of Iceland (mostly 500 m). Mainly a mixture of coastal and Atlantic waters.
- 2. Northern shelf: Banks north and east of Iceland (mostly <500 m). Mainly a mixture of coastal, Atlantic, and Arctic waters.
- 3. Southern deep: Off the shelf south and west of Iceland (mostly > 500 meters). Mainly Atlantic water.
- 4. Northern Deep: Off the shelf north and east of Iceland (mostly >500 m). Mainly Arctic water.

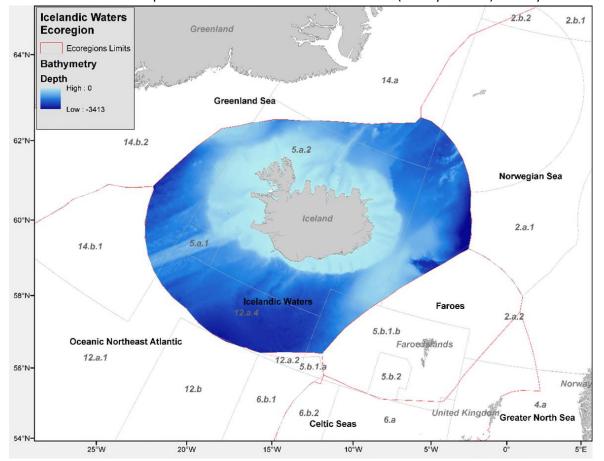


Figure 41 The Icelandic Waters ecoregion limits, ICES areas, adjacent ecoregions, and depth gradient. (ICES, 2021a)

Within the ecoregion, the Greenland–Iceland–Faroes Ridge acts as a distribution barrier for many species and fauna is generally influenced by the warm Atlantic water in the south and the cold Arctic water in the north but the precise locations of the various fronts between colder, fresher waters of Arctic origin and warmer, more saline waters of Atlantic origin does exhibit temporal variation. During the last 20 years or so, the Atlantic water mass has been dominant whereas in the previous three decades the ecoregion was dominated by waters of Arctic origin.

In Icelandic waters herring are both a major predator of zooplankton and an important prey species with numerous species of fish, marine mammals and seabirds all being major predators of herring. Herring therefore, are an important part of the ecosystem with many trophic connections. However, the Icelandic marine ecosystem is not considered to be wasp-waisted due to the presence of several other abundant, high biomass, low trophic level stocks including capelin, mackerel and blue whiting. These other abundant high biomass stocks demonstrate



similar levels of trophic connectivity and provide alternative pathways through which energy can be transferred to higher trophic levels. This was shown in a study by Stulodottir et al. in 2018³⁴ in an 'end-to-end' dynamic ecosystem model of Icelandic waters using the Atlantis framework. In addition, predators of herring are primarily highly mobile, opportunistic feeders that are not reliant exclusively on herring as a food source.

The stock was at high levels around 2002 but showed a steady decline to 2017 despite a low fishing mortality. The reduction is a consequence of mortality induced by the *Ichthyophonus* outbreak in the stock in 2009–2011 and 2016–2018 in addition to small year classes entering the stock since around 2005, particularly the 2011–2014-year classes. The 2017- 2019-year classes are large and will be the foundation of the fishable stock in the coming years. Consequently, SSB has been growing since 2021, but these strong year-classes are not perceived as strong in the latest assessment, causing the SSB to shift downwards in 2024.

Regarding key elements of the ecosystem, stakeholders indicated that there are no significant changes in ecosystem research or information that could affect the scoring set out in the re-assessment.

The key signals within the environment and the ecosystem reported by the last ICES report are as follows:

- The variable location of the fronts between the colder and fresher waters of Arctic origin and the warmer and more saline waters of Atlantic origin result in variable local conditions, especially on the northern part of the shelf. During the last two decades, the Atlantic water mass has been dominating, in contrast to the Arctic domination in the previous three decades.
- Zooplankton biomass on the northern shelf has fluctuated in the past, cycling on a five- to ten-year periodicity, with a period of generally low biomass from the 1960s to the 1990s.
- From the mid-2000s, Atlantic mackerel *Scomber scombrus* extended its feeding grounds from the Norwegian Sea to Icelandic Waters ecoregion, while the summer feeding grounds of capelin *Mallotus villosus* moved westwards from the Icelandic Waters into Greenland waters. Norwegian spring-spawning herring *Clupea harengus* has, since the early 2000s, reappeared at its traditional feeding grounds east and north of Iceland. These major changes in migration patterns have been linked to prey availability, oceanographic conditions, and stock density.
- Increased temperature in the lower water column on the western and northern part of the Icelandic shelf has resulted in changes in spatial distribution for a number of demersal species. Species like haddock *Melanogrammus aeglefinus*, anglerfish *Lophius piscatorius*, ling *Molva molva*, tusk *Brosme*, dab *Limanda*, and witch *Glyptocephalus cynoglossus* that have previously had Icelandic waters as their northern boundary of distribution and have mainly been recorded in the warm waters south and west of Iceland, are now showing a northward clockwise trend in their distribution along the shelf, and in some cases a distributional shift. Warming waters has led to a decline in the stock abundance and distribution of many cold-water species, while the previously rare occurrence of warmwater species in the ecoregion has increased in recent years.

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³⁴ https://www.sciencedirect.com/science/article/pii/S0165783618301620



- The stocks of northern shrimp *Pandalus borealis* collapsed around the year 2000 and the driving factors are thought to be increased predation by gadoids, increasing temperature, and high fishing mortality.
- Improved management measures for most of the major stocks (cod *Gadus morhua*, haddock, saithe *Pollachius virens*, redfish *Sebastes sp.*, herring) have resulted in decreased fishing mortality, close to or at FMSY, and increased SSBs. This has furthermore resulted in decrease in effort and less pressure on the benthic habitats.
- A recruitment failure of sandeel (Ammodytidae) was recorded in 2005 and 2006, and, with the exception of the 2007 cohort, recruitment has been at a low level since then. Fish stomach content data suggest that the decline in the sandeel population may even have started as early as around year 2000.
- The abundance of minke whales *Balaenoptera acutorostrata* has decreased on the Icelandic shelf in recent years, following changes in prey distribution. Abundance of other species, in particular fin whales Balaenoptera physalus and humpback whales Megaptera novaeangliae, have increased over the last 20 to 30 years. In recent decades, the breeding success of many seabird species has been poor in south and west Iceland, accompanied by declines in their breeding population sizes. These trends may be influenced by changes in density, composition, and spatial distribution of their main fish prey (i.e. sandeel). (ICES Ecosystem Overviews Icelandic Waters ecoregion ICES Advice 2022).

Primary production on the Iceland shelf is high (150–300 g C m⁻² year⁻¹) and the productivity is highest in the southwest. The onset of phytoplankton spring bloom varies between mid-April and mid-May. A trend of later onset of blooms south of Iceland has been observed since 2006. High inflow of Atlantic water to the northern shelf area of Iceland leads to increased primary production. Mesozooplankton abundance and biomass is generally dominated by *Calanus finmarchicus*. Mesozooplankton community structure differs south and north of Iceland, being mainly dictated by temperature and salinity differences. The spring mesozooplankton biomass in the upper layers (0–50 m) generally ranges from ca. 1 to 10 g dry weight m⁻², with an average of 2 –4 g dry weight m⁻². Relatively high biomass is usually observed in shelf waters off the southern and western coasts, in the oceanic waters to the north and northeast of Iceland where the Arctic influence is the greatest and large Arctic species dominate, and in offshore waters of the Irminger and Norwegian seas (ICES 2021a).

Regarding relevant research on species interaction, the main work relates to the increasing amount of Northeast Atlantic mackerel (NEAM) feeding in Icelandic waters after 2006 (Astthorsson et al., 2012; Nøttestad et al., 2016). Surveys in the summers since 2010 indicate a high overlap in spatial and temporal distribution of NEAM and Icelandic summer-spawning herring (Óskarsson et al., 2016). Moreover, the diet composition of NEAM in Icelandic waters showed a clear overlap with those of the two herring stocks, i.e., Icelandic summer-spawning herring and Norwegian spring-spawning herring (Óskarsson et al., 2016). Even if copepoda was important diet group for all the three stocks its relative contribution to the total diet was apparently higher for NEAM than the two herring stocks. Considering former studies of herring diet, this finding was unexpected, and particularly how little the copepoda contributed to the herring diet. This difference in the stomach content of NEAM and the two herring



stocks indicated that there could be some difference in feeding ecology between them in Icelandic waters, where NE-AM preferred copepoda, or feed in the water column where they dominate over other prey groups, while the opposite would be for the herring and the prey Euphausiacea. Recent studies in the Nordic Seas have shown similar results (Langøy et al., 2012; Debes et al., 2012). The indication for difference in feeding ecology of the species is further supported by the fact that the body condition of the two herring stocks showed no clear decreasing trend since the invasion of NEAM started into Icelandic waters. On the contrary the mean weights-atage (and at-length) of the summer spawners have been high after 2010 (Óskarsson, 2019b). It should though be noted that comparison of the diet composition of herring in recent years to earlier studies, mainly on NSS herring, indicate that the herring might have shifted their feeding preference towards Euphausiacea instead of Copepoda. That is possibly a consequence of increased competition for food with NEAM, where the herring is overwhelmed and shifts towards other preys. The Northwestern working group at ICES is not aware of documentations of strong signals from ecosystem or environmental variables that impact the herring stock and could possibly be a basis for implementing ecosystem drivers in the analytical basis for its advice. For example, recruitment in the stock has been positively, but weakly, linked to NAO winter index (North Atlantic Oscillation) and sea temperature (Óskarsson and Taggart 2010), while indices representing zooplankton abundance in the spring have not been found to impact the recruitment (Óskarsson and Taggart 2010) or body condition and growth rate of the adult part of the stock (Óskarsson 2008). Considering these relations derived from the historical data, relatively warm waters around Icelandic (Hafrannsóknastofnun 2016), and high positive NAO in recent years (NOAA 2021), it seems to be coming about with the 2017-2019 -year classes.

Climate variability during the 20th century has affected the marine ecosystem in Icelandic waters. These variations of environmental conditions have caused changes in the abundance and distribution of many fish stocks as well as other components of the Icelandic marine ecosystem. In the waters to the north and east of Iceland, available information suggests the existence of a simple bottom-up controlled food chain, from phytoplankton (mainly Calanus), to capelin, to cod (Astthorsson *et al.* 2007). It has been shown that changes in the capelin biomass causes changes in weight-at-age of cod demonstrating the key role of capelin in the Icelandic marine ecosystem.

Icelandic waters are an important habitat for some of the largest seabird populations in the Northeast Atlantic. Around 30–50 million seabirds, consisting of 22 species, are found within the ecoregion. Substantial proportions of the total North Atlantic populations of some species are found there. Annual food consumption of six common seabird species has been estimated at 171,000 t of capelin, 184,000t of sandeel and 34,000 t of euphausiids. The abundance of breeding Brünnich's guillemot *Uria lomvia*, common guillemot (murre) *Uria aalge*, razorbill *Alca torda*, Northern fulmar *Fulmarus glacialis*, and kittiwake *Rissa spp*. have declined between 1985 and 2008 by 43%, 30%, 18%, 35%, and 12%, respectively. The number of kittiwakes and European shags *Phalacrocorax aristotelis* breeding in western Iceland declined by 44% and 31%, respectively between 1993 and 2007, representing an annual rate of decline of 5.7% for kittiwakes. Reduced prey availability has been suggested as the main cause for their decline. Four other species have either shown recent decline or no change. Data on the remaining eleven species is limited. Amongst those, puffin *Fratercula artica* populations have decreased south and west of Iceland over the last decade, presumably also because of reduced availability of prey, especially sandeel.



Concerning mammals, six pinniped species occur in the Icelandic Waters ecoregion but only two of these breed locally (grey seals and harbor seals). Both species are currently in decline. 23 species of cetaceans have been observed in Icelandic waters, twelve of which are seen on a regular basis. Cetacean surveys have been conducted at regular intervals between 1987 and 2016 and reveal varying trends in abundance. Humpback whales have shown high rates of increase and fin whales also increased during 1987–2001 in the central North Atlantic, and particularly in the Irminger Sea between Iceland and Greenland in 1987–2015. The abundance of minke whales has decreased substantially in Icelandic coastal waters since 2001, most likely owing to decreased availability of important prey species such as sandeel and capelin.

The feeding habits of demersal fish, marine mammals and seabirds in Icelandic waters have been thoroughly studied (MRI 1997, Gislason et. al 2009, Skaret and Pitcher 2016, Ribeiro *et al*. 2018). Ecosystem models (e.g. Barbaro *et al*. 2008, Pálsson 1997, Gislason et al. 2009, Skaret and Pitcher 2016, Stefánsson 2003, Ribeiro *et al*. 2018) indicate that Icelandic waters exhibit high primary productivity that supports a large zooplankton population which are in turn food for small pelagic fishes (sandeel, capelin, herring, mackerel etc.), concluding in supporting level 4 and upper predators. These studies have helped identify the main functional groups as well as the trophic interactions between them (**Figure 42**). Capelin (*Mallotus villosus*) is shown to present a key prey species and that cod (*Gadus morhua*) is a major fish predator in the marine ecosystem around Iceland.

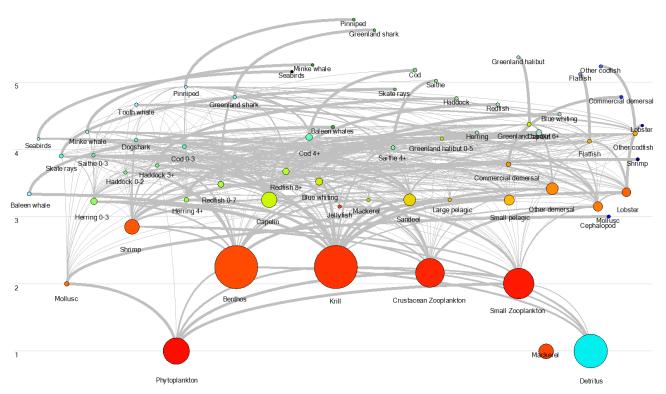


Figure 42 Ecopath model of Icelandic waters showing the distribution of functional groups by trophic level (scale at left of diagram). Larger nodes indicate bigger stock size. [Note that this diagram shows the state of the ecosystem in 1984 based on historical information and that the relative size of nodes may have changed subsequently.] (Source: Ribeiro et al. 2018).



A major outbreak in the Icelandic summer-spawning herring by the parasite Ichthyophonus sp. was discovered in autumn 2008. A thorough examination of the fishable stock during winter 2008/09 indicated that 32% of the stock was infected (Óskarsson *et al.*, 2009; Óskarsson and Pálsson, 2009) and 43% during winter 2009/10 (Óskarsson *et al.*, 2010). During the period from 1991 to 2000, the prevalence of Ichthyophonus infection in the stock was determined interannually but only a minor infection was observed during that period, or in around 1 per every 1000 individuals examined. During this period from 2008 to 2024, the prevalence of infection still persists in the population, but its frequency is lower. The impact of the infection is assumed in both the stock assessment and catch regulation.

5.8. Fishery Management History and Organization

National jurisdiction overfishing stocks and their management developed in Iceland in stages throughout the 20th century, with a major turning point in 1976, when the 200-nautical mile EEZ became a reality. The period after 1976 was characterized by actions aimed at developing management of fisheries in order to make them both cost-efficient and sustainable with regard to utilization of the resources. With the extension of its EEZ, it became clear that Iceland would have to adopt new rules on management of commercial stocks. Legislation in this area was thoroughly revised and the Act on Fishing in Iceland's exclusive fishing zone was adopted in 1976. This affirmed that fishing was to be based on scientific assessment of the condition of the fish stocks. The annual catch of main commercial stocks often considerably exceeded scientific advice, and many amendments were made to the legislation and regulations of fisheries management.

In 1990, a comprehensive and uniform Fisheries Management Act was passed by the Icelandic Parliament. It is the cornerstone of the current system of fisheries management in Icelandic waters. The Act aims at promoting the conservation and efficient utilisation of fish stocks, thereby ensuring stable employment and settlement throughout Iceland. The Act is intended to provide the principles for fisheries management and to create a foundation for efficient and rational utilisation of fish stocks, in order to provide maximum resource yield for the country as a whole. These objectives thus fit in well with the concept and objectives of sustainable development. Under the Fisheries Management Act, the individual transferable quota (ITQ) system was established for fisheries and they were subject to vessel catch quotas. The quotas represent shares in the national total allowable catch (TAC). They are permanent, perfectly divisible and fairly freely transferable. Since 1991, a number of amendments have been made to the fisheries management system. In August 2006 the legislation was re-issued as Law No. 116/2006, thus including all the changes made to the original 1990 legislation. The herring fishery in Iceland has been based on two herring stocks: Norwegian-Icelandic (or Atlanto-Scandian) spring-spawning herring; and Icelandic summer-spawning herring.

The Norwegian-Icelandic spring-spawning herring was by far the most important herring stock during the 20th century and combined with Icelandic summer-spawning herring these two fisheries were extremely important for the Icelandic economy during the first part of the 20th century and until the late 1960s when both collapsed almost at the same time. The Icelandic summer-spawning herring migrates around the Icelandic EEZ but does not significantly migrate outside it. All fishing for Icelandic summer-spawning herring is therefore controlled by Icelandic authorities (ICES, 2024).



The Icelandic summer-spawning herring exploitation sharply increased in the early 1960s. That high fishing mortality and an eventual recruitment failure caused the stock collapse in the late 1960s (Jakobsson, 1980). As a consequence, a fishing ban was enforced from 1972 to 1975. The stock recovered fairly quickly and in 1976 limited fishing was allowed under a quota system. In 1979 individual transferable quotas were introduced into this fishery. In 1984 this management system was introduced into the important groundfish fisheries in Iceland and is now the prevalent system of management in Icelandic fisheries. Following the re-opening of the fishery, catches gradually increased to over 100,000 t. In recent years 2021-2023 catches increased to the level of ca 70,000t (see Figure 49).

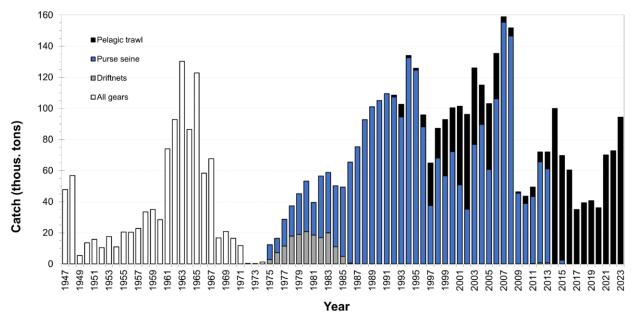


Figure 43. *Icelandic summer spawning herring. Seasonal total landings (in thousand tonnes) during 1947–2023, referring to the autumns, by different fishing gears from 1975 onwards) (ICES 2024a).*

The vessels involved in the fishery have changed over time, prior to 2000 the fleet consisted of multi-purpose vessels, mostly under 300 GRT, operating with purse seines and driftnets. Since then larger vessels (up to 1500 GRT) have gradually taken over the fishery, so that they now represent the whole herring fishing fleet. In turn, the number of vessels involved has shown a decreasing trend from around 30 in the 2000s to 15 in 2010. The vessels now prosecuting the fishery are a combination of purse-seiners and pelagic trawlers operating in the herring (Icelandic summer-spawning and Norwegian-Icelandic spring spawning), capelin *Mallotus villosus*, blue whiting *Micromesistius poutassou* fisheries and in recent years also the North-East Atlantic mackerel (*Scomber scombrus*) and Mueller's pearlside (*Maurolicus muelleri*) fisheries (ICES, 2024).

From the 1997/1998 to the 2007/2008 fishing season, there was a fishery for Icelandic summer-spawning herring off both the west and east of Iceland, with a gradual increase off the west coast over this period. In the period 2006-2012 most of the catches were taken in a small area on the west coast, within the southern part of Breiðafjörður bay, while in 2014 the fishery entirely took place offshore to the west of Iceland (in Kolluáll). The inshore fishery is almost exclusively prosecuted by purse seine fisheries, whereas in the offshore fishery the most



common gear used are pelagic trawls, first introduced in 1997/1998. In 2014, and in more recent years, purse seine gears have mostly not been used at all (see Figure 43).

The directed fishery for Icelandic summer-spawning herring occurs mainly in the winter. In addition to this fishery, Icelandic summer-spawning herring are also a by-catch in the mackerel and Norwegian-Icelandic spring-spawning herring fishery in the summer. In the last fishing season, 76% of catches were made in the directed fishery, mostly in November 2019, and the remaining 24% caught between June and October in the mackerel and Norwegian-Icelandic spring-spawning fishery (MFRI, 2020).

All the catch in 2022/2023 was taken in pelagic trawls, which reflects that both the targeted and bycatch fisheries (Figure 43). During all fishing seasons from 2007/2008 to 2012/2013, most of the catches (~90%) were taken in inshore areas west off Iceland in Breiðafjörður, while prior to that they were mainly taken off the south, southeast-, and the east coast. In 2013/2014 there was an indication for change in this pattern, with a smaller proportion in Breiðafjörður, and then in 2014/2015 almost all the overwintering west of Iceland took place offshore, which has continued since. These changes in the stock distribution explain the dominance of pelagic trawl in the fishery, which is preferred by the fleet over purse seine in offshore areas. Practically all of the catch is exported and most of it is frozen and intended for human consumption. Fishing of herring is an important part of the fisheries in Iceland, which, until recently was the single largest contributor to the country's net foreign exchange earnings (now tourism) (ICES, 2024).

Marine and Freshwater Research Institute (MFRI) is a government institute under the auspices of the Ministry of Industries. The institute employs around 190 staff, operates 2 research vessels and 10 branches around the country, including an aquaculture experimental station.

MFRI conducts various marine and freshwater research and provides the Ministry with scientific advice based on its research on marine and freshwater resources and the environment. MFRI is leading in marine and freshwater research in Icelandic territories and the arctic, providing advice on sustainable use and protection of the environment with an ecosystem approach by monitoring marine and freshwater ecosystems. The main research priorities are research on marine and freshwater ecosystems, sustainable exploitation of main stocks, ecosystem approach to fisheries management, research on fishing technology and seafloor and habitat mapping.

ISS herring are considered to be a local stock; as such the stock is managed solely by the Icelandic authorities, although scientific advice is also provided externally by ICES. Iceland has a well-established fisheries management, supported by legislation where appropriate. There are four major entities involved in the day to day management of Icelandic fisheries:

There is a principal Fisheries Act (2006, nr. 116) and a number of supporting Acts and Regulations for the management of the fishery. The Ministry of Food, Agriculture and Fisheries is the principal management body responsible for Icelandic fisheries. This is a well-structured system with the objective to limit the catch to the advised levels.

The management strategy objective for Icelandic commercial fish stocks in general, is to maintain the exploitation rate at the level which is consistent with the Precautionary Approach and that generates maximum sustainable yield (MSY) in the long term. The key element in the management is output control through a total allowable catch



(TAC) that is distributed on the participating vessels by an ITQ system. There is a suite of monitoring and control measures in place to keep catches in conformity with allowed amounts.

The Icelandic Directorate of Fisheries is an administrative body responsible to the Fisheries Minister, responsible for the day to day implementation of the Act on Fisheries Management and related legislation, for day-to-day management of fisheries and for supervising the enforcement of fisheries management rules. More specifically, the Directorate of Fisheries works in accordance with the following Acts, the Directorate of Fisheries Act (no. 36/1992)³⁵, the Fisheries Management Act (no. 116/2006)³⁶, the Act on Fishing in Iceland's Exclusive Economic Zone (no. 79/1997), the Act concerning the Treatment of Commercial Marine Fish Stocks (no. 57/1996) and the Act on a Special Fee for Illegal Marine Catch (no. 37/1992). Accordingly, it issues fishing permits to vessels and allocates catch quotas, imposes penalties for illegal catches, supervises the transfer of quotas and quota shares between fishing vessels, monitors vessels using the VMS system e-logbooks, controls the reporting of data on the landings of individual vessels and monitors the weighing of catches³⁷. It also provides supervision on board fishing vessels and in ports of landing (i.e. shore based monitoring), which involves inspecting the composition of catches, fishing equipment and handling methods. It works closely with the Icelandic Coast Guard, which carries out fisheries inspection at sea, monitors the EEZ and receives required notifications from vessels, Port Authorities and the MFRI.

The Director-General is CEO of the Directorate of Fisheries. The Agency is divided into three line management divisions and two support divisions.

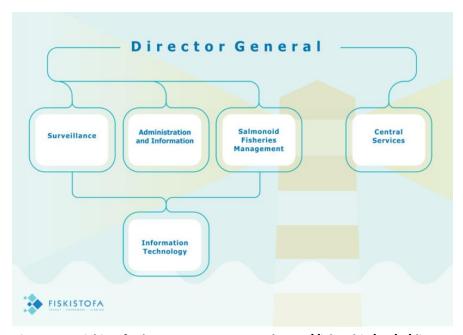


Figure 44. Fiskistofa departments. Source: https://island.is/en/o/directorate-of-fisheries/organisation-chart

The Icelandic Coast Guard monitors fishing within the Icelandic zone, while also performing search and rescue, operating the Icelandic Maritime Traffic Service and undertakes hydrographic surveys.

³⁵ https://www.althingi.is/lagas/149a/1992036.html

³⁶ https://www.ecolex.org/details/legislation/fisheries-management-act-1990-lex-faoc003455/

³⁷ http://www.fiskistofa.is/english/about-the-directorate/



The Marine Research Institute (MRI) conducts a wide range of marine research and provides the Ministry with scientific advice.



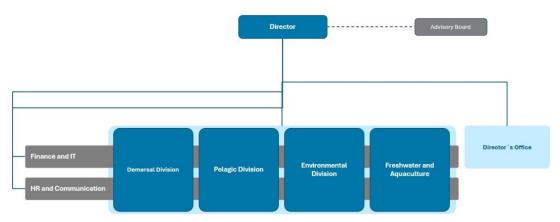


Figure 45. MRFI organisation chart. Source: https://www.hafogvatn.is/en/about/organizational-chart

At present, there is no formal management plan in place for the Icelandic summer spawning herring stock. For more than 30 years the policy has been to manage the fishery at F = F0.1. The target is considered by ICES to be consistent with the MSY approach (ICES, 2013a); although it has been exceeded in some years, mainly due to overestimation of stock size at the time. Precautionary and MSY reference points have been defined for the stock and approved by ICES.

The Minister of Fisheries determines the Total Allowable Catch (TAC) of ISS herring for each fishing season considering scientific advice from the MRI. MRI advice is based both on work done in-house and through external collaboration with ICES. The main management measures in place in Icelandic fisheries include TACs in an ITQ system, a prohibition on discarding, spatial and temporal closures and technical regulations such as minimum mesh sizes.

Icelandic TACs for herring apply from 1st September to 1st May the following year with catches generally being taken from September to February. As previously the overall TAC is apportioned according to a system of Individual Transferable Quotas (ITQs) which has been in place since 1972, having been introduced in the wake of the stock's collapse. The ITQ system includes a variety of flexibility provisions designed to facilitate the matching of catch composition and quota portfolios and to reduce incentives for discarding of catch. Current quota share and allocations are publicly available on the Directorates website. The system is very transparent, rules are enforced by the Directorate and the MRI and there are penalties for serious infractions.



5.9. Fishery Management Plans and Regulations

ISS herring is considered strictly an Icelandic stock and are managed under the overarching responsibility of the Ministry of Industries³⁸. All Icelandic management plans have the same general objectives:

- A harvest control rule, that outlines the mechanism for setting the total allowable catch (TAC)
- Decrease the risk of short-term interests influencing the level of exploitation
- Ensure that the available information on the resource is used in the most rigorous manner
- Long term sustainable yield
- Ensure that stocks are above save biological limits

The key element in the harvest control rules and the primary management method is output control through a total allowable catch that is distributed on the participating vessels by an ITQ system.

A full list of regulations which was harmonised and streamlined starting in 2019 is available on https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2021/09/23/Stjorn-fiskveida-2021-2022-Log-og-reglugerdir/.

The Fisheries Management Act sets out penalties for the violation of its provisions, or rules adopted by virtue of it, which are provided in detail in the Act Concerning the Treatment of Commercial Marine Fish Stocks (Act No. 57 1996). Provisions of the Act on a Special Fee for Illegal Marine Catch are also applied as appropriate. Penalties range from the issue of reprimands by the Directorate of Fisheries and the suspension of commercial fishing permits to fines and, in cases of serious or repeated deliberate violation, imprisonment for up to six years (Article 24 and 25 of Act No. 116/2006).

Within two hours of landing catches are officially separated, weighed and recorded by accredited weighing stations and reported against the appropriate quota allocation following provisions outlined in the Act No 57, 1996 concerning the Treatment of Commercial Stocks, and Regulation No. 745/2016 on Weighing and Recording of Marine Resources.

5.10. Fishery Enforcement and Compliance levels

MCS i.e. Monitoring, Control and Surveillance is under the auspice of the Directorate of Fisheries, in collaboration with the Coast Guard, the Marine Research Institute and coastal municipalities. The enforcement system is based on reports from the vessels, physical inspections at sea and weighing in harbour, as well as information exchange with other states' enforcement authorities. The structure and procedures of the enforcement system are codified in the Fisheries Management Act, while requirements to the weighing system are laid out in the Act concerning the Treatment of Commercial Marine Stocks and in the Regulation on Weighing and Recording of Catch.

A full list of regulations which was harmonised and streamlined starting in 2019 is available on https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2021/09/23/Stjorn-fiskveida-2021-2022-Log-og-reglugerdir/.

The Fisheries Management Act sets out penalties for the violation of its provisions, or rules adopted by virtue of it, which are provided in detail in the Act Concerning the Treatment of Commercial Marine Fish Stocks (Act No. 57 1996³⁹). Provisions of the Act on a Special Fee for Illegal Marine Catch⁴⁰ are also applied as appropriate. Penalties range from the issue of reprimands by the Directorate of Fisheries and the suspension of commercial fishing

³⁸ Ministry of Industries (https://www.government.is/ministries/ministry-of-industries/organizational-chart/)

³⁹ https://www.althingi.is/lagas/149a/1996057.html

⁴⁰ https://www.althingi.is/lagas/149a/1992037.html



permits to fines and, in cases of serious or repeated deliberate violation, imprisonment for up to six years (Article 24 and 25 of Act No. 116/2006).

Control of discarding of fish is provided for by the Treatment of Commercial Marine Stocks Act No. 57 1996, which prohibits discarding and fishing without sufficient quota. The Act requires the Directorate of Fisheries to monitor and publish information on catches of the fleet (Articles 2-3). Furthermore, the Act stipulates that all fish caught within the Icelandic EEZ, or during trips where a proportion of fishing activities take place in the EEZ, must be landed in an officially recognised port. Fiskistofa also performs check at sea to check for differences in catches of certain vessels when the Fiskistofa inspector in on beard and when not, to detect discards. Some findings have been published in 2019⁴¹ and 2020⁴².

Within two hours of landing catches are officially separated, weighed and recorded by accredited weighing stations and reported against the appropriate quota allocation following provisions outlined in the Act No 57, 1996 concerning the Treatment of Commercial Stocks, and Regulation No. 745/2016 on Weighing and Recording of Marine Resources⁴³.

The weight registration document for each vessel is transmitted to the Fisheries Directorate who records it on their Catch Registration System (the Fisheries Directorate and Landing Ports database GAFL). The Directorate also receives the e-logbook information. Starting from September 2020 smaller Icelandic vessels are required to log their catches in an App (essentially an e-logbook) which contains information on catch and bycatch, including that of marine mammals and seabirds. This follows regulation 298/2020⁴⁴. The App also called Afladagbókina or catch diary^{45 46} automatically records the location of the boat during fishing and the captains then records the catch, its condition and by-catch, in a very simple way. The app replaces paper logbooks in the small boat sector, with an electronic catch recording system. More information on this topic has been provided as part of minor Non Conformance #1 progress update (Section 8 of this report).

Weighing is undertaken on official port scales certified by the Fisheries Directorate and operated by individuals authorised by the Directorate. In circumstances where there are significant difficulties in using a port scale, private weighing scales can be used provided the company involved has been approved by the port authority, the scales and operators using them are certified and Fisheries Directorate inspectors have unimpeded access to the facilities. This is known as a 'Home-weighing license'. Fish markets can also be authorised to weigh catches by the Directorate.

Processed at sea catch are registered as processed weights using an officially approved yield. This is monitored and verified by the Directorate staff. Weights at landing are checked at the processing base by Directorate staff. Processed weights are converted to live weight equivalents for deduction from each vessel's quota and management purposes by staff at the Directorate. Adjustments can be made by the Directorate to correct for errors – the system is transparent in so far that anyone can enter a vessel registration number on the Directorates website and obtain the catch, species, quota, remaining quota, quota rents for any vessel. The Directorate notes on the website that the information may be corrected by staff at later time post original posting of the information.

A December 2018 report from the Icelandic National Audit Office (NAO)⁴⁷ on certain aspects of the Icelandic enforcement system highlighted that more quantitative data are needed to substantiate the conclusions that

⁴¹ http://www.fiskistofa.is/umfiskistofu/frettir/aflasamsetning-a-botnvorpu-og-dragnotarveidum

⁴² http://www.fiskistofa.is/umfiskistofu/frettir/aflasamsetning-i-thorskanetum-og-botnvorpu

⁴³ https://www.stjornartidindi.is/Advert.aspx?RecordID=884be309-64a5-4367-9e4d-f5e7216b6f40

⁴⁴ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887

⁴⁵ http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla

⁴⁶ https://www.mbl.is/200milur/frettir/2020/08/31/oll aflaskraning rafraen fra og med morgundeginum/

⁴⁷ https://rikisendurskodun.is/wp-content/uploads/2019/01/Eftirlit-Fiskistofu-Stjornsysluuttekt.pdf



discards are low and that there are few irregularities in connection with re-weighing of catches after de-icing. Although available evidence (e.g. data from scientific cruises held up against information reported by the vessels) still indicates that discards are low and re-weighing irregularities not significant, the Directorate of Fisheries has recently placed new staff to control re-weighing at processing plants at risk and has started to publish information on its website showing catch composition reported by fishing vessels on trips with and without an inspector on board, with a view to roll this out more widely to several fishing fleets in Iceland.

During the 2022 audit, Fiskistofa confirmed that they worked on this issue by increasing surveillance. Two incidents were registered in 2022. The results of this surveillance are published online to show the violations and deter other potential violators⁴⁸.

During the 2024 audit, Fiskistofa confirmed (3th Oct 2024) that twelve fishing licences were revoked in 2023/2024. Most of them relating to discard, one for logbook violations, two weighing violations and two for wrongly reported catch.

As a result of this process new Regulation has been put in place which essentially places additional Fiskistofa surveillance at the operators cost, for those that do not comply. This is Regulation 990/2020⁴⁹ on (7th) amendment to Regulation no. 745/2016, on weighing and registration of marine catch. Paragraph 3 Article 8 of the Regulation now reads as follows:

The weigher may deduct 12% when cooling with ice cream or 7% when cooling with an ice concentrate of unprocessed catch which is weighed on a weighbridge finished for export, directly into a transport vessel. The master shall ensure that refrigerant information is received at the port of landing before the catch is weighed and recorded. If the Directorate of Fisheries' inspection reveals a significant deviation from the ice ratio in the vessel's catch, the vessel's catch shall be weighed in accordance with Article 11 for the next 8 weeks. If there are repeated significant deviations from the reported ice ratio in the vessel's catch, the vessel's catch shall be weighed in accordance with Article 11 the next 16 weeks.

Also, in 2019, the Directorate of Fisheries began implementing ISO-31000 the standard intended for effective guidance on risk management for institutions and companies. This is being implemented in an effort to strengthening confidence in the Agency's oversight and increase efficiency and transparency in the operations of the Directorate of Fisheries⁵⁰. Inspections are conducted using a risk-based framework ('business intelligence software') aimed at utilising resources to optimise compliance at any given moment. Most importantly, 100 % of the landed fish is weighed by an authorised 'weighmaster', employed by the municipality and hence independent of both buyer and seller. Landing data are immediately added to the Directorate's catch database, where the reported quantities of fish are deducted from the vessel's quota. The Directorate operates a dynamic and interactive website, where stakeholders at all times can monitor the precise quota status for each species and observe the performance of individual vessels, their catch from each fishing trip and vessel quota status. The fact that the vast majority of catch is exported provides a further control mechanism enabling a mass balance comparison of fish in (i.e. landing declarations) with fish out (i.e. production or export volumes). On the website, information is also published on different vessels' catch composition on trips with and without inspectors on board, which would give an indication of discarding.

Acts/Laws and Regulations may be accessed by searching by Act/Law/Regulation No./Year (e.g. 116/2006) at http://www.althingi.is/lagasafn/ (for Acts/Laws) or https://www.reglugerd.is/ (for Regulations). In addition to their being

⁴⁸ https://island.is/s/fiskistofa/frett/birting-ishlutfalls-vid-endurvigtun-undir-eftirliti

⁴⁹ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/22140

⁵⁰ http://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla Fiskistofu 2020.pdf



easily accessible and searchable online laws and regulations are also effectively disseminated through an online law gazette which provides the most up to date versions of the legislation (i.e. incorporates latest amendments)⁵¹.

The Fisheries Directorate website also prominently displays announcements relating to the management of the fishery including, for example, in relation to allocation of quota, opening and closure of fisheries, license revocations, reminders about legal requirements etc.⁵²

All scientific advice is available online⁵³. Harvest control rules are scrutinised on request by an independent scientific body (ICES) with reports being published online.

Up-to-date maps of fisheries closures are available on-line on the Fisheries Directorate website⁵⁴.

Temporary/sudden closures (generally 2 weeks triggered by high juvenile abundance on fishing grounds) are announced by the Coastguard on VHF radio on a specified wavelength and on the radio before the news and weather. They are also published on the MFRI website. The short-term closure monitoring (and issuing of) was transferred to Fiskistofa in the fall of 2020. Some regulation regarding the short-term closures was also changed in 2020, whereby the trigger size limit was increased for cod, which led to significant decrease in the number of closures. An updated table as provided by the management authorities (MFRI and Fiskistofa) up to 2023 is shown below.

Table 10. Short term closures in Iceland for the years 2018-2023.

Year	Species	Number of closures
2018	Cod	90
2018	Saithe	4
2018	Shrimp	2
2018	Haddock	1
2019	Cod	50
2019	Haddock	1
2020	Cod	9
2020	Haddock	1
2020	Greenland halibut	1
2021	Sea cucumber	2
2021	Cod	3
2021	Haddock	1

⁵¹ https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2021/09/23/Stjorn-fiskveida-2021-2022-Log-og-reglugerdir/

⁵² http://www.fiskistofa.is/

⁵³ https://www.ices.dk/advice/Pages/Latest-Advice.aspx

⁵⁴ http://atlas.lmi.is/mapview/?application=haf



2022	Cod	2
2022	Haddock	2
2022	Sea cucumber (quota finished)	1
2023	Cod	3
2023	Saithe	4
2023	Haddock	1
2023	Herring	1

Directorate Inspections at Sea

Days spent by Fisheries Directorate inspectors at sea inspecting vessels provided during the June IRFM site visit as the Fiskistofa coverage in the past fishing season 2022/2023:

- 3% purse seine coverage from 9 trips
- 2.2% midwater trawl coverage from 11 inspected trips.

The Directorate of Fisheries monitors compliance with laws and regulations which apply to fishing, handling of commercial stocks and treatment catch. In many cases, the Directorate of Fisheries is intended to respond to violations of laws and regulations through the application of administrative sanctions. Sanctions are intended to have a protective effect to reduce or prevent further violations. The main resources available to the Directorate of Fisheries for violations are reprimands and revocation of a fishing license. Alleged violations can also be prosecuted by the police and in some cases it is the only available remedy to respond to violations. Then the Directorate of Fisheries can in individual cases, deprive individuals of a fishing license to enforce law enforcement and rules. During the 2024 audit, Fiskistofa confirmed (3th Oct 2024) that twelve fishing licences were revoked in 2023/2024. Most of them relating to discard, one for logbook violations, two weighing violations and two for wrongly reported catch. The most recent violations detected by Fiskistofa are shown below. Two hundred and thirty (230) cases were registered with the Fisheries Control Division in the year 2023. In 2023, 40 cases were closed sanction decisions.

Table 11. Fiskistofa suspected violations in 2020, 2021 and 2023. Source: Fiskistofa 2020⁵⁵, 2021 Annual Report⁵⁶ and 2023 Annual Report (https://island.is/s/fiskistofa/arsskyrsla-2023). Note, the information between 2020, 2021 and 2023 is not directly comparable, and offenses of a similar nature may have been combined into one case.

Suspected violation	2020	2021	2023
	No.	No.	No.
Veiðar án leyfis / Fishing without a permit	14	1	6

⁵⁵ https://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla Fiskistofu 2020.pdf

⁵⁶ https://www.fiskistofa.is/media/arsskyrslur/arsskyrsla-2021.pdf



Brottkast / offences	11	70	22
Vigtun afla / weighing of catch	24	2	
bar af vigtun vigtarleyfishafa / of which the weighing by the weighing licensee	9	3	
Framhjálöndun / landing	6	1	
Afladagbók / logbook	40	91	162
Vanskil afladagbókar / submitting logbook late	470		
Veiðar án aflaheimilda / Fishing with insufficient catch quotas	6	1	
Mál vegna umframafla / Cases due to excess catch * mostly daily allowance in coastal vessels	1321	1456	
Lax og silungsveiði / salmon and trout fishing	24	13	4
Undirmálsfiskur / bottom fish fishing	4	11	
Hafnríkiseftirlit / Port Authority Control			2
Röng tilgreining tegunda / Incorrect identification of species	3	3	
Línuívilnun / Line concession			2
Grásleppuveiðar / Lumpsucker fishing	13	2	
Ólöglegar veiðar á lúðu / Illegal fishing of halibut			1
Veiðarfæri / Fishing without fishing opportunities			13
Veiðileyfi / Fishing License			4
Strandveiðar / coastal fishing	42	2	
Annað s.s. tilkynningarskylda, löggilding vigtarmanns, vigtun án löggilts vigtarmanns, ónákvæmni við áætlun afla og hindrun eftirlits. / Other s.s. notification obligation, certification of the weigher, weighing without a certified weigher, inaccuracy in the catch plan and obstruction of control.	14	16	14

At-sea surveillance is primarily the remit of the Icelandic Coast Guard (ICG). The Icelandic Coast Guard monitors commercial fishing vessels in Iceland's EEZ on a continuous basis. There are requirements surrounding the reporting of vessel position (manually or using VMS systems) and the reporting of catch on entering or leaving Icelandic waters, among others.

The ICG reported increased support and cooperation with Directorate of Fisheries by operating drones for surveillance from ICG patrol vessels.



In spite of the Coast Guard efforts the pandemic has had its impact. Fewer inspections and boarding's of vessels resulted in less measuring of fish, which was reflected in fewer Short Time Closures in 2020 and 2021 and 2022 (see **Table 10**) and none based on Fisheries inspections by ICG. However, the overall number of ICG inspections in 2023 increased again. The overall number of inspections since 2012 is shown below.

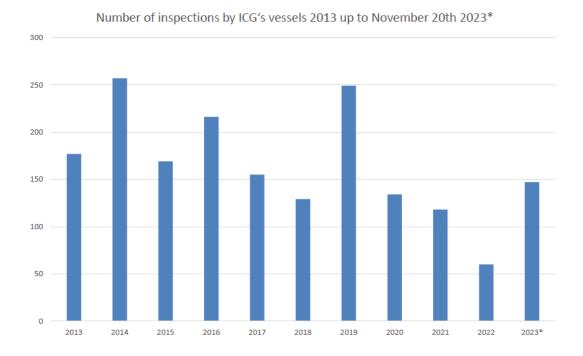


Figure 46. Overall number of ICG inspection from 2013 to 2023. Source: ICG, June 2024.

Statistics on enforcement effort i.e. on-board inspections, air and drone hours, and overall infringements (provided by ICG on the 27th Sep):

- a. Air surveillance: 238:08 hours.
- b. ICG performed 156 onboard inspections 2023 from coast guard vessels.
- c. 32 minor infringements and 1 serious infringement.

Instead of regular boardings the ICS used more surveillance drones, in partnership with Fiskistofa. Trials with a bigger drone from EMSA (type Schiebel S 100 Camcopter) proved to be a lesson for future use of larger drones operating from a vessel. The trials with the EMSA drone tied up, in part, the activities of the vessels which can in part explain fewer boardings. However, the drones are an extension of the vessel and information is used to inspect vessels more selectively than doing random checks. In the summer of 2022, the ICG recorded several incidents of inspections after anomalies were spotted by the drone crews. These include registry of crew but also discard of fish. Air Surveillance 2023 and comparison from 2018 are shown below.







Figure 47. Air Surveillance 2023 and comparison from 2018.

In terms of overall infringements, ICG reports 32 minor infringements and 1 serious infringement. Noting however that not all reports are due to fishing infringements and one report can include more than one type of Apparent Infringement. The types of apparent infringement in 2023, included: Lögskráningar/Crew registry, Veiðar /Fisheries, Ferilvöktun /Vessel monitoring, Vanmönnun /Manning, Farþegafjöldi /Passengers, Haffæri /Sea worthiness and a new addition Öryggi farþega /Safety of Passengers.

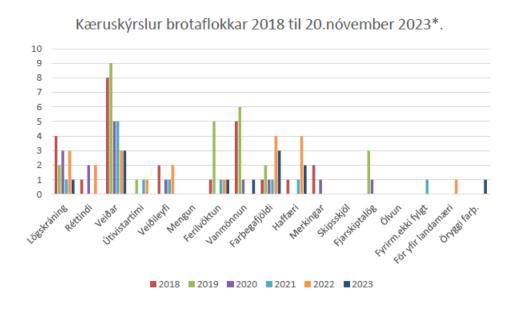




Figure 48. Overview of ICG infringement reports in 2018- (20th Nov) 2023. Source: provided by the ICG.

Foreign vessels inspection 2023

Thirty-six foreign flag vessels inspected in 2023: four Faroese, twenty-nine Norwegian vessels, one Danish, one Polish and one British vessel. No infractions were reported.

As follows from the above, Iceland has a comprehensive system for physical inspection of catches, through observers and spot checks at sea and, not least, 100 % coverage of independent landing checks. In addition to these compliance mechanisms, various forms of norm-, legitimacy- and communication-related mechanisms have also proven to be effective in delivering compliance in fisheries. In Iceland, there is a degree of social control in the small coastal communities from which the fishery takes place ('neighbour watch'), and the high level of user-group involvement may provide regulations with a degree of legitimacy that increases fishers's inclination to comply with them. The same applies to the relationship between fishers and enforcement officers, which is reported to be good, not least because the Coast Guard is not only policing the fishing ground; it is also the most important service provider and search and rescue operator at sea. Further, inspectors are reported to approach the fishers in a respectful manner and provide guidance on how to avoid infringements, thus taking a more consultative role in addition to their traditional policing role towards the fishing fleet.



6. Proposed Unit(s) of Assessment and Certification

The applicant Unit of Assessment (UoA) (i.e., what is to be assessed) are described by the following:

Table 12. Units of Assessment (UoA).

Unit of Asse	Unit of Assessment (UoA)					
Consina	Common name:	Atlantic herring/herring (Síld)				
Species:	Latin name:	Clupea harengus				
Geographic	al Area(s)	Iceland 200-mile EEZ within FAO Fishing Area 27				
Stock(s)		Herring in Division 5.a, summer-spawning herring (Iceland grounds)				
Management System		Ministry of Industries and Innovation (Iceland)				
Fishing gear(s)/method(s)		Purse seine net;				
		Pelagic trawl;				
		Gears from other Icelandic fisheries legally landing summer-spawning				
		herring				

The applicant Unit of Certification (UoC) (i.e., what is to be covered by the certificate if all Units of Assessment listed above meet the required standard) is described by the following:

Table 13. Unit of Certification

	mit of Certification.	•					
Unit of Cer	tification (UoC)						
	Common name:		Atlantic herring/herring (Síld)		Herring in ICES Division		
Species:	Latin name:		1 Clupea harengus		5a, summer-spawning herring (Iceland grounds)		
Geographical Area(s) 1			Iceland 200-mile EEZ within FAO Fishing Area 27				
Manageme	ent System	3	Ministry of Industries and Innovation (Iceland)				
			Purse seine net;				
Fishing gear(s)		4	Pelagic trawl;				
		4	Gears from other Icelandic fisheries legally landing summer-				
			spawning herring				



7. Consultation Meetings

7.1. On-Site Assessment and Consultation Meetings

Table 14. Summary of Meetings, Icelandic Summer spawning Herring Fishery site visits, June 2024.

Meeting Date	Personnel	Areas of discussion/agenda points
and Location		
Date: Tuesday 18th June 2024 Location: Iceland Ocean Cluster (Hus Sjavarklasans ehf., Grandagardi 16, Reykjavík)	Client group: Hrefna Karlsdóttir, Senior Advisor at Fisheries Iceland. Iceland Responsible Fisheries foundation (IRFF) Sigrid Merino, CEO, IRFF. GTC assessment Team: Vito Romito Rasmus Hedeholm Christos Maravelias	 Brief review or key highlights of the 2022/2023 fishing season for cod, haddock, saithe, golden redfish, ling, tusk and ISS herring. Any key issues or updates from an industry perspective? Please provide with any updates on: enforcement and compliance legislation (laws, regulations etc) consultation mechanisms the management system/structure Any updates relating to the day-to-day operations of the large and small fleet sectors? Updates on the use of use bycatch mitigation measures on longline fisheries (e.g. tori lines, night settings, acoustic devices) for gillnetters (e.g. pingers trials, actual deployment, other) and for trawlers (escape panels, excluder devices, bobbins, rock hoppers) or equivalent practices? To what extent are such bycatch reduction devices / or practices used in these fisheries? Any updates? Non-Conforming Areas and Corrective Actions (the deadline is 2023, 4th surveillance audit) Corrective Action relating to Non-Conformance 1: Although required by legislation, there is evidence of extensive non-reporting/under-reporting of seabirds and marine mammals bycatch in fishing logbooks Regarding NC 1, what are the updates, new information or developments addressing the issue? Any recent updates relating to the smartphone app deployed to facilitate recording of marine mammal and seabirds' bycatch in smaller vessels? Feedback from the small vessel sector about implementation? Is it helping collect bycatch information? Corrective Action relating to Non-Conformance 2: There is insufficient evidence that adverse impacts of the cod, haddock and saithe fisheries on the following ecosystem components:



		 Is the excess catch (over the TAC) released alive? Can we confirm if the excess catch (over the TAC) has been released alive and if that catch is reported as a separate entry in the logbooks? Logbook issues resolved? Were there any significant changes to the way the fishery is managed or operated since 2022? Any other changes or updates of mention for the 7 fisheries in question that may relate to, research, assessment and advice, or mitigation of ecosystem effects of fisheries we should discuss?
Date: Wednesday 19 th June 2024 Location: Fiskistofa Hafnarfjörður, Fiskistofa Fornubúðir 5	Directorate of Fisheries/Fiskistofa: Erna Jónsdóttir, Head of Administration Division, Fiskistofa. Sævar Guðmundsson, Head of Department, Fiskistofa. GTC assessment Team: Vito Romito Rasmus Hedeholm Christos Maravelias	 enforcement and compliance legislation (laws, regulations etc) consultation mechanisms the management system/structure Please detail any collaboration between the Coast Guard and Fiskistofa relating to fisheries monitoring and enforcement activities. Updates for the past 12-18 months? Any specific updates relating to work on discards, bycatch monitoring, new app reporting (small vessels)? Could you please provide any information available on inspections and infringements in the Icelandic fisheries? Were there any significant changes to the way the fishery is managed or operated since 2022? Can you please provide a short description on the inspection arrangements, at sea and on shore, of the Icelandic fisheries? Is it possible to supply information on the number of at sea inspections and violations detected in the cod fishery in 2023? Have there been any fishery violations since 2022 in the cod fishery relating to improper recording of species catch in the logbook? Any prosecutions for failing to report bycatch? Could you please give an update about consultations between the authorities, the fishing industry and other stakeholders? Have there been any specific consultations on the management of the cod fisheries? Have there been any changes recently in the management? Would it be possible to provide any information available on compliance in the cod fishery, beyond the general inspection data provided in the annual reports of the Coast Guard and the Directorate of Fisheries, and the Directorate's website? Are there any other mentionable changes or updates for the 7 fisheries in question that may relate to day to day operations and monitoring activities worth discussing? Non-Conforming Areas and Corrective Actions (the deadline is 2024, 4th surveillance audit) Corrective Action relating to Non-Conformance 1: Although requ



issue? Any recent updates relating to the smartphone app deployed to
facilitate recording of marine mammal and seabirds' bycatch in smaller
vessels? Feedback from the small vessel sector about implementation? Is it
helping collect bycatch information?

- Corrective Action relating to Non-Conformance 2: There is insufficient evidence that adverse impacts of the cod, haddock and saithe fisheries on the following ecosystem components:
- Spotted wolffish, and; Common loon are being considered and appropriately assessed and effectively addressed, consistent with the precautionary approach.
- Regarding NC 2, what are the key developments regarding spotted wolffish (e.g. relating to research activities and/or live releases in the fishery)? Has spotted wolffish been released in the past season? Catches in 2020/2021 were 1,300 t against a TAC of 314 t, while catches in 2021/2022 were 927 t (Fiskistofa website) against a 377 t TAC. 2022/2023 catches?
- Is the excess catch (over the TAC) released alive? Can we confirm if the excess catch (over the TAC) has been released alive and if that catch is reported as a separate entry in the logbooks?

Date: Wednesday 19th June 2024

Location: MRFI Hafnarfjörður, Fiskistofa Fornubúðir 5 Marine and
Freshwater Research
Institute (MFRI):
Guðjón Már
Sigurðsson
Bjarki Elvarsson
Jonas Jonasson

GTC assessment Team: Vito Romito Rasmus Hedeholm Christos Maravelias

Stock Assessment, Status and Advice

- Any changes in sampling regime (especially for tusk in Greenland)?
- Any new information on stock identity (especially cod, golden redfish, tusk)
- Any new work on discarding (especially cod) like this work: https://www.hafogvatn.is/static/research/files/1608029972-hv2020-41.pdf
- Has the work mentioned in previous surveillance audits with drones been used in relation to discard?
- -Any major changes in assessment? (especially redfish, herring)
- Cod: In the 3rd SA it is mentioned that there might be projects looking at stock structure in more detail. Has that been done?
- Following the 2021 benchmark has the assessment deviated or been updated from what was agreed at the benchmark?
- There is a TAC overshoot in recent years (10-20%) why is that the case?
- Discards are considered negligible by ICES, but figure 5 in the 3rd surveillance audit report suggests that discarding is considerable (based on https://www.hafogvatn.is/static/research/files/1608029972-hv2020-41.pdf) at least up to 2018. Are there any updated numbers for discarding? If so, why are they not considered by ICES?
- What is the update on the Greenland-Iceland dynamic in terms of biology and research?
- Is there any work ongoing on how to address the genetic differentiation reviewed in the recent 2023 paper by Pampoulie (Hidden but revealed: After years of genetic studies behavioural monitoring combined with genomics uncover new insight into the population dynamics of Atlantic cod in Icelandic waters)
- Golden redfish: Please provide an update on the progress on having a management plan that includes both Greenland, Iceland and the Faroe Islands?
- Why have the Faroe Island catches gone down since 2020?
- Please provide an explanation for the consistent TAC overshoot.



- Do you expect this to continue with the upward stock size revision?
- The revised assessment caused a substantial upward revision of the stock
- Is there any new work on the species split in the fishery, especially for Greenland?
- Is there any new data on the potential high recruitment in Greenland waters seen in the recent surveys?
- Ling: Does the assessment model continue to preform well following the new benchmark set-up?
- F is reported as ages 8-11 why not include the younger fish?
- The TAC overshoot sems to have returned after a period of agreement between the two. This cannot be explained by other nation catches. Why the overshoot?
- Tusk: Greenland TAC is set to 1500 t but catches in ICES14 are limited. If Greenland fished their TAC, it would be a ca. 30% TAC overshoot. Is there any bilateral talk about this?
- Are there any new scientific studies on the connectivity to Greenland?
 Tagging studies for instance?
- Are there any sampling initiatives from ICES 14? In 2022 ICES14 catches were 21% of all landings, so this should not be ignored.
- Any experiences with the new assessment model that gives cause for concern?
- Haddock: Is there any new information on discarding? Do MFRI still conduct length distribution comparisons between vessel with/without inspector onboard?
- Account for the reason for the rather extensive TAC overshoot and if there are any initiatives to handle this.
- What is causing the unidirectional retrospective pattern in ssb/HR?
- Saithe: Why is the saithe TAC not fully utilized?
- The fact that HR has been underestimated and that the TAC has not been fished seems to outweigh each other, so that the HR ends up being more or less at HRmgt anyway. This sentence is in the MFRI document: "The combination of uncertain survey indices and time-varying fleet selectivity can lead to periods where retrospective stock size revisions are large". Please elaborate.
- Herring: Why the large TAC overshoot in 2022/2023- only bycatch related?
- How are the stocks separated in the catches?
- Please explain what was done differently to accommodate the Ichthyophonus infection in the SAM assessment and how this will be handled in the future if the mortality rate caused by Ichthyophonus changes?
- What has been the effect of discontinuing the juvenile herring survey?
- Ecosystem effects of the fisheries
- Non-Conforming Areas and Corrective Actions (the deadline is 2024, 4th surveillance audit)
- This is the topic of Non Conformance 1. Enforcement of, and levels of compliance with, logbook reporting of interactions/bycatch between seabirds and marine mammal (especially in gillnets, longlines and trawl



- gear)? Is the new App in use in small vessels effective for catch recording? Updates and changes in the past 1-2 years? Any prosecutions for failing to report bycatch?
- Status update for common loon? Numbers recorded in catch and population estimates?
- This is the topic of Non Conformance 2. Spotted wolffish can now be released after capture as per new 2020 regulation. Are fishers reporting released vs landed spotted wolffish as different entries in the logbooks? Any other information on the subject?
- What survey abundance, interaction, catch and / or status updates information can be provided about the OSPAR listed threatened and/or declining species: 1) dogfish/spurdog, 2) Greenland shark 3) porbeagle shark, 4) basking sharks and 5) leafscale gulper sharks?
- Can the assessment team be provided with total catch in numbers of Grey skate (*Dipturus flossada / batis*) for the latest available MFRI survey? Any additional updates on the state of this endangered species / complex? Any specific management measures for this species?
- Whales. Have there been any recent interactions (past 2 years) with Blue whales and Northern right whales for the fisheries under assessment?
- Updates on the use of use bycatch mitigation measures on longline fisheries (e.g. tori lines, night settings, acoustic devices) for gillnetters (e.g. pingers trials, actual deployment, other) and for trawlers (escape panels, excluder devices, bobbins, rock hoppers) or equivalent practices? To what extent are such bycatch reduction devices / practices used in these fisheries?
- In relation to gillnets, the MFRI bycatch estimate is ~1,436 birds /yr. Some trials using loomers?, and other mitigation measures?
- Harbour porpoise updates in Iceland (e.g. surveys), status and management?
- Do you have updated bycatch information in Icelandic fisheries (e.g. cod gillnets, lumpfish nets, other gear) for A) harbour porpoise, harbour seals, grey seals, harp, ringed, hooded and bearded seals or B) seabirds for 2022-2023?
- Any updated MFRI or other reports on the by-catch of seabirds and marine mammals in Icelandic fisheries (not specifically relating to lumpfish)?
- Any pingers testing updates from 2022 or 2023?
- Habitat updates new habitat mapping, any changes to understanding of habitats, particularly VMEs, and interaction with the relevant fishing gears of the above fisheries (e.g. bottom trawl).
- It was also noted that "Novasarc II" is now ongoing and will concentrate on updating predictive models and discuss the output for managemental purposes. Are there research or management updates resulting from the work of this group?
- Last year the MFRI reported noted that they had proposed new closures to protect vulnerable ecosystems to the Ministry of Fisheries. Did these include coral areas, deep-water sponges, sea pen beds and/or hydrothermal vents? Have there been recent research updates, management actions or new VME closures (proposed or implemented) in the past 12-18 months?



		Any new studies, papers or reports on the Icelandic marine ecosystem's structure or foodweb dynamics relating to groundfish or pelagic species?
Wednesday June Location: Teams meeting	Institute of Natural History (IINH): Snorri Sigurðsson Sunna Björk Ragnarsdóttir GTC assessment Team: Vito Romito Rasmus Hedeholm Christos Maravelias	 The Icelandic Institute of Natural History (IINH) Red list was last updated in 2018, are there plans to update the list? What status updates information can be provided about the OSPAR listed threatened and/or declining species: 1) dogfish/spurdog, 2) Greenland shark 3) porbeagle shark, 4) basking sharks and 5) leafscale gulper sharks? Marine mammals (especially harbour porpoises, harbour seal, grey seal) status /survey updates? Status / survey updates for common loon (Gavia immer), Northern fulmar, Northern gannet, common Guillemot? Population estimates? For which Red listed species do you have the biggest concern relating to bycatch mortality from commercial fisheries (e.g. specific fisheries and gear types)? Has the IINH had any recent involvement or input with ICES, OSPAR or NEAFC, NAFO? Any particular involvement with the Icelandic Ministry for Fisheries or the MFRI/Fiskistofa? How are the findings of the IINH passed on to Icelandic authorities to enable management action, if any? Is there any formal regulation or law that may legalise/enable management action on Red listed species (especially vulnerable or endangered ones)?
Thursday 27 th	Client closing meeting: Hrefna Karlsdóttir, Senior Advisor at Fisheries Iceland. Sigrid Merino, CEO, IRFF.	 General summary of findings from the week's meetings. Corrective actions for active non-conformances, updates, clarifications and discussions. Reporting timelines and next steps in the audit process. Questions and answers.
	GTC assessment Team: Vito Romito Rasmus Hedeholm Christos Maravelias	
Thursday 27th June Location: Teams meeting	Icelandic Coastguard Auðunn Kristinsson GTC assessment Team: Vito Romito Rasmus Hedeholm Christos Maravelias	 Please provide with any updates on: enforcement and compliance legislation (laws, regulations etc) consultation mechanisms the management system/structure As concern the "Corrective Action relating to Non-Conformance 1: Although required by legislation, there is evidence of extensive non-reporting/under-reporting of seabirds and marine mammals bycatch in fishing logbooks". Regarding NC 1, are there any updates, new information or developments addressing the issue? Is the smartphone app deployed to facilitate recording of marine mammal and seabirds' bycatch in smaller vessels operational? What was the buying-in from small vessel owners? Was it proved to be effective in providing bycatch information on marine mammals/seabirds? Please detail any collaboration between the Coast Guard and Fiskistofa



- the past 12-18 months? Any specific updates relating to work on discards, bycatch monitoring, new app reporting (small vessels)?
- Could you please provide any information available on inspections and infringements in the Icelandic fisheries?
- Were there any significant changes to the way the fishery is managed or operated since 2022?
- Can you please provide a short description on the inspection arrangements, at sea and on shore, of the Icelandic fisheries? Is it possible to supply information on the number of at sea inspections and violations detected in the cod fishery in 2023?
- Have there been any fishery violations since 2022 in the cod fishery relating to improper recording of species catch in the logbook? Any prosecutions for failing to report bycatch?
- Could you please give an update about consultations between the authorities, the fishing industry and other stakeholders? Have there been any specific consultations on the management of the cod fisheries?
- Have there been any changes recently in the management structure and decision-making procedures in Icelandic fisheries management?
- Would it be possible to provide any information available on compliance in the cod fishery, beyond the general inspection data provided in the annual reports of the Coast Guard and the Directorate of Fisheries, and the Directorate's website?
- Are there any other mentionable changes or updates for the 7 fisheries in question that may relate to day to day operations and monitoring activities worth discussing?
- Non-Conforming Areas and Corrective Actions (the deadline is 2024, 4th surveillance audit)
- This is the topic of Non Conformance 1. Enforcement of, and levels of compliance with, logbook reporting of interactions/bycatch between seabirds and marine mammal (especially in gillnets, longlines and trawl gear)? Is the new App in use in small vessels effective for catch recording? Updates and changes in the past 1-2 years? Any prosecutions for failing to report bycatch?
- This is the topic of Non Conformance 2. Spotted wolffish can now be released after capture as per new 2020 regulation. Are fishers reporting released vs landed spotted wolffish as different entries in the logbooks? Any other information on the subject?



8. Assessment Outcome Summary

The Assessment Team has documented the available evidence that addresses each of the clauses of the IRF Standard and the available evidence from each section shall be assigned a confidence based rating (high, medium or low) which signifies the confidence of the Assessment Team in the level of information that demonstrates conformity of the fishery at meeting a particular clause.

Confidence Ratings are defined as follows:

Low Confidence Rating (resulting in a Critical Non-Conformance)

o Information/evidence is completely absent or contradictive to demonstrating compliance of a fishery to the requirements of a clause.

Medium Confidence Rating (resulting in a Major Non-Conformance)

o Information/evidence is limited that demonstrates conformance of a fishery to the requirements of a clause.

Medium Confidence Rating (resulting in a Minor Non-Conformance)

 Information/evidence is broadly available that demonstrates conformity to a clause although there are some gaps in information that if available would clarify aspects of conformity and allow the Assessment Team to assign a higher level of confidence.

High Level of Confidence (resulting in a Full Conformance)

 Sufficient information/evidence is available to demonstrate conformance to a given supporting clause, a high level of confidence can be assigned.

A critical non-conformance essentially stops an assessment (not allowing for certification) unless or until the applicant is able to provide additional information/evidence that supports a higher confidence level; therefore, a Certification Body (CB) shall not certify a fishery unit of certification with an open Critical Non-Conformance. In addition, a CB shall not certify a unit of certification with one or more outstanding Major and/or Minor Non- which have not been addressed by an accepted Corrective Action Plan.

The scoring outcomes for each section of the IRF Standard are presented in **Table 15** below.

Table 15. Conformance levels for each section of the IRF Standard assigned during this assessment.

Section	Critical	Major	Minor	Full	Outcome
1. Fisheries Management	0	0	0	58	Pass
2. Compliance and Monitoring	0	0	1	37	Pass
3. Ecosystem Considerations	0	0	1	15	Pass – 1 new minor non-conformance
Overall	0	0	2	110	Pass

8.1. Assessment Outcome by Scoring element

The scoring outcomes for each scoring element of the IRF Standard are presented in **Table 16** below.

Table 16. Conformance levels for each scoring element of the IRF Standard assigned during this assessment.

Section		Clause	Scaring Ele	amant)	Applicable	Low	Medium		High	Conformance	NC No.
Section		Clause (Scoring Element)			Applicable	Critical	Major	Minor	Full	level	NC NO.
		1.1.1			Yes				х	Full	
	1.1.	1.1.2			Yes				х	Full	
1	1.1	1.1.3			Yes				х	Full	
		1.1.4			Yes				х	Full	
		1.1.5			Yes				Х	Full	



TELLIFIE		Clause (Scoring Element)		Applicable	Low		Medium		Conformance	NC No		
Section				illelit)	Applicable	Critical	Major	Minor	Full	level	IVC IV	
		1.1.6			Yes				х	Full		
		1.1.7			Yes			Х		Minor	1	
			1.1.8.1		Yes				х	Full		
		110	1.1.8.2		Yes				х	Full		
		1.1.8	1.1.8.3		Yes				х	Full		
			1.1.8.4		Yes				х	Full		
			1.1.9.1		Yes				х	Full		
			1.1.9.2		Yes				х	Full		
		1.1.9	1.1.9.3		Yes				х	Full		
			1.1.9.4		Yes				х	Full		
			1.1.10.1		Yes				х	Full		
			1.1.10.2		Yes				х	Full		
			1.1.10.3		Yes				х	Full		
		1.1.10	1.1.10.4		Yes				х	Full		
		1.1.10	1.1.10.5		Yes				х	Full		
			1.1.10.6		Yes					Full		
			1.1.10.7		Yes				X	Full		
		1.2.1	1.1.10.7						X	Full		
		1.2.2			Yes				X	Full		
					Yes				X			
		1.2.3	4 2 4 4		Yes				Х	Full		
		1.2.4	1.2.4.1		Yes				Х	Full		
	1.2		1.2.4.2		Yes				Х	Full		
			1.2.4.3		Yes				Х	Full		
		1.2.5			Yes				Х	Full		
		1.2.6			Yes				Х	Full		
		1.2.7			Yes				Х	Full		
			1.3.1.1		Yes				Х	Full		
			1.3.1.2		Yes				Х	Full		
		1.3.1	1.3.1.3		Yes				Х	Full		
		1.5.1	1.3.1.4		Yes				х	Full		
			1.3.1.5		Yes				х	Full		
			1.3.1.6		Yes				х	Full		
		1.3.2	1 2 2 1	1.3.2.1.1	Yes				х	Full		
	1.3		1.3.2.1	1.3.2.1.2	Yes				х	Full		
				1.3.2.2.1	Yes				х	Full		
					1.3.2.2.2	Yes				х	Full	
			3.2	1.3.2.2.3	Yes				х	Full		
				1.3.2.2.4	Yes				х	Full		
				1.3.2.3.1	Yes				х	Full		
			1.3.2.3	1.3.2.3.2	Yes				х	Full		
				1.3.2.3.3	Yes				x	Full		
		1.4.1		1.5.2.5.5	Yes				X	Full		
	1.4	1.4.2			Yes				X	Full		
		1.4.2			Yes					Full		
									X			
	4 -	1.5.2			Yes				X	Full		
	1.5	1.5.3			Yes				Х	Full		
		1.5.4			Yes Yes				X X	Full Full		



Section		Clause (Cooming Flamant	Amalianki	Low Medium		dium	High	Conformance	NC No
ection		ciause (Scoring Element)	Applicable	Critical	Major	Minor	Full	level	NC No
		1.5.6		Yes				Х	Full	
		1.5.7		Yes				х	Full	
		1.5.8		Yes				х	Full	
		1.5.9		Yes				х	Full	
		1.5.10		Yes				х	Full	
		2.1.1		Yes				х	Full	
	2.1	2.1.2		Yes				х	Full	
		2.2.1		Yes				х	Full	
		2.2.2		Yes				х	Full	
		2.2.3		Yes				х	Full	
	2.2		2.2.4.1	Yes				х	Full	
		2.2.4	2.2.4.2	Yes				х	Full	
			2.2.4.3	Yes				X	Full	
			2.3.1.1	Yes				X	Full	
			2.3.1.2	Yes				X	Full	
		2.3.1	2.3.1.3	Yes				X	Full	
			2.3.1.4	Yes					Full	
			2.3.2.1	Yes				X	Full	
		2.3.2	2.3.2.2					X	Full	
				Yes				X		
			2.3.2.3	Yes				Х	Full	
			2.3.2.4	Yes				Х	Full	
			2.3.2.5	Yes				Х	Full	
			2.3.2.6	Yes				Х	Full	
2			2.3.2.7	Yes				Х	Full	
			2.3.2.8	Yes				Х	Full	
			2.3.2.9	Yes				Х	Full	
			2.3.2.10	Yes				Х	Full	
	2.3		2.3.2.11	Yes				х	Full	
	2.5		2.3.2.12	Yes				Х	Full	
			2.3.2.13	Yes				х	Full	
			2.3.2.14	Yes				х	Full	
			2.3.2.15	Yes				х	Full	
			2.3.2.16	Yes				х	Full	
			2.3.2.17	Yes				х	Full	
			2.3.3.1	Yes				х	Full	
		2.3.3	2.3.3.2	Yes				х	Full	
			2.3.3.3	Yes				х	Full	
			2.3.3.4	Yes				х	Full	
			2.3.3.5	Yes				х	Full	
		2.3.4	2.3.4.1	Yes				х	Full	
		2.3.5	2.3.5.1	Yes				х	Full	
			2.3.5.2	Yes				х	Full	
			2.3.5.3	Yes				X	Full	
		3.1.1		Yes				X	Full	
	3.1	3.1.2		Yes					Full	
2		3.1.2	2 2 1 1					X	Full	
3	3.2	3.2.1	3.2.1.1	Yes			V	Х		1
	3.2	3.2.2	3.2.1.2 3.2.2.1	Yes Yes			Х	х	Minor Full	1



Section	Clause	(Capring Flowant)	Annlianhla	Low	Medium		High	Conformance	NC No.
Section	on Clause (Scoring Element)		Applicable	Critical	Major	Minor	Full	level	NC NO.
		3.2.2.2	Yes				х	Full	
		3.2.2.3	Yes				х	Full	
		3.2.2.4	Yes				х	Full	
		3.2.2.5	Yes				х	Full	
		3.2.3.1	Yes				х	Full	
	3.2.3	3.2.3.2	Yes				Х	Full	
	3.2.3	3.2.3.3	Yes				х	Full	
		3.2.3.4	Yes				х	Full	
	3.2.4	3.2.4.1	Yes				х	Full	
	3.2.5	3.2.5.1	Yes				х	Full	

9. Conformity statement

The assessment team recommends that the management system of the applicant fisheries, the Icelandic Summer Spawning Herring commercial fisheries under state management by the Icelandic Ministry of Food, Agriculture and Fisheries, fished directly by Samtök fyrirtækja í sjávarútvegi (SFS) (Fisheries Iceland), The National Association of Small Boat Owners, Iceland (NASBO) be granted certification.



10. Fishery Assessment Evidence

10.1. Section 1: Fishery Management

10.1.1. Clause 1.1. Fisheries Management System and Plan for Stock Assessment, Research, Advice and Harvest Controls

The Fisheries Management System

10.1.1.1. Clause 1.1.1.

A structured fisheries management system shall be adopted and implemented and have the objective to limit the total annual catch from the fish stocks so that catches are in conformity with amounts allowed by the competent authorities.

authorities.					
Evidence Rating:	Low	Mediur	n 🗌	High 🗹	
Non-Conformance:	Critical 🔲	Major Minor Minor		None 🗹	
commercial species. The Regulations for the mana	d management system the control of the control of the fisheries agement of the fishery. The control of the fisheries agents for Icelandic fisheries levels.	Act (2006, nr. 116 e Ministry of Food,	6) and a number , Agriculture and	of supporting Acts and Fisheries is the principal	
exploitation rate at the less sustainable yield (MSY) in allowable catch (TAC) the	egy objective for Iceland evel which is consistent with the long term. The key el nat is distributed on the properties in place to keep of	th the Precautionar lement in the mana participating vesse	ry Approach and t agement is outpu Is by an ITQ syst	that generates maximum it control through a total tem. There is a suite of	

Evidence:

Iceland has a well-structured management system that has a clear objective of limiting the catch and achieving conformity with the amounts allowed by the competent authorities. This is described in the legislation and achieved through relevant and competent institutions.

The specific harvest strategy is described in a harvest control rule that has been evaluated by ICES.

Legislation:

The overall objective for the Icelandic fishery is stated in principle fisheries act article 1:

"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 utilisation, thereby ensuring stable employment and settlement throughout Iceland."⁵⁷

The Icelandic government Policies also incorporate a number of International Agreements and declarations, including the UN Convention of the Law of the Sea⁵⁸, Agenda 21 of the Rio Declaration⁵⁹, FAO Code of Conduct for Responsible Fisheries and the International Plan of Action to prevent, deter and eliminate Illegal, Unregulated and Unreported Fishing

cp.htm#:~:text=Agenda%2021%20and%20efforts%20to,of%20the%20UNCED%20in%201992.

⁵⁷ https://www.althingi.is/lagas/nuna/2006116.html

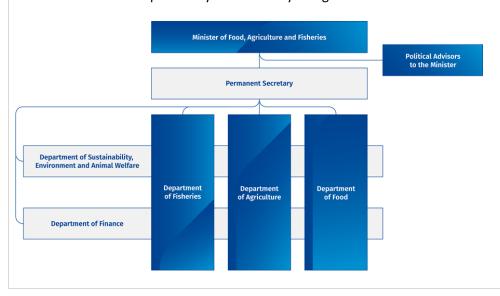
⁵⁸ https://www.un.org/Depts/los/reference files/chronological lists of ratifications.htm

⁵⁹ https://www.un.org/esa/earthsummit/icela-



Institutions:

There are several inter-related government agencies within the system under the direction of the Ministry of Industries (https://www.government.is/ministries/ministry-of-industries/organizational-chart/) which has ultimate responsibility. The Ministry is organized as shown below⁶⁰:

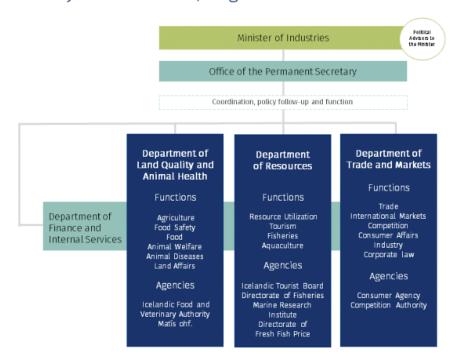


⁶⁰ https://www.government.is/ministries/ministry-of-food-agriculture-and-fisheries/organizational-chart/



| Organizational Chart of the Ministry of Industries

Ministry of Industries, Organisational Chart



The Ministry of Industries in Iceland is the principal management organization responsible for Icelandic fisheries and has the ultimate responsibility for fisheries management. The Ministry acts according to law issued by the parliament (Althingi)⁶¹, and according to advice from the Marine and Freshwater Research Institute (MFRI). The executive body is Directorate of Fisheries⁶². The Directorate allocates annual catch quotas to each vessel by distributing the total allowable catch according to the quota shares attached to each vessel. The individually transferable quota shares and catch quotas are the cornerstone of the Icelandic fisheries management system. In addition to the individually transferable quota system, Icelandic fisheries management includes management measures such as fishing gear restrictions, area restrictions including the use of closed areas and port control and weighing of all catches. The Directorate of Fisheries is responsible for the daily administration of these measures.

The Icelandic Coast Guard⁶³ sea and air patrols Iceland's 200-mile exclusive economic zone and 12-mile territorial waters and monitors of fishing within the zone. The Coast Guard performs surveillance and control at sea and monitors the VMS information. It also approves and controls the technical state of vessels and the qualifications of the crew, and coordinates search and rescue operations.

⁶¹ https://www.althingi.is/english

⁶² https://island.is/en/o/directorate-of-fisheries

⁶³ https://www.lhg.is/english/



The Marine and Freshwater Research Institute⁶⁴ conducts a wide range of marine research and provides the Ministry with scientific advice. The MFRI is responsible for fish stock assessment and scientific advice, and for obtaining the necessary information for that task, in particular sampling of catches, scientific surveys and providing scientific background for advice. MFRI also has the authority to manage short term area closures, which are used extensively to protect juveniles and spawning fish. MFRI has wide international cooperation in all major fields of marine science.

Management plans and Harvest control rules (HCR)

The management strategy for Icelandic fish stocks is to maintain the exploitation rate at the level which is consistent with the Precautionary Approach and that generates maximum sustainable yield (MSY) in the long term. To this end, there are concrete species-specific harvest control rules that are build in precautionary principles that ensures sustainable harvest. The harvest plans have the same general structure and include⁶⁵:

- A harvest control rule, that outlines the mechanism for setting the total allowable catch (TAC)
- Decrease the risk of short-term interests influencing the level of exploitation
- Ensure that the available information on the resource is used in the most rigorous manner
- Long term sustainable yield
- Ensure that stocks are above save biological limits

The key element in the harvest control rules and the primary management method is output control through a total allowable catch that is distributed on the participating vessels by an ITQ system. There is a suite of monitoring and control measures in place, to keep catches in conformity with the allowed amounts⁶⁶. There is some flexibility to transfer quotas between years and between species. Specifically, the HCR is as follows:

$$TAC_{Y/Y+1} = HR_{mgt} \times B_{4+,Y} \text{ if } SSB_Y \geq MGT \text{ } B_{trigger}$$

$$TAC_{Y/Y+1} = HR_{mgt} \times (\frac{SSB_Y}{MGT \text{ } B_{trigger}}) \times B_{4+,Y} \text{ if } SSB_Y < MGT \text{ } B_{trigger}\text{:}$$

The spawning-stock biomass trigger (MGT $B_{trigger}$) is defined as 273 000 tonnes; B_{4+} is defined as the biomass of herring of ages 4 and older, and the target harvest rate (HR_{MGT}) is set to 0.19.

Discards are prohibited by law⁵⁷ and surveillance by inspectors from the Directorate of Fisheries during each fishing season is considered adequate in verifying if a discard is ongoing⁶⁷. There are several arrangements in place to reduce the incentive for discarding and black landings, including control at sea by the Coast Guard, temporal and area closures and an obligation/opportunity to land undersized fish for a reduced price.

Commercial species can only be landed in designated ports, where they are weighed and reported by authorized personnel. No fish can be landed without being accounted against a quota. The quota status is strictly monitored and enforced by the Directorate of fisheries. These weights are reported online to the Directorate and are the primary source of catch statistics to be used in stock assessments. Thus 60 ports in Iceland send electronic data daily to the Directorate. A total of approximately 50,000 landings are registered in the system every year. The data is processed in the Directorate's database and catches are subtracted from the vessel's

⁶⁴ https://www.hafogvatn.is/en/

⁶⁵ https://www.government.is/news/article/2018/05/15/Haddock/

⁶⁶ https://www.government.is/news/article/2018/05/15/Fisheries/

⁶⁷ https://ices-library.figshare.com/articles/report/Stock Annex Herring



quotas. The information is publicly available in real-time⁶⁸. The system is designed so that the Directorate can act quickly if vessels have overfished their quotas. Excess catches can result in a revocation of fishing licenses.

The catches are in some years just above the total allowed catch and in some years below (Table 17). The last two years the catch has exceeded the advice by 2% and 10%, but in the years before that the quota was not caught (note the error in the table in 2022/2023 – ICES did not recommend a TAC, but MFRI recommended a quota equal to the National TAC). Although there is a significant difference between the scientific advice and catch in particular the 2022/2023 season this is not indicative of a trend and generally the catch agrees with the scientific advice. Between-year quota transfers can partly explain the pattern as there are years where the quota is not exhausted and transferred to the next year.

Table 17: Advice, quota and catch for ISS herring. From MFRI (2024).

Fishing year	Recommended TAC	National TAC	Total catch
2015/2016	71 000	71000	69 729
2016/2017	63 000	63 000	60 403
2017/2018	38712	39000	35 034
2018/2019	35 186	35186	40 683
2019/2020	34 572	34572	30 041
2020/2021	722 391	35490	36 041
2021/2022	72 239	72239	70 084
2022/2023	66 195	66195	72 804
2023/2024	92 633	92633	94 422
2024/2025	81 367		

Refer	ences:	See footnotes	
Non-C	Conformance Num	ber (if relevant)	NA

⁶⁸ https://island.is/s/fiskistofa



10.1.1.2. Clause 1.1.3.

Appropriate measures for the conservation and sustainable use of the "stock under consideration" shall be adopted and effectively implemented by the competent authorities.

Evidence Rating:	Low	Medium 🔲	High 🗹
Non-Conformance:	Critical 🗌	Major	None 🗹

Summary Evidence:

The main measure to ensure the conservation and sustainable use of ISS herring is an overall TAC, distributed in an ITQ system. Fishery of juvenile herring (27 cm and smaller) is prohibited and to prevent such a fishery, area closures are enforced. Mid-water trawling is only allowed outside of 12 nautical miles with some additional area restrictions. Use of sorting grids in the mid-water trawls can be required in some areas, if necessary to avoid bycatch. When gillnets are used in the herring fishery, the minimum mesh size (stretched) is 63 mm. Discarding is prohibited in Icelandic fisheries.

Evidence:

The main instrument for the conservation and sustainable use of the herring resource is annual quotas, as described under Clause 1.1.1. The overall quota is distributed to individual vessels as ITQs. In addition, there is a suite of measures to support the adherence to the quotas and to reduce adverse impact of the fishery on the environment. These include technical regulations, area closures and a discard ban. The fishery for herring is conducted almost exclusively by pelagic trawls because the fishery is conducted offshore in deeper waters (Figure 49). The use of purse seines dominated when the fishery was inshore where trawling is prohibited.

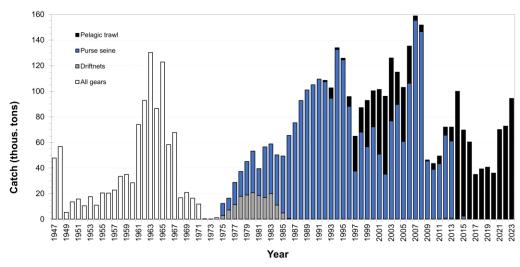


Figure 49: Total landings (in thousand tonnes) from 1947 by different fishing gears from 1975 onwards. From MFRI (2024).

The fishery of the summer-spawning herring is currently regulated by regulations set by the Icelandic Ministry of Fisheries in 2019 (no. 962)⁶⁹. The fishery can only take place from 1st September to 30th April each fishing season using nets, purse seines and mid-water trawls. Fishing for herring is only allowed outside of the 12 nautical miles zones. Use of sorting grids in the mid-water trawls can be required in some areas,

⁶⁹ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/21662



if necessary to avoid bycatch. When gillnets are used in the herring fishery, the minimum mesh size (stretched) is 63 mm. The catch must be sampled daily, and samples must be sent to MFRI.

To protect juvenile herring (27 cm and smaller) in the fishery, area closures are enforced based on a regulation of the herring fishery set by the Icelandic Ministry of Fisheries (no. 376, 8 October 1992). No closure was enforced in the herring fishery in 2023/24.

Commercial species can only be landed in designated ports, where they are weighed and reported by authorized personnel⁶⁹. No fish can be landed without being accounted against a quota. The quota status is strictly monitored and enforced by the Directorate of fisheries.

In the fishery east of Iceland targeting AS Spawning herring, ISS herring is a bycatch. In the 2023/2024 season 29.8% (28,000 t) of the total ISS catch was taken in this fishery⁷⁰. The split between AS and ISS herring is done by visual inspection of the gonads. There is also a small bycatch of ISS herring in the summer mackerel fishery, and in the 2023/2024 season 1.1% of the total ISS catch (1,500 t) was caught in this fishery.

Discard are prohibited in Icelandic fisheries, as noted in clause 1.1.1. Discards probably occurred when strong year classes entered the stock in the early 1990s. Surveillance by inspectors from the Directorate of Fisheries during each fishing season is considered adequate in verifying if discarding is currently ongoing⁷¹.

Overall, appropriate measures for the conservation and sustainable use of the ISS herring are adopted and effectively implemented by the competent authorities.

References:	See footnotes	
Non-Conformance N	lumber (if relevant)	NA

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⁷⁰ https://ices-library.figshare.com/articles/report/Northwestern Working Group NWWG /25605738?file=46896037

⁷¹ https://ices-library.figshare.com/articles/report/Stock Annex Herring



10.1.1.3. Clause 1.1.4.

The Standard does not recognise fishing practices that are prohibited such as dynamiting, poisoning and other comparable destructive fishing practices.

Evidence Rating:	Low	Medium		High 🗹	
Non-Conformance:	Critical 🗌	Major 🗌	Minor	None 🗹	
Summary Evidence: Legal Instruments are in force which specify legal gears for each method of fishing. Legal gears do not include dynamiting, poisoning and other comparable destructive fishing practices.					
Evidence: Legal Instruments are in force which specify 'legal gears' for each method of fishing (Act 57/1996) ⁷² . It also requires the regulation of fishing gear to reduce damage to catch and also to allow confiscation of gear not retrieved in a proper manner, found in closed areas, fishing illegally or being illegal. Also, Article 9 of Act No. 79/1997 states that The Minister shall take the necessary measures to prevent fishing practices which can be regarded as harmful to the efficient utilisation of the commercial stocks and preservation of sensitive ocean areas ⁷³ .					
References: See footnotes					
Non-Conformance Number (if relevant)				NA	

⁷² https://www.althingi.is/lagas/148b/1996057.html

⁷³ https://www.althingi.is/lagas/nuna/1997079.html



10.1.1.4. Clause 1.1.5.

Transparency in the fisheries management and related decision-making process shall be ensured.

Evidence Rating:	Low	Mediun	n 🗌	High	\square	
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	Non	e 🗹	
Summary Evidence: The assessment and advice of herring by ICES is documented in the NWWG report and the ICES advice. This advice is taken over by MFRI, who provides the formal TAC advice to the Ministry of Food, Agriculture and Fisheries. Both the ICES assessment, the ICES advice and the MRI advice are accessible online. This advice is adopted by the Ministry and implemented as individual quotas by the Directorate of Fisheries. The quota status both overall and for individual vessels is very transparent, being published almost in real-time on the Directorate website.						
(116/2006) ⁷⁴ which management. Specif by ICES and found to available reports. Accepercentage is reduced harvest control rule in The assessment and advice to the Ministry by the Ministry and in online ⁸⁰ . The individually transmanagement system individual vessels is	Evidence: The herring is managed according to the general arrangements for managing fish resources in Iceland (116/2006) ⁷⁴ which is supplemented by a suite of laws and regulations covering all aspects of fisheries management. Specific to herring is a harvest control rule which was adopted in 2024 ⁷⁵ after being evaluated by ICES and found to be in accordance with the precautionary approach ⁷⁶ . This is reported by ICES in publicly available reports. According to this rule, the TAC is set at 19% of the fishable biomass (age 4 and older). This percentage is reduced linearly with SSB towards the origin if SSB is below 273,000 tonnes (B _{trigger}). The harvest control rule is available online both through ICES and the MFRI website. The assessment and advice by ICES is documented in the NWWG report ⁷⁷ and the ICES advice ⁷⁸ . The official advice to the Ministry comes from MFRI ⁷⁹ , but their advice aligns with the ICES advice. This advice is adopted by the Ministry and implemented as individual quotas by the Directorate of Fisheries, that are announced					
The fisheries management and related decision-making process is a transparent process.						
References: See footnotes						
Non-Conformance N	Non-Conformance Number (if relevant) NA				NA	

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 $\underline{https://island.is/en/o/directorate-of-fisheries/announcements?45qXSJ10thZIUIaMD7vUoQq=quota}$

⁷⁴ https://www.althingi.is/lagas/nuna/2006116.html

⁷⁵ https://www.government.is/news/article/2018/05/15/Haddock/

⁷⁶ https://ices-library.figshare.com/articles/report/Workshop

⁷⁷ Northwestern Working Group (NWWG) (figshare.com)

⁷⁸ Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)

⁷⁹ HERRING Clupea harengus (hafogvatn.is)

⁸¹ Permits to fish | Ísland.is (island.is)

https://island.is/v/gagnasidur-fiskistofu/gagnasidur?pageName=ReportSection4ce086cbd6149a60bd90



10.1.1.5. Clause 1.1.6.

Fisheries shall be regulated in such a way as to avoid the risk of conflict among fishers using different vessels, gear and fishing methods. Where conflict arises appropriate venues and means shall be available for conflict resolution.

Evidence Rating:	Low	Medium		High 🔽	
Non-Conformance:	Critical 🗌	Major 🗌	Minor	None 🗹	
Summary Evidence:					
Conflicts between ve	ssels may be prevented by	the Icelandic Mari	time Traffic Servi	ce which is a single point	
of contact for all mar	itime related notifications	. The Ministry can	close areas for ce	rtain gears if necessary.	
Evidence:					
The Coast Guard ope	rates the Icelandic Maritin	ne Traffic Service v	vithin its operatio	ns centre. This centre is	
a single point of cont	act for all maritime related	d notifications, inv	olving, for examp	le, the Maritime Rescue	
Co-ordination Centre	e, the Vessel Monitoring (Centre and the Fis	sheries Monitorin	g Centre. The Icelandic	
system of Individual	Transferable Quotas (ITQs) includes provision	ns for allocations	of quota to be reserved	
for local fisheries. Thi	s has the added benefit of	serving to avoid po	tential tensions/o	conflicts between fishing	
sectors. The Ministry can close areas for certain gears if needed.					
References:	None				
Non-Conformance Number (if relevant)					



The Fisheries Management Plan 10.1.1.6. Clause 1.1.7.

Fishing for the "stock under consideration" shall be managed by the competent authorities in accordance with a documented and publicly available Fisheries Management Plan.⁸³

Evidence Rating:	Low	Medium		High 🗌
Non-Conformance:	Critical	Major 🗌	Minor 🗹	None

Summary Evidence:

There are not publicly available fully descriptive management plans for the ISS herring stock. The management of herring is part of the general fisheries management in Iceland, and rules and regulations that apply in general apply to herring as well. Some elements are specific to herring. A combination of legislation, regulations, harvest control rules and common practice can jointly be regarded as a fisheries management plan, but while these elements are in place and documented they are not publicly available in coherent management plans.

Evidence:

There is not a publicly available fully descriptive management plans for ISS herring. There are some general long-term objectives that specifies that: "The management strategy for Icelandic fish stocks, in general, is to maintain the exploitation rate at the level which is consistent with the Precautionary Approach and that generates maximum sustainable yield (MSY) in the long term"84.

These elements, as outlined in previous clauses (Clause 1.1.1 - 1.1.3) include:

- A legal basis for relevant management measures.
- Organized distribution of authority and responsibility between institutions.
- Support for regular stock assessments, including monitoring of catches, acoustic surveys, sampling of biological data and assessments in an international framework.
- Organized advice following assessments according to an agreed harvest control rule.
- Quotas in an ITQ system
- Technical regulations of fishing gear, area and season.
- Control and enforcement of regulations.

The overall management objective is to have: "...exploitation rate at the level which is consistent with the Precautionary Approach and that generates maximum sustainable yield (MSY) in the long term". To meet this objective, there are elements are specific to herring, particularly technical regulations⁸⁵ and the Harvest control rule⁸⁶ which has been evaluated by ICES as precautionary⁸⁷.

Taken together, these elements can be regarded as fisheries management plan and these elements are in place, embedded in management, documented and publicly available and herring is considered well managed. However, the elements should be described in publicly available management plan as it was previously the case, and therefore there is a 'Minor Non-conformance' in relation to this clause.

⁸³ FAO Code of Conduct, art. 7 .3.3.

⁸⁴ https://www.government.is/news/article/2018/05/15/Haddock/

⁸⁵ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/21662

⁸⁶ https://www.government.is/news/article/2018/05/15/Haddock/

⁸⁷ https://ices-library.figshare.com/articles/report/Workshop



References:	See footnotes	
Non-Conformance N	lumber (if relevant)	1



10.1.1.7. Clause 1.1.8.

The Fisheries Management Plan developed and adopted by the competent authorities shall be formulated with due consideration to the following:

- 1.1.8.1 The management unit;
- 1.1.8.2 Specification of stock or component stocks of "stock under consideration";
- 1.1.8.3. Jurisdiction areas and the respective competent authorities for the entire range of component stock(s) of "stock under consideration";
- 1.1.8.4. The long-term harvesting policy, consistent with achieving optimum utilization, including the means for assurance of its consistency with the precautionary approach to fisheries management.

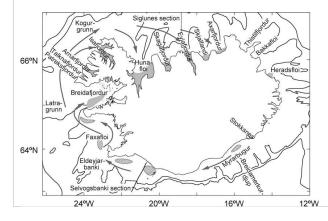
Evidence Rating:	Low	Medium		High 🗹
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹

Summary Evidence:

The management unit is the Icelandic summer spawning herring stock. It is confined to Icelandic waters and managed by Icelandic authorities. The long-term harvesting policy is to harvest the stock according to a harvest rule which leads to a near maximum long-term yield and is consistent with the precautionary approach.

Evidence:

The management unit is the Icelandic summer spawning (ISS) herring stock. The stock is considered to reside solely in Icelandic waters throughout its lifecycle. Results from various research including, tagging experiments around middle of last century⁸⁸, studies on larval transport⁸⁹, and studies on migration pattern and distribution, all suggest that the stock is local to Icelandic waters. Recent studies on stock structure on herring in Northeast Atlantic support this distinction, both on basis of otoliths shape analyses⁹⁰ and microsatellite analyses⁹¹. Accordingly, it is managed as a domestic stock by Iceland. In Icelandic waters, AS herring also occurs in the summer, and is caught East of Iceland. Catches in that area are controlled for stock identity by examining the gonads which differ because of temporally distinct maturation. This is done routinely on the vessels and occasionally controlled by inspectors.



⁸⁸ https://www.hafogvatn.is/static/research/files/rit fisk 1961 ii 10.pdf

⁸⁹ https://www.hafogvatn.is/static/research/files/rit_fisk_1956_ii_4.pdf

⁹⁰ Otolith shape: a population marker for Atlantic herring Clupea harengus - PubMed (nih.gov)

⁹¹ Marine Ecology Progress Series 522:219 (dtu.dk)



Figure 50: Spawning and nursery areas for Icelandic summer spawning herring. Grey shading indicates the nursery areas, and stripes the spawning areas, and the arrows show the directions of larval drift⁹².

There is no publicly available management plan for ISS herring (see clause 1.1.7). However, the elements of a management plan mentioned in this clause are available in legislation, harvest control rules, etc. and the stocks are managed according to these principles.

The general long term management objective of fisheries management in Iceland is stated in Article 1 in the principal fisheries act (Act number 116/2006): "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 utilisation, thereby ensuring stable employment and settlement throughout Iceland"⁹³.

This long-term objective for the fishery is embedded in the management plan for herring⁹⁴ and to meet the objective, there is a precautionary harvest control rule in place, which has been evaluated and peer reviewed by ICES⁹⁵.

There is also a shared public statement by the Minister of Fisheries, the Marine Research Institute, the Directorate of Fisheries and the Fisheries Association of Iceland: "Icelanders have structured a fisheries management system to ensure responsible fisheries, focusing on the sustainable utilization of the fish stocks and good treatment of the marine ecosystem. The fisheries management in Iceland is primarily based on extensive research on the fish stocks and the marine ecosystem, decisions made on the conduct of regarding fisheries and allowable catches are made on the basis of scientific advice, and effective monitoring and enforcement of the fisheries and the total catch. These are the main pillars of the Icelandic fisheries management and they are intended to ensure responsible fisheries and the sustainability of the ocean's natural resources."96.

Hence, there is no Non-Conformance set for this clause, as the management is conducted with due consideration to the issues mentioned in the clause. The fact that they are not specifically mentioned in a publicly available management plan is highlighted by the Non-Conformance under clause 1.1.7.

References:	See footnotes	
Non-Conformance N	umber (if relevant)	NA

⁹² https://ices-library.figshare.com/articles/report/Stock_Annex_Herring

^{93 116/2006:} Act on the Management of Fisheries | Law | Parliament (althingi.is)

⁹⁴ https://www.government.is/news/article/2018/05/15/Haddock/

⁹⁵ https://ices-library.figshare.com/articles/report/Workshop

⁹⁶ https://www.responsiblefisheries.is/seafood-industry/fisheries-management/statement-on-responsible-fisheries



10.1.1.8. Clause 1.1.9.

The Fisheries Management Plan shall specify:

- 1.1.9.1. The long term objective(s) of the fisheries management, including target(s) for stock biomass and target value(s) or range(s) for fishing mortality or its proxy;
- 1.1.9.2. Limits with respect to precautionary management, including the limit reference point for stock size or its proxy and the limit reference point for fishing mortality or its proxy (e.g. harvest as a proportion of stock size, etc.)⁹⁷, as well as remedial action to be taken if limits are approached or exceeded;
- 1.1.9.3. The applicable harvest control framework or harvest control rule, as appropriate.
- 1.1.9.4. The primary approach applied to managing the fisheries (e.g. input controls, output controls, etc.).

Evidence Rating:	Low	Medium		High 🗹
Non-Conformance:	Critical 🗌	Major 🔲	Minor 🗌	None 🗹

Summary Evidence:

The main instrument for ensuring sustainable exploitation is output control through quotas which are set according to an agreed harvest control rule. The rule has a target harvest rate value (19%) for adult (4+) biomass, which is a proxy for a target fishing mortality. The harvest rate shall be reduced if the SSB is below a limit biomass reference point, $B_{trigger}$, of 273,000 tonnes. There is no explicit stock biomass target.

Evidence:

The long-term objective for all Icelandic fish stocks is stated in an overall strategy published by the Ministry⁹⁸ and also stated in the general fisheries act⁹⁹. The management strategy in general is to maintain the exploitation rate at the level which is consistent with the Precautionary Approach and that generates maximum sustainable yield (MSY) in the long term.

The main instrument for ensuring sustainable exploitation is output control through quotas. The quotas are set according to an agreed target harvest rate, that has been shown in simulations to imply a low risk of depleting the stock through recruitment failure, and to lead to a near maximum long-term yield. This exploitation regime has been approved by ICES as precautionary¹⁰⁰. In addition, there is a suite of supportive measures to avoid exploitation of juveniles, and to reduce adverse effects on the ecosystem. There is an extensive system in place to ensure adherence to the decided quotas. A harvest control rule for herring was evaluated, approved and adopted in 2024^{101} . It has a target harvest rate value (19%) for the adult (4+) biomass, which is a proxy for a target fishing mortality. A biomass target is considered redundant and is not defined. The HCR has a breakpoint for the spawning stock biomass at 273,000 tonnes, below which the harvest rate is reduced linearly towards the origin, scaled by the SSB/B_{trigger} ratio. Hence, if SSB falls below that level, the harvest rate is reduced to 0.19*SSB/273,000. A limit reference point, B_{lim}, for the spawning stock biomass (SSB) is established at 200,000 t. Simulations show a low (<5%) risk of bringing the SSB below the limit when harvesting at the target harvest rate (19%) (Figure 51), also with a high probability of an Ichtiophounus infection as indicated by the coloroed lines in figure 51 and with the red line showing a probability of 1.

As mentioned in clauses 1.1.7 and 1.1.8 there is not a publicly available management plan that incorporates this information as prescribed in the clause. However, no Non-Conformance are set for this clause, as the

⁹⁷ F_{lim} can be explicit, or implicit in cases where harvest rate is set annually to a precautionary F_{lim} (or its proxy)]

⁹⁸ https://www.government.is/news/article/2018/05/15/Haddock/

⁹⁹ https://www.althingi.is/lagas/nuna/2006116.html

¹⁰⁰ https://ices-library.figshare.com/articles/report/Workshop

¹⁰¹ Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)



management is conducted with due consideration to the issues mentioned in the clause and the fact that they are not specifically mentioned in a management plan is highlighted by the Non-Conformance pertaining to clause 1.1.7.

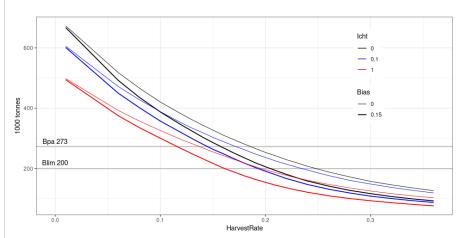


Figure 51: Summary of results from HCR simulations. The figure shows the 5th percentile of SSB. Btrigger = 273 kt is used, same as in HCR-3. The wide lines show results with bias and the narrow lines without bias. Colour shows probability of Ichthyophonus. Bias is either 0 or 0.15 and probability of Ichthyophonus 0.0, 0.1 or 1 where 0.1 means 10% probability of start of new epidemic that will then last at least 3 years so 0.1 leads on the average to 3 of 10 years with Ichthyophonus. 102

References:	See footnotes						
Non-Conformance N	lumber (if relevant)	NA					

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¹⁰² https://ices-library.figshare.com/articles/report/Workshop



10.1.1.9. Clause 1.1.10.

The Fisheries Management Plan shall also consider the following:

- 1.1.10.1. The specific management method/approach or measures, according to fleet or jurisdiction or other relevant variables as appropriate;
- 1.1.10.2. Any further measures which support meeting the management objectives;
- 1.1.10.3. The institution(s) or arrangement(s) responsible for providing stock assessment and advice;
- 1.1.10.4. A description of the process for making decisions on Total Allowable Catch (TAC) how and on what basis management decisions are made;
- 1.1.10.5. Provisions for considerations and consultation with the fishing industry and relevant authorities.
- 1.1.10.6. The means of implementing the management approach, including main provisions for monitoring, control, surveillance and enforcement
- 1.1.10.7. The objectives and management measures relevant to ecosystem effects of the fishery.

Evidence Rating:	Low	Medium	n 🗌	High 🗹		
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹		

Summary Evidence:

The primary management method is output control by quota regulation. There is an extensive system for monitoring the fishery, by the Directorate that is the executive branch of the management, and the Coast Guard, that does surveillance and control at sea. There is a set of general technical regulations for the fisheries, and rules specific for herring. The quota is set by applying an agreed HCR to biomass estimates obtained by a stock assessment with approved methodology by the ICES NWWG and ultimately decided by the Ministry taking advice from MFRI and the industry. The assessment is supported by a well-organised system for collection of fisheries data, as well as by acoustic surveys of the stock.

Evidence:

The primary management method is output control by quota regulation. The quota is set by applying an agreed harvest control rule (HCR) to biomass estimates obtained from the ICES stock assessment. The quota is distributed on the fishing fleet via an ITQ system. The management of Icelandic summer spawning (ISS) herring is entirely by Iceland, as this a domestic stock confined to Icelandic waters. The assessment is supported by a well-organised system for collection of fisheries data, as well as by acoustic surveys of the stock, as described in detail in clause 1.1.

The assessment work is done in ICES by the North-Western Working Group (NWWG). This group has members from all involved countries, including Iceland. The preparatory work is done by MFRI. This includes sampling from the fishery, analysis of samples and performing an annual acoustic survey. ICES provide advice based on the assessment. This advice is taken up by MFRI that is the formal advisor to the Ministry. The Ministry makes the ultimate decisions on management and has the authority to deviate from the advice but in the recent history of ten years there has been agreement between the scientific advice and the TAC. Both the Ministry and MFRI have regular consultations with the industry. The lines of communication are generally short in Iceland, and many meetings are informal. More formally, the fishing industry organisations such as Fisheries Iceland and the Small Boat Owners are included on committees to review legislation and management changes. All legislative changes are subject to a public hearing process that is available online through a governmental portal¹⁰³ to all stakeholders. The scientific advice provided by ICES and MFRI is available online to all stakeholders but MFRI also meets with stakeholders to elaborate on the advice. Hence, there are regular formal and informal communications between scientists, mangers and

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¹⁰³ https://island.is/samradsgatt



industry as well as specific consultation groups that allow industry to describe their experiences of the fishing year in the context of past seasons. MFRI also publishes short newsletters regularly providing updates on stock analysis and related research outcomes and overall there are provisions for considerations and consultation with the fishing industry and relevant authorities.

There is an extensive system for monitoring the fishery, by the Directorate that is the executive branch of the management, and the Coast Guard, that does surveillance and control at sea.

As mentioned in clauses 1.1.7-1.1.9 there is not a publicly available management plans that incorporates this information as prescribed in the clause. However, there is no Non-Conformance set for this clause, as the management is conducted with due consideration to the issues mentioned in the clause and the fact that they are not specifically mentioned in an available management plan is highlighted by the Non-Conformance set under clause 1.1.7.

References:	See footnotes					
Non-Conformance N	lumber (if relevant)	NA				



10.1.2. Clause 1.2. Research and Assessment 10.1.2.1. Clause 1.2.1.

A competent research institute or arrangement shall collect and/or compile the necessary data and carry out scientific research and assessment of the state of fish stocks and the condition of the ecosystem. Research results shall be made public in a timely and readily understood fashion. In the course of research and stock assessment, relevant traditional, fisher and/or community information and/or knowledge shall be sought by the researchers through appropriate means/fora.

Evidence Rating:	Low	Medium		High 🔽				
Non-Conformance:	Critical 🗌	Major Minor Minor		None 🗹				
Summary Evidence: The Marine and Freshwater Research Institute (MFRI) is the main research institute in marine science in								

Iceland. Data collection for assessment purposes, both from the fishery and surveys, is performed by the MFRI, in cooperation with the Directorate of Fisheries. MFRI issues advice online once it is ready. The report from the underlying stock assessments and the ICES advice are readily accessible on the ICES website.

Evidence:

The Marine and Freshwater Research Institute (MFRI) is the main research institute in marine science in Iceland¹⁰⁴. MFRI is a subsidiary to the Ministry of Food, Agriculture and Fisheries to which it is responsible for the provision of scientific advice. The MFRI covers all major fields in marine science¹⁰⁵. The MFRI has a staff of about 190 with sections for demersal resources, pelagic resources, aquaculture, freshwater resources and the marine environment, as well as supporting sections, including sampling and computing. The main research priorities are:

- Research on marine and freshwater ecosystems
- Sustainable exploitation of main stocks
- Ecosystem approach to fisheries management
- Research on fishing technology
- Seafloor and habitat mapping.

The MFRI has two research vessels Árni Friðriksson (LOA 69.9 m) and Bjarni Sæmundsson (LOA 56 m). The former, delivered in 2000, is a modern multi-purpose research vessel designed for fisheries and oceanographic research, principally in the North Atlantic Ocean, temperate and arctic water, and equipped to modern standards for a marine research vessel. Data collection for assessment purposes, both from the fishery and surveys, is performed by the MFRI, in cooperation with the Directorate of Fisheries.

MFRI has wide international cooperation in all major fields of marine science, as indicated by its publication record¹⁰⁶. MFRI participates in providing annual stock assessment and international advice by ICES, which for ISS herring is done by the ICES North-Western Working Group¹⁰⁷. MFRI issues advice on individual stocks on the web once it is ready¹⁰⁸. On its website, there is also links to publication records and to news form the institute. The report from the underlying stock assessment and the ICES advice are readily accessible on the ICES website¹⁰⁹.

¹⁰⁴ MFRI | Marine and Freshwater Research Institute (hafogvatn.is)

¹⁰⁵ https://www.althingi.is/lagas/148a/2015112.html

 $^{^{106}\,\}underline{https://www.hafogvatn.is/is/midlun/utgafa/haf-og-vatnarannsoknir}$

¹⁰⁷ NWWG (ices.dk)

¹⁰⁸ Advice | Marine and Freshwater Research Institute (hafogvatn.is)

¹⁰⁹ Northwestern Working Group (NWWG) (figshare.com)



References:	See footnotes				
Non-Conformance N	lumber (if relevant)	NA			



10.1.2.2. Clause 1.2.2.

The relevant data collected/compiled shall be appropriate to the chosen method of stock assessment for stock under consideration and sufficient for its execution.

Evidence Rating:	Low 🗌	Medium 🗌	High 🗹
Non-Conformance:	Critical 🗌	Major Minor Minor	None 🗹

Summary Evidence:

The ISS herring stock is assessed by ICES using data provided by MFRI. The main data are catch statistics, life history data from the fisheries, and stock abundance measurement by acoustic surveys covering the whole stock. All catches of herring must be landed in authorized ports and weighed by authorized weighers. Landings are reported to the Directorate, are the primary source of catch data and are assumed to equal catches as discarding is prohibited and considered negligible. Logbooks are compulsory and provide supplementary information. Biological samples from the catch are analysed by MFRI with the information being used along with the total landings data to estimate catch-in-weight, catch-at-age-in numbers, weight-at-age in the catch, and length composition in the catch, as well as occurrence of disease – the *Ichthyophonus* infection.

Evidence:

The ISS herring stock is assessed by ICES (North-Western Working Group - NWWG)¹⁰⁷ using data provided by MFRI. The main data are catch statistics, life history data from the fisheries, and stock abundance measurement from acoustic surveys.

The location of the fishery can vary considerable from year to year. In recent years the fishery has mostly taken place to the west of Iceland and a clean ISS herring fishery and in the east where the catches are mixed with the AS herring., There are some catches in the south as bycatch in the mackerel fishery (**Figure 52**). If the catch is a mix of different stocks, skippers are obliged to establish the stock identity and report by stock. Inspectors from the Directorate control selected samples. The criterion is the development of the gonads, which is different between summer (ISS herring) spawners and spring spawners (AS herring).

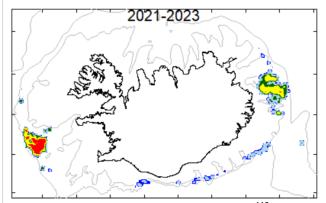


Figure 52: ISS herring catches 2021-2023¹¹⁰

All catches of herring must be landed in authorized ports and weighed by authorized weighers¹¹¹. These landings are reported to the Directorate and are the primary source of catch data. Landings are assumed to

¹¹⁰ https://www.hafogvatn.is/static/extras/images/30-her_techreport_en.html

¹¹¹ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/7712



be equal to catches as discards is prohibited and probably small. Log-books are compulsory and provide supplementary information but are not used directly for catch statistics. Biological samples from the catch are taken at sea by the fishers or in the harbours by people from MFRI and/or inspectors from the Directorate of Fisheries. The samples are analysed by MFRI. For herring, at least the fish length, weight, age (from scales), sex, maturation, and weight of sexual organs is recorded. The information from the samples is then used along with the total landings data to estimate catch-in-weight, catch-at-age in numbers, weight-at-age in the catch, and length composition in the catch.

The other source of information in the assessment is an acoustic research survey, which has been ongoing annually since 1973, albeit with some years missing (Figure 53, Figure 54). Normally these surveys are conducted in the period of October-January, but also as late as end of March to account for the variable distribution of the stock. The surveyed area each year is decided on basis of available information on the distribution of the stock in previous and the current year, which include information from the fishery. Thus, the survey area varies spatially as the survey is focused on the adult and incoming year classes but is considered to cover the whole stock each year.

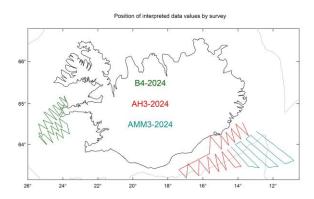


Figure 53: The survey tracks of three acoustic surveys on Icelandic summer-spawning herring in the southeast (AH3-2024 and AMM3-2024; younger part of the stock; red and blue) and in the west (B4-2024; adults; green) in 2023/24¹¹⁰.

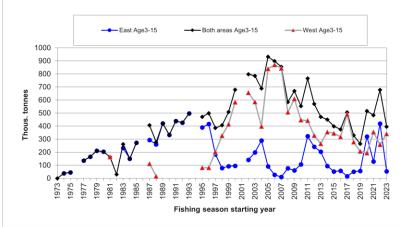


Figure 54: Comparison of total acoustical biomass indices of Icelandic summer-spawning herring over the autumns 1973/74 to 2023/24 (referring to the autumns) for age 3+ in the west (red), east (and south; blue) and total (black)¹¹¹.



The assessment is done using a SAM model which was implemented in 2024 after the ICES benchmark¹¹². The assessment and reference points were updated, and the new assessment model was found to provide robust and consistent assessment of the stock in relation to precautionary reference points.

This method uses age disaggregated catch and survey data, as well as data on weights and maturity. Also, the continued *Ichthyophonus* is considered both in the assessment through an increased natural mortality, but also in the stock projections.

Hence, the data available for herring are adequate and sufficient for the assessment method. The assessment is robust and there are limited retrospective bias (Figure 55).

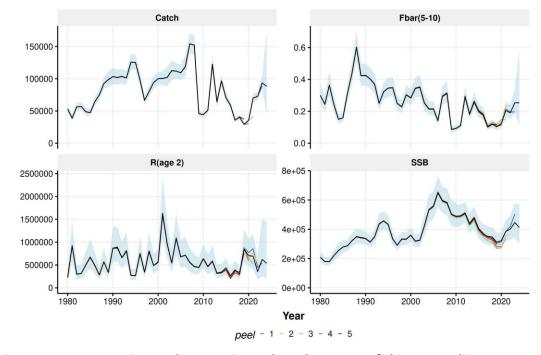


Figure 55: Retrospective analyses: estimated catch, average fishing mortality over ages 5 - 10 (Fbar), recruitment (R (age 2)), and spawning stock biomass (SSB)¹¹¹.

References: See footnotes						
Non-Conformance N	lumber (if relevant)	NA				

-

¹¹² https://ices-library.figshare.com/articles/report/Workshop



10.1.2.3. Clause 1.2.3.

Stock assessments shall be based on systematic research of the size and/or productivity of the fish stock(s).

Evidence Rating:	Low	Medium		High 🔽
Non-Conformance:	Critical 🗌	Major 🗌	Minor	None 🗹

Summary Evidence:

Estimates of stock size and productivity of the stock is obtained through annual stock assessments. The stock assessment for herring is based on landings data and acoustic surveys, as well as life history data. With the current harvest rate, the expected yield is near the long-term maximum and the stock biomass safely above the limit biomass.

Evidence:

The stock assessment is based on catch data, acoustic surveys and natural mortality that is partly estimated, partly assumed and includes the *Ichthyophonus* infection. The assessment reflects the stock abundance needed to cover the reported catches when natural mortality is considered, and the trends in abundance according to the survey is reproduced. The handling of these data and their role in the assessment is described in detail in clause 1.2.2. There is no clear dependence of recruitment on stock abundance within the range that can be expected with a moderate fishing mortality. Accordingly, the yield and biomass per recruit is a fair measure of the productivity at such mortality levels. The yield per recruit curve (**Figure 56**) is relatively flat topped with a maximum around a harvest rate of 0.18 - 0.22, depending on the scenario. The selected harvest rate of 0.19 is on the low side of the maximum, which implies a slight loss of median catch but a larger SSB, which reduces the risk of the SSB approaching a lower limit. At the same time, the B_{trigger} value was increased at the ICES benchmark from 200,000 t to 273,000 t. This increases the probability of stock stability and long-term yield.

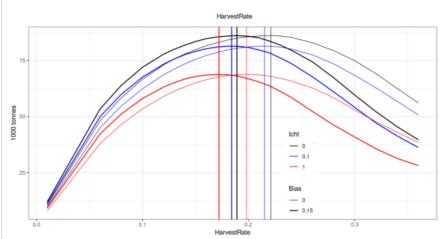


Figure 56: Median catch against target harvest rate with no MSY Btrigger. The vertical red, blue, and black lines indicate the harvest rate giving maximum yield. The grey vertical grey lines indicate the harvest rate used in the harvest control rules (HCRs) tested. The horizontal lines show the 95% MSY level for each Ichthyophonus infection scenario¹¹³.

References: See footnotes

¹¹³ Workshop on the assessment and management plan evaluation for Icelandic herring (WKICEHER) (figshare.com)



Non-Conformance Number (if relevant)	
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10.1.2.4. Clause 1.2.4.

For the stock under consideration, the determination of suitable conservation and management measures shall include or take account of total fishing mortality from all sources in assessing the state of the stock under consideration, including:

- 1.2.4.1. Estimates of discards;
- 1.2.4.2. Unobserved and incidental mortality,
- 1.2.4.3. Unreported catches and catches in other fisheries.

Evidence Rating:	Low	Medium		High 🗹
Non-Conformance:	Critical 🗌	Major	linor 🗌	None 🗹

Summary Evidence:

Discards are considered to be insignificant in the fishery of ISS herring, with a few exceptions (1990-95) related to large year classes entering the fishery. In fisheries for AS herring in the east and for mackerel in the South, some ISS herring is caught as bycatch. In these fisheries, the occurrence of ISS herring is estimated by inspection of the gonads, and the herring catches are reported by stock. Estimates of increased mortality due to the disease by *Ichthyophonus* is included in the stock assessment. There is extensive monitoring of the fishery by the Coast Guard and Directorate.

Evidence:

The assessment is based on reported catches and assumed and partly estimated natural mortality. With the applied method, fishing mortality is calculated directly from the catches at age, the natural mortality, and the number of survivors the last year in accordance with the survey results. Discards are illegal in Icelandic waters and are considered to be insignificant in the ISS herring fishery¹¹⁴. There are few exceptions in the past 35 years where discards were estimated to be significant (1990 – 1995). These exceptions are related to large year classes entering the fishery where juveniles were numerous in the catch.

Surveillance by inspectors from the Directorate of Fisheries during each fishing season is considered adequate in verifying if a discard is ongoing¹¹⁵. In the fishery for AS herring and for mackerel in the South, some ISS herring is caught as bycatch mixed with other herring. In these fisheries, the fishers are obliged to sort and report by stock. The method for separation is through inspection of the gonads. The results are checked occasionally by inspectors from the Directorate, without finding discrepancies that are cause of concern.

An additional source of mortality which is taken into account is the continued outbreak of the Ichthyophonus infection. Previously, it was assumed that all diseased herring would die from the disease. Now, scientists at MFRI have clarified that less die (only about 1/3)¹¹⁶ and the natural mortality associated with the observed prevalence is incorporated into the assessment, where it is added on to the natural mortality in the absence of infection (0.1) (

Table 18). The recent harvest control rule was designed under the consideration of the infection.

¹¹⁴ Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)

¹¹⁵ https://ices-library.figshare.com/articles/report/Stock Annex

¹¹⁶ https://ices-library.figshare.com/articles/report/Workshop



Two incidents of mass mortalities in the herring stock have been observed in the past, believed to be caused by too low levels of oxygen¹¹⁷. The amounts of herring estimated to be lost was taken into account in the assessment by adding them to the catch data.

Other sources of unobserved and incidental mortality are not known

Table 18: Estimates of natural mortality in herring with the Ichthyophonus infection included 115.

Year\age	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1987– 2007	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
2008	0.100	0.163	0.170	0.176	0.186	0.169	0.163	0.162	0.156	0.180	0.164	0.164	0.164	0.164
2009	0.100	0.188	0.190	0.184	0.177	0.184	0.170	0.160	0.167	0.160	0.161	0.161	0.161	0.161
2010	0.100	0.134	0.180	0.177	0.173	0.164	0.170	0.176	0.170	0.158	0.164	0.161	0.161	0.161
2011	0.100	0.106	0.130	0.166	0.152	0.161	0.156	0.152	0.141	0.146	0.138	0.113	0.127	0.161
2012	0.100	0.106	0.105	0.144	0.174	0.176	0.179	0.166	0.150	0.152	0.134	0.143	0.133	0.161
2013	0.100	0.110	0.107	0.107	0.142	0.163	0.156	0.158	0.149	0.145	0.144	0.132	0.137	0.161
2014	0.100	0.100	0.104	0.106	0.111	0.149	0.161	0.175	0.173	0.175	0.153	0.153	0.161	0.161
2015	0.100	0.114	0.106	0.108	0.115	0.127	0.154	0.160	0.178	0.157	0.168	0.143	0.146	0.161
2016	0.100	0.100	0.130	0.139	0.146	0.144	0.158	0.149	0.177	0.185	0.159	0.146	0.150	0.161
2017	0.100	0.100	0.145	0.135	0.142	0.164	0.163	0.171	0.183	0.200	0.155	0.146	0.155	0.155
2018	0.100	0.121	0.125	0.138	0.159	0.138	0.139	0.145	0.170	0.148	0.155	0.155	0.155	0.155
2019	0.100	0.110	0.130	0.146	0.133	0.131	0.151	0.150	0.167	0.163	0.160	0.143	0.163	0.155
2020	0.100	0.112	0.126	0.113	0.131	0.149	0.136	0.149	0.133	0.164	0.155	0.155	0.155	0.155
2021	0.100	0.106	0.112	0.109	0.128	0.142	0.133	0.142	0.135	0.151	0.152	0.167	0.140	0.173
2022	0.100	0.102	0.108	0.113	0.117	0.114	0.134	0.119	0.136	0.134	0.137	0.136	0.149	0.155
2023	0.100	0.102	0.108	0.113	0.117	0.114	0.134	0.119	0.136	0.134	0.137	0.136	0.149	0.155

References: See footnotes		
Non-Conformance N	Number (if relevant)	NA

¹¹⁷ https://www.researchgate.net/publication/322570549



10.1.2.5. Clause 1.2.6.

There shall be active collaboration with international scientific organisations, with the aim of ensuring that the focus is on internationally acknowledged research and assessment methods that provide the best available information on the condition of the stock under consideration at any time.

Evidence Rating:	Low 🗌	Mediur	n 🗌	High	\square	
Non-Conformance:	Critical 🔲	Major 🗌	Minor 🗌	None	e 🗹	
Summary Evidence: Iceland is member of ICES, which is a key forum for scientific cooperation. Iceland cooperates with several international organisations, in particular NEAFC and NAFO. Furthermore, the Icelandic government has cooperation agreements with Norway, Greenland, EU and the Faroe Islands.						
Evidence: Iceland is member of ICES, which is a key forum for scientific and management activities and cooperation. The cooperation includes: • Routine stock assessments.						
Quality control rule		ls and managemen				
assessment i	Icelandic scientists have he methods and computing to in the broad scientific cor	ools as well as stand		-		
The publication reco	ord of MFRI clearly show	s broad internation	onal cooperation	on publi	shed scientific	
Iceland also actively cooperates with several international organisations, in particular NEAFC ¹¹⁹ and NAFO ¹²⁰ . Furthermore, the Icelandic government has cooperation agreements with Norway, Greenland, EU and the Faroe Islands. These are bilateral fisheries agreements as well as control agreements and agreements regarding catch information and information on fisheries and the monitoring of fishing activity through satellite driven vessel monitoring systems (VMS) ¹²¹ .						
References:	See footnotes					
Non-Conformance N	Non-Conformance Number (if relevant)					

¹¹⁸ https://www.hafogvatn.is/is/midlun/utgafa/haf-og-vatnarannsoknir

¹¹⁹ https://www.neafc.org/

¹²⁰ https://www.nafo.int/

¹²¹ https://island.is/s/fiskistofa



10.1.2.6. Clause 1.2.7.

In cases where the stock under consideration is a shared stock or a straddling stock or a highly migratory stock, there shall be scientific cooperation at the relevant bilateral, regional or international level for obtaining data and/or conducting stock assessments and/or providing advice, as appropriate.

Evidence Rating:	Low 🗌	Medium 🗌		High		
Non-Conformance:	Critical 🔲	Major 🔲	Minor 🗌	Non	e 🗹	
	Summary Evidence: Not Applicable. Icelandic summer spawning herring is confined to Icelandic waters and thus is not regarded as a shared, straddling or highly migratory stock.					
Evidence: Not Applicable. Icelandic summer spawning herring is confined to Icelandic waters and thus is not regarded as a shared, straddling or highly migratory stock.						
References: None						
Non-Conformance Number (if relevant) NA						



10.1.3. Clause 1.3. Stock under Consideration, Harvesting Policy and the Precautionary Approach10.1.3.1. Clause 1.3.1. The Precautionary Approach

10.1.3.1.1. Clause 1.3.1.1.

The precautionary approach¹²² shall be implemented to protect the stock under consideration.

Evidence Rating:	Low	Medium 🗌		High 🗹	
Non-Conformance:	Critical 🗌	Major 🗌	Minor	None 🗹	
Summary Evidence: The precautionary approach is implemented through a harvest control rule that implies low risk of stock depletion. It has been tested and found precautionary by ICES.					
Evidence: The precautionary approach is implemented through a harvest control rule that implies low risk of stock depletion. There are limit and target reference points defined for both the exploitation rate (Harvest rate (HR) and the stock size (SSB) and the stock status and exploitation rate are evaluated annually. The reference points, exploitation level and the stock status are embedded in harvest control rules, that ensures that the exploitation level is set at a precautionary level and implies a low risk of stock depletion. The harvest control rule has been evaluated by ICES and is considered precautionary 123,124. The HCR is part of the management framework and the current HCR was adopted in 2024 125.					
The precautionary management is further detailed in clauses below. References: See footnotes					
Non-Conformance Number (if relevant) NA					

¹²² Referring to clause 29.6 of the FAO Eco-labelling Guidelines for Fish and Fishery Products from Marine Capture Fisheries

¹²³ https://ices-library.figshare.com/articles/report/Herring

¹²⁴ https://ices-library.figshare.com/articles/report/Workshop

https://www.government.is/news/article/2018/05/15/Haddock/



10.1.3.1.2. Clause 1.3.1.2.

The stock under consideration shall not be overfished to a level causing recruitment overfishing 126.

Evidence Rating:	Low	Medium 🔲		High 🗹	
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹	
Summary Evidence: A limit spawning stock biomass (B_{lim}) has been defined at 200,000 t, above which there is no indication of reduced recruitment historically. The harvest control rule was recently evaluated and found to be					
precautionary. The r	ecruitment has increased	in recent years an	d the harvest coi	ntrol rule is designed to	

prevent overfishing. The ISS herring is not overfished and is managed in a way that should prevent future

overfishing. **Evidence:**

The ISS herring was benchmarked in 2024 by ICES¹²⁴. This included revisiting the reference points and the lower (B_{lim}) spawning stock biomass was defined (and kept) at 200,000 t, above which there is no indication of reduced recruitment. B_{lim} has been 200,000 t for a long period, and the recent benchmark found no evidence to suggest an alternative. The spawner-recruitment relationship suggest that this is a reasonable decision (**Figure 57**).

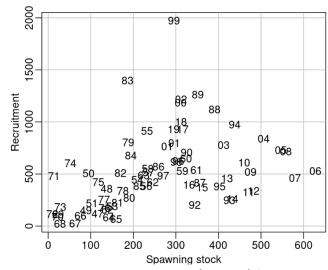


Figure 57: Recruitment vs. SSB (to right) from the assessment where the labels denote year class¹²⁷.

The assessment shows that after a period of >10 years of declining recruitment, the recruitment has increased since 2019 (age 2), and the biomass has increased as a result of that recruitment. The stock is therefore, currently, above the lower limit reference points (Figure 58). The harvest control rule evaluation also showed that the stock is robust to the target harvest rate of 0.19 and the HCR is designed to keep the stock above B_{lim} with a high degree of certainty (95%). The HCR evaluation was done without assessment bias as there is no retrospective pattern in the assessment.

¹²⁶ The 'stock under consideration' is not overfished if it is above the associated limit reference point (or its proxy)." FAO Guidelines (2009), par. 30.1.

¹²⁷ https://ices-library.figshare.com/articles/report/Workshop



The stock-recruitment relationship was assumed to follow the historical recruitment pattern and follow a hockey-stick function (**Figure 59**). There was some concern that the recruitment pattern had changed with the decreasing trend over several years, maybe influence by the infection, but the infection rate has gone down, and the recruitment has increased, so this seems a robust approach.

Hence, the ISS herring is at the moment not overfished nor is the exploitation pattern causing recruitment overfishing and the harvest control rule is set up in a precautionary way that should limit the fishery in accordance with the stock size in a precautionary manner.

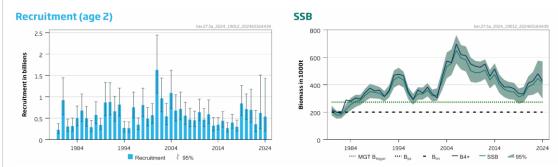


Figure 58: Summary of stock assessment. All biomass reference points refer to SSB levels (MSY Btrigger = MGT Btrigger = Bpa)¹²⁸.

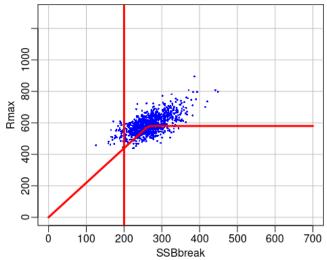


Figure 59: Scatter of estimates of SSBbreak and Rmax¹²⁷.

References:	See footnotes		
Non-Conformance N	lumber (if relevant)	NA	

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¹²⁸ Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)



10.1.3.1.3. Clause 1.3.1.3.

Relevant uncertainties shall be taken into account through a suitable method of risk assessment.

Evidence Rating:	Low	Medium 🔲		High 🗹	
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹	
Summary Evidence: The risk of unwanted	l stock development is qua	ntified by stochast	cic simulations of	the harvest control rule.	
Evidence: ICES has evaluated the harvest control rule and found it to be precautionary ¹²⁹ . This evaluation includes risk assessment by stochastic simulations of the harvest control rule, by which the risk to unwanted stock development is quantified. This is standard ICES procedure ¹³⁰ and takes all relevant uncertainties into account both regarding stock assessment, reference point estimation, parasitic infection levels, assessment error, etc. See also clause 1.3.1.2.					
References: See footnotes					
Non-Conformance Number (if relevant)					

¹²⁹ https://ices-library.figshare.com/articles/report/Workshop

¹³⁰ Technical guidelines (ices.dk)



10.1.3.1.4. Clause 1.3.1.4.

Appropriate reference points shall be determined and remedial actions to be taken if reference points are approached or exceeded shall be specified¹³¹.

Evidence Rating	g: Low [Medium	High		
Non-Conforma	nce: Critical		Major Minor Non		e 🗹	
Summary Evidence: Precautionary reference points have been defined by ICES. That includes a B _{lim} at 200,000 t and a B _{trigger} at 273,000 tonnes. There is a limit harvest rate (HR _{lim} , fishing mortality proxy) of 0.34 and a harvest rate precautionary approach, HR _{PA} , of 0.25. There are biomass limit reference points, B _{lim} and B _{trigger} , and if the spawning stock biomass (SSB) falls below B _{trigger} the harvest control rule prescribes a reduction in the harvest rate. Evidence:						
Evidence: The reference points tabulated below (Table 19) have been defined by ICES at the recent benchmark ¹³⁰ and have been adopted in the Icelandic harvest control rule: Table 19: Reference points, values, and their technical basis ¹³² .						
Framework	Reference point	Value	Technical basi	s		
NACV annua a d	MSY B _{trigger}	273 000 E	B _{pa} ; tonnes			
MSY approach	HR _{MSY}	0.22	Stochastic simulations			
Proceutionary	B _{lim}	200 000	SSB below which there is a high recruitment; tonnes	probability o	of impaired	
Precautionary approach	B_{pa}	273 000 E	$B_{pa} = B_{lim} \times exp(1.645 \times \sigma)$, where $\sigma = 0$.19; tonnes		
approach	HR _{lim}	0.34	The harvest rate that leads to SSB = B _I	m		
	HR _{pa}	0.25 I	Harvest rate leading to P (SSB $>$ B $_{lim}$) $>$	95% with ICES	advice rule	
Management	MGT B _{trigger}	273 000	Stochastic simulations; tonnes			
plan	HR _{mgt}	0.190	Management plan			
The harvest control rule has a harvest rate target (HR_{MGT}) of 0.190 for age 4+, which is below the HR_{MSY} estimate. The harvest control rules do not specify what actions must be taken if the spawning stock biomass drops below the lower limit reference point (B_{lim}) but it does state that the harvest rate must be reduced if SSB falls below the $B_{trigger}$ limit of 273,000 t. If the situation should get out of control, for example recruitment failure despite a large stock or altered productivity, there is no explicit revision clause stated but managers have the legal authority to initiate revisions of the plan and take other action as necessary.						
References:	See footno	tes				
Non-Conforma	nce Number (if re	Non-Conformance Number (if relevant) NA				

¹³¹ FAO Code of Conduct for Responsible Fisheries, Article 7.5.2.

¹³² Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)



10.1.3.1.5. Clause 1.3.1.5.

The long-term harvesting policy shall be stated in the Fisheries Management Plan.

Evidence Rating:	Low 🗍	Medium ☐ High √				
					<u> </u>	
Non-Conformance:	Critical	Major 🗌	Minor 🗌	None	e 🔽	
Summary Evidence: In line with the intentions in the basic fisheries law (116/2006), common statements by responsible fisheries stakeholders and publicly available statements and harvest objective, the long-term harvesting policy is clearly stated; i.e an exploitation rate consistent with the precautionary approach that generates maximum sustainable yield (MSY) in the long term.						
of Fisheries, the Man Iceland it is stated the within safe limits, man cornerstones in Icela current harvest rule at There are publicly at management strateg which is consistent we in the long term. Har by the government and objectives, the nature						
References:	See footnotes					
Non-Conformance N	umber (if relevant)				NA	

¹³³ https://www.althingi.is/lagas/nuna/2006116.html

 $[\]frac{134}{\text{https://www.responsiblefisheries.is/seafood-industry/fisheries-management/statement-on-responsible-fisheries}}$

https://www.government.is/news/article/2018/05/15/Haddock/



10.1.3.1.6. Clause 1.3.1.6.

The Fisheries Management Plan shall specify how the precautionary approach shall be implemented for the stock under consideration.

Evidence Rating:	Low	Mediur	m 🔲	High 🗹					
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹					
Summary Evidence: The precautionary approach is implemented by applying a harvest rate in the harvest rule that is low enough to make a decline in SSB below the biomass limit very unlikely. Evidence:									
There is no publicly a not affect the assessin the management of to a point (expressed Hence, the precaution that is low enough the biomass above which recruitment failure of in an unexpected want the harvest control precautionary 137. The	Evidence: There is no publicly available management plan for fishery. This has been addressed in clause 1.1.7 and will not affect the assessment of this clause. Following ICES protocol, implementing the precautionary approach in the management of a fishery would imply to ensure a low probability of bringing the spawning biomass to a point (expressed as B _{lim}) where recruitment may be impaired, or stock dynamics are unknown ¹³⁶ . Hence, the precautionary approach is implemented by applying a harvest rate in the harvest control rule that is low enough to make a decline in SSB below the biomass limits very unlikely. The limit is set at a biomass above which there has been no indications of reduced recruitment in the past. Accordingly, recruitment failure due to low stock biomass should not occur unless the productivity of the stock changes in an unexpected way. The harvest control rule for the ISS herring fishery has been evaluated by ICES and found to be precautionary ¹³⁷ . The reference points are included in the harvest control rule, and there is a mechanism to reduce the harvest rate if the stock drops below a SSB limit (B _{trigger}).								
References: See footnotes									
Non-Conformance N	lumber (if relevant)			Non-Conformance Number (if relevant) NA					

¹³⁶ https://ices-library.figshare.com/articles/report/General context of ICES advice/18667646?file=33450296

https://ices-library.figshare.com/articles/report/Workshop



10.1.3.2. Clause 1.3.2. Management targets and limits 10.1.3.2.1. Clause 1.3.2.1. Harvesting rate and fishing mortality 10.1.3.2.2. Clause 1.3.2.1.1.

The management target for fishing mortality (or its proxy) and the associated limit reference point, as well as the management action to be taken when the limit reference point is exceeded, shall be stated in the Fisheries Management Plan¹³⁸.

Management Plan ¹³⁸ .						
Evidence Rating:	Low 🗌	Mediur	n 🗌	High 🗹		
Non-Conformance:	Critical	Major 🔲	Minor 🗌	None 🗹		
fishing mortality. No	Summary Evidence: The management target for the fishing mortality is a harvest rate at 0.190, which is a proxy for a target fishing mortality. No other remedial action than applying it again next year is stated in the harvest rule. ICES has defined a limit fishing mortality (0.61) which is more than 3 times the target.					
Evidence: The management target for the fishing mortality is a harvest rate at 0.19, which is a proxy for a target fishing mortality. The harvest control rule states that as long as the spawning stock biomass (SSB) is above a certain limit (MGT B _{trigger}) the harvest should be applied with no modification. If the SSB drops below MGT B _{trigger} , the harvest rate should be reduced linearly (Figure 60). Hence, there is a clear statement of the actions taken in the harvest control rule. The harvest control rule is adhered to by managers, and the TAC is set in accordance with the advice. There are some minor deviations between quota and catch but these are within legal limits and probably the result of between-year transfers (Table 20). These courses of actions are not stated in a species-specific management plan (see clause 1.1.7) but are part of the available harvest control rule ¹³⁹ .						
$TAC_{Y/Y+1} = HR_{mgt} \times B_{4+,Y} \ \text{if SSB}_Y \geq \text{MGT } B_{trigger}$ $TAC_{Y/Y+1} = HR_{mgt} \times (\frac{SSB_Y}{MGT \ B_{trigger}}) \times B_{4+,Y} \ \text{if SSB}_Y < MGT \ B_{trigger} \text{:}$ The spawning-stock biomass trigger (MGT $B_{trigger}$) is defined as 273 000 tonnes; B_{4+} is defined as the biomass of herring of ages 4 and older, and the target harvest rate (HR _{MGT}) is set to 0.19. Figure 60: Harvest control rule 140 .						

Table 20: Advice, TAC and catch of ISS herring¹⁴¹

 $^{^{138}}$ F_{lim} can be explicit or implicit in cases where harvest rate is set annually to a precautionary F_{target} (or its proxy)

¹³⁹ Government of Iceland | Management Strategy and Harvest Control Rules

¹⁴⁰ Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)

¹⁴¹ https://www.hafogvatn.is/static/extras/images/30-her_techreport_en.html#figures



Fishing year	Recommended TAC	National TAC	Total catch
2015/2016	71 000	71000	69 729
2016/2017	63 000	63 000	60 403
2017/2018	38 712	39000	35 034
2018/2019	35 186	35186	40 683
2019/2020	34 572	34572	30 041
2020/2021	722 391	35490	36 041
2021/2022	72 239	72239	70 084
2022/2023	66 195	66195	72 804
2023/2024	92 633	92633	94 422
2024/2025	81 367		

References:	See footnotes		
Non-Conformance Number (if relevant)		NA	



10.1.3.2.3. Clause 1.3.2.1.2.

If fishing mortality (or its proxy) is above the limit reference point, management actions shall be taken to decrease the fishing mortality (or its proxy) below the limit reference point¹⁴².

Evidence Rating:	Low	Medium 🗌		High 🗹		
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹		
Summary Evidence: ISS herring is managed by harvest rate (HR) which is a proxy for fishing mortality. There are no explicit measures planned for the event that HR shall exceed any limit. The limit is so high that reaching it when setting TACs according to the target is extremely unlikely.						
Evidence: There are no measures planned for the event that harvest rate (HR), which is a fishing mortality proxy, shall exceed any upper limit, except to apply the target harvest rate again. The limit is so high that reaching it when setting TACs according to the target is extremely unlikely. The target harvest rate is 0.190 and the harvest rate limit is 0.34 which has not been observed in the assessment time series ¹⁴³ .						
References:	See footnotes					
Non-Conformance Number (if relevant) NA						

¹⁴² FAO Guidelines (2009), par. 30.2. See also: The 'stock under consideration' is not overfished if it is above the associated limit reference point (or its proxy)." FAO Guidelines (2009), par. 30.1.

¹⁴³ Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)



10.1.3.2.4. Clause 1.3.2.2. Stock Biomass 10.1.3.2.5. Clause 1.3.2.2.1.

The long-term management target for stock size (biomass), either explicit or implicit depending on management approach, consistent with the objective of promoting optimum utilization, shall be specified.

Evidence Rating:	Low 🗌	Mediur	n 🗌	High 🗹			
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹			
Summary Evidence: An implicit long-term target for the stock size is not explicitly defined, but the HCR objective is to maintain the stock at a level that optimizes the yield under precautionary considerations and this is considered an implicit target.							
Evidence: The harvest strategy includes a Harvest control rule. The HCR contains a target harvest rate, that has beewn shown to provide a yield close to the maximum sustainable yield. A specific long-term target for the stock size is not defined., but as the management target is to maintain a harvest rate that is expected to lead to a biomass fluctuating safely above the precautionary biomass limit and provide the optimal yield ¹⁴⁴ , this is an implicit management objective.							
References: See footnotes Non-Conformance Number (if relevant) NA							

¹⁴⁴ Workshop on the assessment and management plan evaluation for Icelandic herring (WKICEHER) (figshare.com)



10.1.3.2.6. Clause 1.3.2.2.2.

Limits or directions for stock size (or its proxy) with respect to precautionary management, consistent with avoiding recruitment overfishing, shall be specified.

Evidenc	e Rating:	Low [Mediur	m 🔲	High 🔽
Non-Co	nformance	Critical		Ma	jor 🗌	Minor 🗌	None 🗹
Summa	ry Evidence	:					
A precau	utionary lin	it biomass ha	s been defined	l as a sto	ock spawnin	ig biomass (SSB) o	f 200,000 tonnes, above
		dications of i	mpaired recru	itment.			
Evidenc							
	•				•		f 200,000 tonnes, above
			•		. •	•	demonstrate a very low
	•		•		-		ontinued <i>Ichthyophonus</i>
infectio	n. The bion	ass limit is dis	cussed in mor	re detail	l under clau	ses 1.3.1.2 and 1.	3.2.2.3.
0 _							
2000		99					
1500							
120		83					
aut		98 ⁸⁹					
1000			88				
Recruitment 1000		55 1917 79 091	94				
ش	-,	79 01 90 84 66 0		5 8			
09-7	74 71 50 {	2 5886 59 61 2 5637 97	10 - 13	07 06			
	75,48	78 5 6 2 168	75 95 112 984 112	0/			
7	73 451 <u>46</u> 6 68 67 66	92	9134				
0	100	200 300	400 500	600			
		Spawning s	tock				
Figure 6	51: Recruitr	nent vs. SSB (t	o right) from	the ass	essment wh	nere the labels de	note year class ⁷⁹ .
Referen	ices:	See footno	tes				
		Number (if re					NA

¹⁴⁵ https://ices-library.figshare.com/articles/report/Workshop



10.1.3.2.7. Clause 1.3.2.2.3.

The stock (biomass) limit reference point (Blim) shall be developed in accordance with internationally accepted practice.

Evidence Rating:	Low	Medium		High 🔽
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹
Summary Evidence:				

The biomass limit reference point (Blim) was initially proposed by ICES in 1998 and has been re-evaluated regularly by ICES in accordance with internationally accepted practice.

Evidence:

The biomass limit reference point was proposed by the ICES Study Group of the Precautionary approach in 1998¹⁴⁶. The justification was stated as: 'It appears that the fraction of year classes being above the median rises quite sharply as SSB passes 200,000 tonnes, which makes this a candidate for Blim'. The Blim = 200,000 t value has been revisited on several occasions, but as to date evidence has not supported a change, most recently at the 2024 ICES benchmark¹⁴⁵. There is evidence to suggest that when the stock was below the lower limit reference point following the stock collapse in the 1960's, recruitment was impaired (Figure 62). Following the rebuilding of the stock, the stock size has not since been below the lower limit reference point, and although recruitment varies there has not been years with distinct recruitment failure (Figure **63**) and B_{lim} appears to be set in accordance with the precautionary approach.

The setting of B_{lim} follows the ICES technical guidelines¹⁴⁷ and follows all internationally accepted practices.

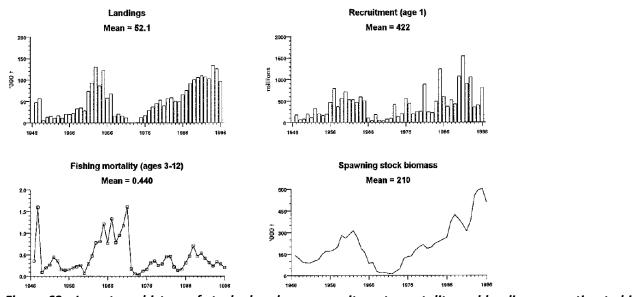


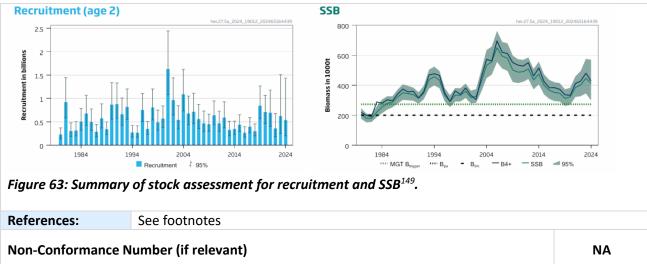
Figure 62: Long term history of stock abundance, recruitment, mortality and landings, as estimated in **1997**¹⁴⁸

¹⁴⁶ CM 1998 ACFM 10.pdf (unit.no)

¹⁴⁷ Technical guidelines (ices.dk)

¹⁴⁸ https://ices-library.figshare.com/articles/report/Report of the ICES





¹⁴⁹ Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)



10.1.3.2.8. Clause 1.3.2.2.4.

Should the estimated stock size approach B_{lim} (or its proxy), then appropriate management action shall be taken with the objective of restoring stock size to levels above B_{lim} (or its proxy) with high probability within a reasonable time frame.

Evidence Rating:	Low	Mediur	m 🔲	High 🔽			
Non-Conformance:	Critical 🔲	Major 🗌	Minor 🗌	None 🗹			
Summary Evidence: There is no specific management action specified for a situation where SSB approaches B _{lim} . The harvest control rule prescribes a reduced harvest rate if SSB falls below the B _{trigger} limit, and therefore the harvest is reduced as SSB approaches B _{lim} . Evidence: There is no specific management action specified for a situation where SSB approaches the lower limit reference point, B _{lim} . The harvest control rule prescribes a reduced harvest rate if SSB is below the B _{trigger} limit, with the harvest rate being reduced linearly, scaled by the SSB/Btrigger ratio. According to the simulations done when evaluating the harvest control rule, approaching B _{lim} would be very unlikely ¹⁵⁰ unless something happens that was not foreseen in the simulations. If this happens, further measures to be taken should be adapted to the underlying cause. The government has the legal instruments to take action as							
References:	See footnotes						
Non-Conformance Number (if relevant) NA							

¹⁵⁰ Workshop on the assessment and management plan evaluation for Icelandic herring (WKICEHER) (figshare.com)



10.1.3.2.9. 1.3.2.3. Stock biology and life-cycle (structure and resilience) 10.1.3.2.10. Clause 1.3.2.3.1.

Information on the biology, life-cycle and structure of the stock shall be taken into account when designing management measures to promote optimal utilisation of the stock with respect to resilience to natural variability and fishing¹⁵¹.

Evidence Rating:	Low	Mediur	m 🔲	High 🗹			
Non-Conformance:	Critical 🔲	Major 🔲	Minor 🗌	None 🔽			
Summary Evidence: ISS herring is a purely Icelandic stock, completing its life cycle in Icelandic waters and it is managed as such. The harvest control rule (HCR) is designed to provide a near maximum long-term yield and maintain the stock abundance well above any lower limits that might cause recruitment impairment. In the evaluation of the HCR, growth, natural mortality, parasitic infections and natural variability are all considered. Keeping the target harvest rate on the low side of the plateau associated with maximum yield provides a buffer biomass against natural variations in productivity and ensures near maximum yield with a minimum fishing pressure.							
Evidence: ISS herring is a purely Icelandic stock, completing its life cycle in Icelandic waters and it is managed as such. The harvest rule was designed to provide a near maximum long-term yield and keep the stock abundance safely above any lower limit reference points. In the evaluation of the harvest control rule, growth, natural mortality and parasitic infections were considered. Keeping the harvest rate on the low side of the plateau associated with maximum yield (see clause 1.2.3) provides a buffer biomass against natural variations in productivity and ensures near maximum yield with a minimum fishing pressure. Hence, all relevant biological information is considered in the management design for ISS herring.							
References:	None						
Non-Conformance N	Non-Conformance Number (if relevant) NA						

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¹⁵¹ From FAO Guidelines (2009), para 30.3. The structure and composition of the "stock under consideration" which contribute to its resilience are taken into account.



10.1.3.2.11. Clause 1.3.2.3.2.

Consideration shall be given to measures designed to avoid excessive exploitation of spawning components at spawning time, as appropriate, especially at times when biomass (SSB) may approach the level of the limit reference point $(B_{lim})^{152}$.

Evidence Rating:	Low	Medium		High 🗹				
Non-Conformance:	Critical 🗌	Major Minor		None 🗹				
Summary Evidence: The fishery is closed from May to August, which is the spawning season. Nursery areas are in the bottom of fjords where the fleet does not operate, and there is a minimum landing size to protect juveniles								
Evidence: Spawning grounds are mostly close to the coast in in the South and West (see Figure 50). The fishery of the ISS herring is limited to the period 1st September to 30 th April each season, in accordance with regulations set by the Icelandic Fishery Ministry (no. 962, 8th September 2019) ¹⁵³ . Since spawning, nursery and wintering areas are quite separate, and the fishery is primarily in the wintering areas, the exploitation of spawning and juvenile fish is a minor problem.								
References:	See footnotes							
Non-Conformance Number (if relevant) NA								

¹⁵² FAO Guidelines (2009), par. 30.3.

¹⁵³ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/21662



10.1.3.2.12. Clause 1.3.2.3.3.

Consideration shall be given to relevant measures designed to limit fishing mortality of juvenile fish, with the objective to protect juveniles, to reduce the likelihood of growth overfishing and increasing the contribution of year classes to the spawning stock of the stock under consideration.

Evidence Rating:	Low 🗌	Mediur	n 🗌	High	V			
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None	$\overline{\checkmark}$			
Summary Evidence: The fishery for herring is directed towards adults outside the spawning season. Areas where the proportion of juveniles exceeds 25% by number may be closed. The fishery can only take place from 1st September to 30 th April each fishing season to avoid fishery on spawning herring								
regulation on herring was enforced in this 3, which is fish at lend The spawning areas nm fishing zone 156 which fishery, the minimum can take place from trawls, thereby being	herring (27 cm and small g fishing issued by the Miherring fishery in 2023/24 ¹ gth around 26–29 cm. This are inshore (see Figure 8), nich is enforced to limit by a mesh size (stretched) is 63 1st September to 30 th Apg disallowed during the spa	nistry of Fisheries 55. Normally, the ages reduces the risk of and it is prohibite catch of juveniles in a mm which reduce ril each fishing sea	(No. 376, 8 Octol ge of first recruitn of growth overfish d the deploy pela n general. If gillnet es the catchability	per 1992) ¹⁵ nent to the hing. Agic trawls was are used it of small fish	4. No closure fishery is age within the 12 in the herring h. The fishery			
References:	See footnotes							
Non-Conformance Number (if relevant) NA								

https://www.reglugerd.is/reglugerdir/allar/nr/0376-1992

¹⁵⁵ https://www.hafogvatn.is/static/extras/images/30-her_techreport_en.html#fishery

https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/21662



10.1.4. Clause **1.4.** External Scientific Review **10.1.4.1.** Clause **1.4.1.**

For the stock under consideration the harvesting policy (including its consistency with the precautionary approach), stock assessments and advice shall be reviewed, by request from the fisheries management authorities at appropriate, regular intervals as well as when substantive changes are made in harvesting policy by an appropriate international scientific body or committee.

Evidence Rating:	Low 🗌	Mediur	n 🗌	High 🗹			
Non-Conformance:	Critical 🔲	Major 🗌	Minor	None 🗹			
Summary Evidence: ICES is the appropriate international scientific body. Annual stock assessments are performed by the ICES North-Western Working Group and reviewed routinely as part of the ICES advisory process. ICES also perform in-depth review of assessment methods and harvest control rules (benchmarks). For herring the last benchmark was in 2024.							
short-term prediction as part of the ICES and methods and data the approximately every benchmarked in 202 harvest control rule no formal revision class	to be the appropriate intens are performed by the Invisory process ¹⁵⁸ . ICES has hat go into the assessment of the session of the are reading to the assessment were evaluated and found ause in the herring managessment has been reviewed	CES North-Western developed routine nt (benchmark assessions to alter the at procedure was clube to be consistent we ment plan, but the	n Working Group is for more in-dep sessments). Ideal assessment practinanged to SAM arouth the precaution	and reviewed routinel th review of assessmer ly, this should be don ces. Iceland herring wand and reference points an onary approach. There	ely nt ne as nd is		
References:	See footnotes						
Non-Conformance Number (if relevant) NA							

¹⁵⁷ Welcome to ICES

¹⁵⁸ Technical guidelines (ices.dk)

Workshop on the assessment and management plan evaluation for Icelandic herring (WKICEHER) (figshare.com)



10.1.4.2. Clause 1.4.2.

Following external scientific review, the competent fisheries management authority shall review and/or revise the harvesting policy, taking into consideration the external review, as appropriate.

Evidence Rating:	Low	Medium		High 🗹			
Non-Conformance:	Critical 🗌	Major Minor Minor		None 🗹			
Summary Evidence: Several alternative harvest control rules were evaluated by ICES in 2024 and found to be consistent with the precautionary approach. The Ministry of Food, Agriculture and Fisheries adopted one of these and implemented it in the management of ISS herring. Evidence:							
Several alternative harvest rules were evaluated by ICES in 2024 and found to be consistent with the precautionary approach ¹⁶⁰ . The Ministry of Food, Agriculture and Fisheries adopted one of these and implemented it in the management of ISS herring ¹⁶¹ .							
References:	See footnotes						
Non-Conformance Number (if relevant)							

Workshop on the assessment and management plan evaluation for Icelandic herring (WKICEHER) (figshare.com)
 https://www.government.is/news/article/2018/05/15/Haddock/



10.1.5. Clause 1.5. Advice and Decisions on TAC 10.1.5.1. Clause 1.5.1.

A competent scientific body, research institute, designated advisory body or arrangement shall provide the competent fisheries management authority with fisheries advice on the harvesting of the stock under consideration, in a timely manner.

Evidence Rating:	Low	Mediur	n 🗌	High 🗹			
Non-Conformance:	Critical 🗌	Major Minor Minor		None 🗹			
Summary Evidence: The stock assessment and the catch advice for the coming year is provided annually by ICES. The MFRI provides advice to the Ministry, which is the competent fisheries management authority.							
Evidence: The stock assessment and catch advice for the coming year is provided annually by ICES ¹⁶² . Based on that, the MFRI provides advice ¹⁶³ to The Ministry of Food, Agriculture and Fisheries, which is the competent fisheries management authority. Normally, the MFRI advice will be identical to the ICES advice, but it can deviate if there are reasons for that. The ICES advice is published on the ICES websites and the MFRI advice is published on the MFRI website once they are ready. See also clause 1.1.1.							
References:	See footnotes						
Non-Conformance Number (if relevant) NA							

¹⁶² Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)

https://www.hafogvatn.is/static/extras/images/30-her advice en.html



10.1.5.2. Clause 1.5.2.

Advice shall include the appropriate value(s) for precautionary reference points.

Evidence Rating	g:	Low []	Mediur	n 🗌	High	$\overline{\checkmark}$
Non-Conformar	nce:	Critical		Major 🔲	Minor 🗌	None	
Summary Evide The advice publ		l by the MFRI	and ICES has	reference points t	abulated.		
points defined by plan (Table 21).	oy ICE	ES ¹⁶⁵ , and incl	udes the refe	rence points tabula erence values in the echnical basis ¹⁶⁵ .			
Framework	Ref	erence point	Value		Technical basis	5	
MCV approach	MS	/ B _{trigger}	273 000	B _{pa} ; tonnes			
MSY approach	HR_N	MSY	0.22	Stochastic simulatio	ns		
Dua as uti a u a u u	B _{lim}		200 000	SSB below which recruitment; tonnes	•	probability	of impaired
Precautionary approach	B _{pa}		273 000	$B_{pa} = B_{lim} \times exp(1.645 \times \sigma)$, where $\sigma = 0.19$; tonnes			3
арргоасп	HR _{li}	m	0.34	The harvest rate that leads to SSB = Blim			
	HR_p	a	0.25	Harvest rate leading to P (SSB > B _{lim}) > 95% with ICES advice rule			ES advice rule
Management	MG	T B _{trigger}	273 000	Stochastic simulatio	ns; tonnes		
plan	HRn	ngt	0.190	Management plan			
References:		See footnot	es				
Non-Conformar	nce N	umber (if rel	evant)				NA

¹⁶⁴ https://www.hafogvatn.is/static/extras/images/30-her advice en.html

Herring (Clupea harengus) in Division 5.a, summer-spawning herring (Iceland grounds) (figshare.com)



10.1.5.3. Clause 1.5.3.

Decisions on TAC shall be taken by the competent fisheries management authority taking into consideration the entire distribution range of the stock under consideration, as appropriate, and for shared stocks the setting of TAC shall take into consideration international agreements and scientific advice.

Evidence Rating:	Low 🗌	Medium		High 🗹	
Non-Conformance:	Critical	Major 🗌	Minor 🗌	None 🗹	

Summary Evidence:

The distribution range for Icelandic summer spawning (ISS) herring is confined to Icelandic waters. Hence, decisions on management cover the whole stock distribution area.

Evidence:

The distribution range for Icelandic summer spawning herring is confined to Icelandic waters (*Figure 64* and *Figure 65*). Hence, decisions on management in Iceland covers the whole stock distribution area.

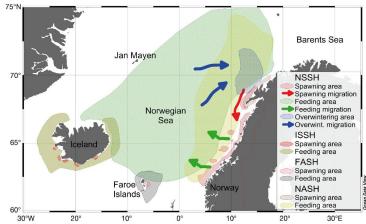


Figure 64: Distribution and spawning areas for Eastern North Atlantic herring stocks¹⁶⁶

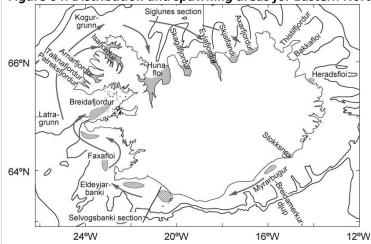


Figure 65: Spawning and nursery areas for Icelandic summer spawning herring. Grey shading indicates the nursery areas, and stripes the spawning areas, and the arrows show the directions of larval drift¹⁶⁷.

https://www.researchgate.net/publication/272109183

¹⁶⁷ https://ices-library.figshare.com/articles/report/Stock Annex Herring



References:	See footnotes	
Non-Conformance N	lumber (if relevant)	NA



10.1.5.4. Clause 1.5.5.

The competent fisheries management authority shall decide on TAC within the boundaries set by the adopted harvesting policy.

Evidence Rating:	Low		Mediun	n 🔲	High 🗹				
Non-Conformance:	Critical 🗌	Ma	ajor 🗌	Minor	None 🗹				
Summary Evidence: The TAC for the fish Agriculture and Fish	ing year 2024/202	•	_	•	by the Ministry of Food,				
Evidence: The TAC is set by the Ministry of Food, Agriculture and Fisheries after advice from MFRI and consultations with the industry. The Ministry has the authority to deviate from the advice but the TAC has been set following the harvest control rule ¹⁶⁸ which is based directly on the scientific advice from MFRI and ICES. The TAC for herring for the fishing year 2024/2025 was set according to the new harvest rule as it has been for the preceding fishing seasons (Table 22). Table 22: Advice, TAC and catch of ISS herring ¹⁶⁹ . Note the mistake in the 2020/2021 fishing season. The									
Fishing year	Recommended TAC		TAC was set in accordance with the advice.						
2015/2016		National TAC	Total cate	ch .	, ,				
	71 000	National TAC 71000	Total cate	ch					
2016/2017				ch .					
2016/2017 2017/2018	71 000	71000	69729	sh					
	71 000 63 000	71000 63 000	69 729 60 403	ch					
2017/2018	71 000 63 000 38 712	71000 63 000 39000	69 729 60 403 35 034	ch					
2017/2018 2018/2019	71 000 63 000 38 712 35 186	71000 63 000 39000 35186	69 729 60 403 35 034 40 683	ch					
2017/2018 2018/2019 2019/2020	71 000 63 000 38 712 35 186 34 572	71000 63 000 39000 35186 34572	69 729 60 403 35 034 40 683 30 041	ch					
2017/2018 2018/2019 2019/2020 2020/2021	71 000 63 000 38 712 35 186 34 572 722 391	71000 63 000 39000 35186 34572 35490	69 729 60 403 35 034 40 683 30 041 36 041	ch					
2017/2018 2018/2019 2019/2020 2020/2021 2021/2022	71 000 63 000 38 712 35 186 34 572 722 391 72 239	71000 63 000 39000 35186 34572 35490 72239	69 729 60 403 35 034 40 683 30 041 36 041 70 084	ch					
2017/2018 2018/2019 2019/2020 2020/2021 2021/2022 2022/2023	71 000 63 000 38 712 35 186 34 572 722 391 72 239 66 195	71000 63 000 39000 35186 34572 35490 72239 66195	69 729 60 403 35 034 40 683 30 041 36 041 70 084 72 804	ch					
2017/2018 2018/2019 2019/2020 2020/2021 2021/2022 2022/2023 2023/2024	71 000 63 000 38 712 35 186 34 572 722 391 72 239 66 195 92 633	71000 63 000 39000 35186 34572 35490 72239 66195	69 729 60 403 35 034 40 683 30 041 36 041 70 084 72 804	ch					
2017/2018 2018/2019 2019/2020 2020/2021 2021/2022 2022/2023 2023/2024	71 000 63 000 38 712 35 186 34 572 722 391 72 239 66 195 92 633	71000 63 000 39000 35186 34572 35490 72239 66195	69 729 60 403 35 034 40 683 30 041 36 041 70 084 72 804	ch Carlo					

https://www.government.is/news/article/2018/05/15/Haddock/
 https://www.hafogvatn.is/static/extras/images/30-her_techreport_en.html#figures



10.1.5.5. Clause 1.5.6.

Management measures for conservation and sustainable use of the stock under consideration shall be specified in laws and regulations.

Evidence Rating:	Low	Medium 🗌 I		High	$\overline{\checkmark}$	
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None	\checkmark	
Summary Evidence: Laws and regulations for conservation and sustainable use of the fish stocks around Iceland are valid also for herring. Rules specific for herring regulates fishing season, trawling ban inside the 12 nm limit as well as mesh size regulations. Evidence:						
References: See footnotes Non-Conformance Number (if relevant) NA						

https://www.government.is/news/article/2018/05/15/Haddock/
 https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/21662

https://www.reglugerd.is/reglugerdir/allar/nr/0376-1992



10.1.5.6. Clause 1.5.7.

Practical implementation shall be the task of (a) designated competent institution(s).

Evidence Rating:	Low	Medium		High 🗹	
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹	
Summary Evidence: The practical implementation of management decisions is the task of the Directorate of Fisheries, which is the executive body that organizes the ITQ system and monitors catches, the Coast guard that is responsible for surveillance and enforcement at sea and the MFRI which performs assessments and provides advice. Evidence: The practical implementation of management decisions is the task of the Directorate of Fisheries ¹⁷³ , which is the executive body that organizes the ITQ system and monitors catches, the Coast guard that is responsible for surveillance and enforcement at sea and the MFRI which performs assessments and provides advice.					
References: See footnotes					
Non-Conformance Number (if relevant)					

¹⁷³ https://island.is/en/o/directorate-of-fisheries



10.1.5.7. Clause 1.5.8.

Decisions on TAC in the appropriate units shall be made and implemented in such a way as to ensure that the actual catch is as close to the intended catch as practically possible.

Evidence Rating:	Low	Mediur	m 🔲	High 🗹			
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹			
Summary Evidence: There is a wide range of measures to ensure that the total catch is in accordance with the decided TAC. These include a landings obligation, catch reporting by independent, authorized personnel, and close monitoring of activities at sea. Historically, catches have deviated slightly from the TAC in both directions but there is no consistent TAC overshoot, and the actual catch is a close to the intended as practically possible.							
Evidence:							
 There is a wide range of measures to ensure that the total catch is in accordance with the decided TAC. There is an obligation to land all catches. Historically, discarding may have occurred when large year classes appeared. Presumably, this is a minor problem at present, but the control is sparse. All landings must take place in designated ports, where the catch is weighed by authorized personnel. The approved weighs are entered directly into a database held by the Directorate of Fisheries. There is a close monitoring of activities at sea from Direct inspections by the Coast guard and by on board inspectors from the Directorate There is detailed VMS monitoring, which is closely followed by the Coast Guard, for control but also for security. 							
are readily identified	may be some deviation of : uotas between years, which						
	f catches from TACs.	cir is iegai witiiii be	Janas, Willen Seel	ns to explain most			
but the vessel gets only a minor part of the payment. The rest goes to a fund to support research.							
The deviations go in	both directions (see clause	1.5.5). In the two	most recent years	s there has been a slight			
_	his should be monitored in		-	<u> </u>			
tendency rooted in d	leliberate overfishing.						
References:	See footnotes						

Non-Conformance Number (if relevant)

NA



10.1.5.8. Clause 1.5.9.

The competent fisheries management authorities shall cooperate and actively participate in competent Regional Fisheries Management Organisation(s) (RFMOs) or arrangement(s), relevant to the stock under consideration and management agreements reached shall be implemented by fisheries authority and effectively and uniformly executed.

Evidence Rating:	Low	Mediun	High 🗹			
Non-Conformance:	Critical 🗌	Major 🗌	Minor	None 🗹		
Summary Evidence: Not Applicable. The I	Summary Evidence: Not Applicable. The Icelandic summer spawning herring is a domestic stock					
Evidence: Not Applicable. The I						
References: None						
Non-Conformance Number (if relevant)				NA		



10.1.5.9. Clause 1.5.10.

In the absence of specific information on the stock under consideration, generic evidence based on similar stocks may be used for fisheries with low risk to that stock under consideration. However, the greater the risk the more specific evidence is necessary to ascertain the sustainability of intensive fisheries¹⁷⁴.

Evidence Rating:	Low	Medium		High	V	
Non-Conformance:	Critical 🗌	Major 🗌	Minor	None	e 🗹	
• •	Summary Evidence: Not Applicable. The ISS herring is subject to a full analytic assessment. Accordingly, using generic evidence as a fall back is not necessary.					
References: None						
Non-Conformance Number (if relevant)					NA	

10.2. Section 2: Compliance and Monitoring

10.2.1. Clause 2.1. Implementation, Compliance, Monitoring, Surveillance and Control

10.2.1.1. Clause 2.1.1.

An effective legal and administrative framework at the local, national or regional level, as appropriate, shall be established for the fishery and compliance shall be ensured through effective mechanisms for monitoring, surveillance, control and enforcement¹⁷⁵.

Evidence Rating:	Low 🗌	Medium	High 🗹
Non-Conformance:	Critical 🗌	Major Minor Minor	None 🗹

Summary Evidence:

An effective legal and administrative framework exists which is implemented by the Fisheries Directorate, part of the Ministry of Industries and Innovation. The Directorate works closely with the Coast Guard and Port Authorities. Key legislation underpinning the framework comprises the Fisheries Management Act (No. 116/2006), the Act on Fishing in Iceland's Exclusive Economic Zone (no. 79/1997) and the Act concerning the Treatment of Commercial Marine Fish Stocks (no. 57/1996). Together these provide the legal basis for the Icelandic ITQ system, establish allocation harvest rights and permit requirements for all participating commercial fishing vessels, prohibit discarding of commercial fish, grant powers to implement closures for juvenile fish, put in place strict controls regarding the recording of catch and the landing and weighing of fish and establish penalties for violation of the provisions of these Acts and associated Regulations, amongst other things.

The system incorporates a number of important measures to enable flexibility which encourages compliance with the law whilst ensuring sustainable use of the resource. Effective mechanisms for monitoring, surveillance, control and enforcement exist involving at-sea and land-based monitoring of fishing activity, catches and landings by the Coast Guard and Fisheries Directorate Inspectors, supported by Port Authorities. Offences are recorded and enforcement action is taken. This largely comprises administrative penalties ranging from guidance letters and

¹⁷⁴ FAO Guidelines (2009), para. 30.4.

¹⁷⁵ 2005 FAO Guidelines for Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries.



reprimands to suspension of fishing permits and weighing licenses. More serious cases are sent to the police for prosecution under the criminal system which can result in imprisonment.

Note: Acts/Laws and Regulations referenced herein may be accessed (*in Icelandic*) by searching by Act/Law/Regulation No./Year (e.g. 116/2006) at http://www.althingi.is/lagasafn/ (for Acts/Laws) or https://www.reglugerd.is/ (for Regulations).

Evidence:

The Icelandic Directorate of Fisheries is an independent administrative body responsible to the Fisheries Minister, responsible for the day to day implementation of the Act on Fisheries Management and related legislation, for day-to-day management of fisheries and for supervising the enforcement of fisheries management rules. More specifically, the Directorate of Fisheries works in accordance with the following Acts, the Directorate of Fisheries Act (no. 36/1992)¹⁷⁶, the Fisheries Management Act (no. 116/2006), the Act on Fishing in Iceland's Exclusive Economic Zone (no. 79/1997), the Act concerning the Treatment of Commercial Marine Fish Stocks (no. 57/1996) and the Act on a Special Fee for Illegal Marine Catch (no. 37/1992). Accordingly, it issues fishing permits to vessels and allocates catch quotas, imposes penalties for illegal catches, supervises the transfer of quotas and quota shares between fishing vessels, monitors vessels using the VMS system e-logbooks, controls the reporting of data on the landings of individual vessels and monitors the weighing of catches. It also provides supervision on board fishing vessels and in ports of landing (i.e. shore based monitoring), which involves inspecting the composition of catches, fishing equipment and handling methods. It works closely with the Icelandic Coast Guard, which carries out fisheries inspection at sea, monitors the EEZ and receives required notifications from vessels, Port Authorities and the MFRI¹⁷⁷.

The Directorate has 55 staff (2024) with 36 men and 19 women, located at 6 offices throughout the country with its headquarters in Akureyri. It has 3 core divisions: Salmon and Trout Fishing, the Fisheries Management Division (Fisheries Inspectorate) and the Service and Information division, and two support divisions: Information Technology and Human Resources and Finance (Figure 66).

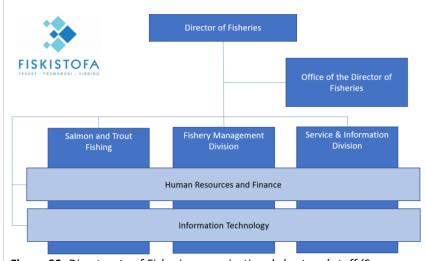


Figure 66. Directorate of Fisheries organisational chart and staff (Source: www.fiskistofa.is).

The primary legislative instrument relating to fisheries management in Iceland and the basis for the ITQ system is the Fisheries Management Act 116/2006¹⁷⁸. It supersedes the Fisheries Management Act 1990 and established allocation harvest rights and permit requirements for all participating commercial fishing vessels. These permits represent the initial legal requirement without which a vessel may not obtain the quota necessary to fish for Icelandic quota stocks.

¹⁷⁶ https://www.althingi.is/lagas/149a/1992036.html

¹⁷⁷ https://www.government.is/news/article/?newsid=e747dac7-fb88-11e7-9423-005056bc4d74

¹⁷⁸ https://www.althingi.is/lagas/149a/2006116.html



General fishing permits are of two types, a general fishing permit with a catch quota or a general fishing permit with a hook-and-line quota. A vessel may only hold one type of fishing permit each fishing year. Commercial fishing permits are cancelled if a fishing vessel has not been fishing commercially for 12 months (Article 4).

Commercial fishing permits may only be granted to fishing vessels holding certificates of seaworthiness and registered in the Registry of Vessels (Article 5). This Registry is administered by the Maritime Division of the Icelandic Transport Authority (ICETRA)¹⁷⁹. The Fisheries Management Act sets out penalties for the violation of its provisions, or rules adopted by virtue of it, which are provided in detail in the Act Concerning the Treatment of Commercial Marine Fish Stocks (Act No. 57 1996¹⁸⁰). Provisions of the Act on a Special Fee for Illegal Marine Catch¹⁸¹ are also applied as appropriate. Penalties range from the issue of reprimands by the Directorate of Fisheries and the suspension of commercial fishing permits to fines and, in cases of serious or repeated deliberate violation, imprisonment for up to six years (Article 24 and 25 of Act No. 116/2006).

The Act governing fishing activities within the Icelandic EEZ (Act No. 79/1997)¹⁸² specifies the Icelandic EEZ and prohibits foreign vessels from fishing within Iceland's EEZ (unless by prior agreement). It sets out the area vessels are permitted to fish within the EEZ according to fishing vessel size and power index category (Article 5 of Act No. 79/1997). It grants powers to the Minister to limit fishing to prevent localised overfishing of a specific stock or excessive by-catch of non-target species (Article 7) and requires the Minister to take measures to prevent harmful fishing practices and to preserve sensitive areas (Article 9). It requires the MFRI to be notified of harmful fishing, particularly where the proportion of undersized fish in the catch exceeds advised reference levels, grants powers to the MFRI to declare temporary closures and sets out how these should be implemented (Articles 10 and 11). It grants powers to the Minister to set rules on the minimum size of marine animals which can be caught (Article 14) and sets out penalties for violation of the provisions of the Act (Articles 15-17) which include the power to confiscate fishing gear and catch in the case of major or repeated violations. The Act stipulates that fines assessed in accordance with the Act as well as the value of any confiscated catch and fishing gear, shall accrue to the Icelandic Coast Guard Fund.

Control of discarding of fish is provided for by the Treatment of Commercial Marine Stocks Act No. 57 1996, which prohibits discarding and fishing without sufficient quota. The Act requires the Directorate to monitor and publish information on catches of the fleet (Articles 2-3) and stipulates that fish caught within the Icelandic EEZ, or during trips where a proportion of fishing take place within the EEZ, must be landed to an officially recognised port (Article 5). Within two hours of landing catches are officially separated, weighed and recorded by accredited weighing stations and reported against the appropriate quota allocation following provisions outlined in the Act No 57, 1996 concerning the Treatment of Commercial Stocks, and Regulation No. 745/2016 on Weighing and Recording of Marine Resources¹⁸³. The Fishery Management Act also makes provisions for processing at sea, weighing by auction houses and the transfer of quotas to cover landings.

During surveillance site visits for other already certified fisheries assessors witnessed the landing, transfer to auction, weighing, tipping, re-icing and sale of fish using the electronic auction system as well as the labelling of catch for the purposes of traceability. The official weights are the sold and registered weights recorded on the official calibrated scales by licensed operators (both of which are audited by the Fisheries Directorate) and these are then submitted to the Directorate's central database. As required by Article 10 of Regulation No. 745/2016, each landing generates a receipt^{184,185} recording:

- Vessel name, registration number and district number;
- Landing port and date of landing;
- Name of seller, buyer and recipient of the catch;

¹⁷⁹ https://www.icetra.is/maritime/ships-and-cargoes/

¹⁸⁰ https://www.althingi.is/lagas/149a/1996057.html

¹⁸¹ https://www.althingi.is/lagas/149a/1992037.html

¹⁸² extwprlegs1.fao.org/docs/texts/ice89476.doc

¹⁸³ https://www.stjornartidindi.is/Advert.aspx?RecordID=884be309-64a5-4367-9e4d-f5e7216b6f40

¹⁸⁴ https://www.fmis.is/blank

 $^{185\ \}underline{\text{http://www.unuftp.is/static/fellows/document/pan09prf.pdf}}$



- Official weight by species of catch;
- Proportion of undersize fish in catch;
- Number, type and weight of tubs/boxes/barrels;
- Fishing gear used;
- Total number of pallets of platforms;
- Registration number and tare of transport vehicle;
- Whether catch is to be re-weighed;
- Whether any of the catch is un-gutted and needs to be either weighed after gutting or converted to a gutted weight using coefficients provided by Directorate.

The weight registration document for each vessel is transmitted to the Fisheries Directorate who record it on their Catch Registration System (the Fisheries Directorate and Landing Ports database GAFL). The Directorate also receives the e-logbook information. These two sets of information are then compared, and the appropriate reduction is made to the vessel quota. Any transfer under the ITQ system for each vessel is also monitored to ensure that any additional quota requirements are rented from other vessels within a 3-day period required by law. The reporting system is not real time but is very near real time (circa. 24 hours).

Weighing is undertaken on official port scales certified by the Fisheries Directorate and operated by individuals authorised by the Directorate. In circumstances where there are significant difficulties in using a port scale, private weighing scales can be used provided the company involved has been approved by the port authority, the scales and operators using them are certified and Fisheries Directorate inspectors have unimpeded access to the facilities. This is known as a 'Home-weighing license'. Fish markets can also be authorised to weigh catches by the Directorate. These private companies and fish markets are required to send weighing information to the relevant port authority who then submit it to the Fisheries Directorate's catch registration system. There are also legal requirements covering the licensing of the re-weighing of catch or weighing after gutting on land which are also monitored.

Processed at sea catch are registered as processed weights using an officially approved yield. This is monitored and verified by the Directorate staff. Weights at landing are checked at the processing base by Directorate staff. Processed weights are converted to live weight equivalents for deduction from each vessels quota and management purposes by staff at the Directorate. Adjustments can be made by the Directorate to correct for errors – the system is transparent in so far that anyone can enter a vessel registration number on the Directorates website and obtain the catch, species, quota, remaining quota, quota rents for any vessel. The Directorate notes on the website that the information may be corrected by staff at later time post original posting of the information.

The ITQ system has rules and flexibilities to allow for corrective management measures and adjustments; for example, a vessel can transfer some of its quota between fishing years, but its quota is lost if it catches less than 50% of its total quota, measured in "cod equivalents", in two subsequent years. There is also a requirement that within the year, the net transfer of quota from any vessel must not exceed 50% (Article 15, Act No. 116/2006).

A separate hook and line quota system (Aflamark - krókaaflamark) is available for small vessels less than 15 gross tonnage (GT). These are only allowed to fish with handlines or longlines. These vessels get quotas for all the major demersal species and can freely transfer the quota within the hook and line system. However, to prevent consolidation of fishing rights these quotas cannot be transferred to the catch quota management system. The hook and line quota is limited to 700 vessels¹⁸⁶.

Each fishing year the Minister shall have available harvest rights amounting to up to 12,000 tonnes of un-gutted demersal species (Article 10, Act No. 116/2006), which he may use:

- 1. to offset major disturbances which are anticipated because of sizeable fluctuations in the catch quotas of individual species;
- 2. for regional support, in consultation with the Regional Development Institute, through allocations;

¹⁸⁶ http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Krokaaflamarksbatar

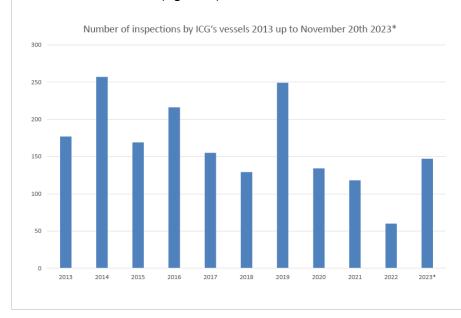


- a) to smaller communities which are facing difficulties due to downturns in fisheries and which are dependent upon demersal fishing or processing;
- b) to communities which have suffered unexpected cutbacks in the total catch quotas of fishing vessels operating from and landing their catch in the communities in question, which has had a substantial impact on the employment situation in these communities.

Vessels may fish more than their catch quota for individual demersal species, with the result that their catch quota for other demersal species will be reduced in proportion to the relative value of each species. This authorisation is limited to 5% of the total value of the demersal quota held by the vessel, but no more than 1.5% of the quota held for each individual demersal species. This authorisation does not apply to fishing more than the allocated catch quota of cod. Vessels may also fish up to 5% more than their catch quota for each demersal species, herring, deepwater shrimp and Nephrops with the excess catch being deducted from their allocated catch quota for the following fishing year. Vessels may transfer up to 15%¹⁸⁷ of catch quotas for each demersal species, oceanic shrimp, Nephrops and herring from one year to the next from one year to the next.

Vessels may also decide not to include part of the vessels catch in its catch quota; this is limited to no more than 0.5% of the vessel's pelagic catch and 5% of other marine catches per fishing year. Further this catch, known as 'VS catch', must be kept separate from the rest of the vessel's catch and weighed and recorded separately; it must be sold at an approved auction and the bulk of the proceedings of the sale must go to the Fisheries Commission Project Fund or 'VS Fund' (established by Act No. 37/1992), 20% going to the vessel (Article 11, Act No. 116/2006)¹⁸⁸. The max 20% return on VS catches means that there are limited incentives to land it; however, the VS catch provision allows vessels the flexibility to land small catches which are outside their specific quota, preventing discards, improving the treatment of the fishery resource and promoting responsible fishing practices.

At sea surveillance is primarily the remit of the Icelandic Coast Guard who monitor commercial fishing vessels in Iceland's EEZ on a continuous basis. There are requirements surrounding the reporting of vessel position (manually or using VMS systems) and the reporting of catch on entering or leaving Icelandic waters. **Figure 67** shows the number of boardings undertaken by the Coast Guard since 2013. In 2023, the Coast Guard conducted almost 150 vessel boardings, an increase on the corresponding number of the latest 3 years. The Coast Guard also undertake aerial surveillance shown below (**Figure 68**).



187 Act No. 116/2006 as amended by Act No. 22/2010

188 http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Sveigjanleiki i aflamarkskerfinu



Figure 67. Overall number of ICG inspection from 2013 to 2023. Source: ICG, June 2024.

Statistics on enforcement effort i.e. on board inspections, air and drone hours, and overall infringements (provided by ICG on the 27th Sep):

- Air surveillance: 238:08 hours.
- b. ICG performed 156 onboard inspections 2023 from coast guard vessels.
- c. 32 minor infringements and 1 serious infringement.

Instead of regular boardings the ICS used more surveillance drones, in partnership with Fiskistofa. Trials with a bigger drone from EMSA (type Schiebel S 100 Camcopter) proved to be a lesson for future use of larger drones operating from a vessel. The trials with the EMSA drone tied up, in part, the activities of the vessels which can in part explain fewer boardings. However, the drones are an extension of the vessel and information is used to inspect vessels more selectively than doing random checks. In the summer of 2022 the ICG recorded several incidents of inspections after anomalies were spotted by the drone crews. These include registry of crew but also discard of fish. Air Surveillance 2023 and comparison from 2018 are shown below.



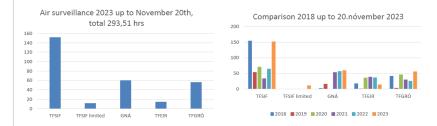


Figure 68. Air Surveillance 2023 and comparison from 2018.

In terms of overall infringements, ICG reports 32 minor infringements and 1 serious infringement. Noting however that not all reports are due to fishing infringements and one report can include more than one type of Apparent Infringement. The types of apparent infringement in 2023, included: Lögskráningar/Crew registry, Veiðar /Fisheries, Ferilvöktun /Vessel monitoring, Vanmönnun /Manning, Farþegafjöldi /Passengers, Haffæri /Sea worthiness and a new addition Öryggi farþega /Safety of Passengers.



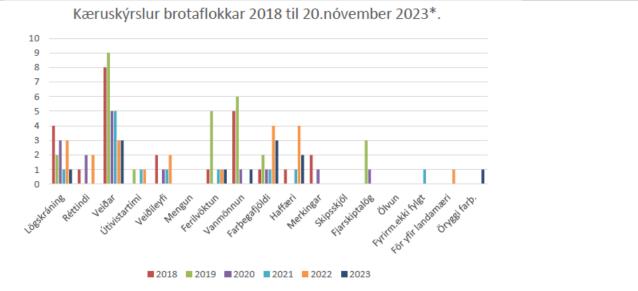


Figure 69. Overview of ICG infringement reports in 2018- (20th Nov) 2023. Source: provided by the ICG.

Foreign vessels inspection 2023

Thirty-six foreign flag vessels inspected in 2023: four Faroese, twenty-nine Norwegian vessels, one Danish, one Polish and one British vessel. No infractions were reported.

References:	See footnotes. Acts/Laws/Regulations referenced herein may be accessed (in http://www.althingi.is/lagasafn/ or https://www.reglugerd.is/ .	Icelandic)	at
Non-Conformance N	lumber (if relevant)	NA	



10.2.1.2. Clause 2.1.2.

Laws and regulations concerning conservation and management measures shall be publicly available and effectively disseminated.

Evidence Rating:	Low 🗌	Mediur	m 🔲	High	\checkmark	
Non-Conformance:	Critical 🗌	Major 🗌	None	None	$\overline{\checkmark}$	
Summary Evidence: Laws and regulations concerning conservation and management measures are publicly available on the Ministry of Industries and Innovation website and are effectively disseminated through a number of government websites including via an annual law gazette. The Fisheries Directorate website provides current information on management of the fishery including, for example, in relation to allocation of quota, opening and closure of fisheries and license revocations. Temporary and long-term fishery closures are published on-line and scientific advice on the fisheries is available on the MFRI and ICES websites. Evidence:						
As previously discussed available and may https://www.reglugerowhich provides the mo	Evidence: As previously discussed laws and regulations concerning conservation and management measures are publicly available and may be accessed (in Icelandic) via http://www.althingi.is/lagasafn/ (for Acts/Laws) and https://www.reglugerd.is/ (for Regulations). They are also effectively disseminated through an online law gazette which provides the most up to date versions of the legislation (i.e. incorporates latest amendments) 189.					
	te website also prominently on the prominently of the properties of the prominently of th	• •	•	•		
All advice to managers relating to the status of commercial stocks which underpins decisions on TACs and other regulations is also available ¹⁹¹ . Harvest control rules are scrutinised on request by an independent scientific body (ICES) with reports being published online.						
Up-to-date maps of fisheries closures are available on-line on the Fisheries Directorate website ¹⁹² . Temporary closures are announced by the Coastguard on VHF radio on a specified wavelength and also on the radio before the news and weather (Fisheries Directorate pers. com. site visit November 2018). They are also published on the MFRI website ¹⁹³						
References:	See footnotes					
Non-Conformance Number (if relevant) NA						

¹⁸⁹ https://www.stjornartidindi.is/

¹⁹⁰ http://www.fiskistofa.is/

¹⁹¹ https://www.hafogvatn.is/en/harvesting-advice

¹⁹² http://www.fiskistofa.is/fiskveidistjorn/veidibann/reglugerdarlokanir/

¹⁹³ https://www.hafogvatn.is/is/skyndilokanir



10.2.2. Clause 2.2. Concordance between actual Catch and allowable Catch 10.2.2.1. Clause 2.2.1.

Concordance between the Total Allowable Catch (TAC) and actual total catch from stock under consideration shall be ensured through control, enforcement, documentation, correction and verification.¹⁹⁴

Evidence Rating:	Low 🗌	Medium 🗌	High 🗹
Non-Conformance:	Critical 🗌	Major None	None 🗹

Summary Evidence:

Landings must be recorded in logbooks at sea and these are verified and standardised through weighing at accredited weigh stations in landings ports throughout Iceland. Registered weights for each landing are sent to the Fisheries Directorate, recorded on their catch registration database (GAFL), and the appropriate amount is subtracted from the vessels quota. ITQ transfers are monitored to ensure that vessels either have or source sufficient quota to cover the entirety of their catch within 3 days of landing. Compliance is checked through at-sea and on-land monitoring by the Coast Guard and Fisheries Directorate inspectors with enforcement action taken where non-compliance occurs.

Evidence:

Catches and landings in Iceland are monitored and recorded in a number of complementary ways. Logbooks, either electronic (e-logs) or standard paper based, depending on the vessel, record landings at sea and these are verified and standardised through physical weighing at accredited weigh stations in landings ports throughout Iceland. Logbooks are compulsory as required by Regulation No.746/2016¹⁹⁵. These must be electronic (e-logs). Small vessels used to use paper logbooks until late 2020 when regulation 298/2020¹⁹⁶ implemented the use of an electronic app. The App also called Afladagbókina or catch diary¹⁹⁷ ¹⁹⁸ automatically records the location of the boat during fishing and the captains then records the catch, its condition and bycatch. Catch data must be entered on the e-log using a Fisheries Directorate-approved programme and all changes to entries must be visible and traceable. It is prohibited to start a fishing trip without a logbook on board. Vessel masters are required to record the following information in their logbooks:

- Ship name, ship registration number and call sign.
- Fishing gear, type and size.
- Location determination (latitude and longitude) and time when fishing gear is placed in the sea.
- Catch by quantity and species.
- Harvesting.
- Landing.
- Seabirds bycatch by species and species.
- Marine mammals' bycatch by number and species.

Landings must be weighed within 2 hours of landing by an official weigher using calibrated scales. Following allowances for ice the official weight is forwarded to the Directorate where it is compared with the relevant e-logbook entry before an appropriate deduction is made to that vessels remaining quota. The officially weighed catches are the official catch of record with e-log information being used as a secondary source to ensure accuracy. If a vessel does not have sufficient quota to cover it has a number of options available to it such as renting in additional quota or transferring quota between species; however, the landings must be fully covered within 3 working days as required by law (Act No. 57/1996). In Iceland, the time restrictions attached to landing, recording and rationalising catch and quota mean that while the system is not real time it is very close (circa. 24 hours)⁴³.

¹⁹⁴ For long-lived species, this can include flexibility provisions such as legal allowance and adjustment for limited transfer of vessel quotas between adjacent management periods (years) as well as provisions providing incentives against discards.

¹⁹⁵ https://www.stjornartidindi.is/Advert.aspx?RecordID=42a16a67-60a7-4ae7-ad7c-0f53fc254654

¹⁹⁶ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887

 $^{^{197} \, \}underline{\text{http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-aflation} \\$

¹⁹⁸ https://www.mbl.is/200milur/frettir/2020/08/31/oll aflaskraning rafraen fra og med morgundeginum/



Fishing seasons in Iceland run from 1st September to 31st August the following year with the added stipulation in the herring fishery that catches must be taken between 1st September and 31st May. Seasonal Total Allowable Catches (TACs) are set by the Ministry based on the recommendations from the Marine & Freshwater Research Institute (MFRI); the International Council for the Exploration of the Sea (ICES) also provides advice on important Icelandic stocks, such as cod, haddock, saithe and ISS herring. Following the setting of the overall TAC each vessel is allocated a certain share of the overall TAC based on the number of shares in the Icelandic system of Individual Transferrable Quotas (ITQs) it possesses. Before catch is allocated proportions of the TAC of some species is removed for various reasons such as for the coastal fisheries which any small boat in possession of a licence may access, for research purposes or for chartered angling vessels.

2023/24 updates

Since 2024 the stock is assessed using a catch-at-age based assessment model (SAM) (ICES, 2024). *Ichthyophonus* infection mortality has been revaluated for the period 2008-2023, resulting in applying lower infection mortality than previously. The herring fishery 2023/2024 took place in offshore waters west and east of Iceland. The total catch amounted to 94 422 tonnes, where 66 396 tonnes were caught west of Iceland mostly in October-January, and 28 022 tonnes in the east in July-November as bycatch in the fishery for Norwegian spring-spawning herring and mackerel. The catch was caught in pelagic trawl. Infection of *Ichthyophonus* still persists in the stock, but at lower rates. This is considered in both the assessment and the management plan.

In 2024 ICES advises that when the Icelandic management plan is applied, catches *in the fishing year 1 September 2024* to 31 August 2025 should be no more than 81 367 tonnes (for 2023/2024: 92,633 t). The TAC for ISS herring set by Icelandic authorities in the quota year 2023/202 was 92,633 t and total catches were approx. 94,422 t overshooting the proposed TAC (Table 23).

Table 23. Icelandic summer-spawning herring Division 5.a,. ICES advice, agreed TACs and catches (1984 – 2024/2025). All weights are in tonnes. TAC refers to the fishing year (01 September–31 August) but ICES landings include summer fisheries from the preceding fishing year (i.e. landings go from 01 June year y to 31 May year y+1, corresponding to the assessment year). (Source: https://doi.org/10.17895/ices.pub.c.6976944)

Year*	ICES advice	Catch corresponding to advice	TAC	ICES landings	ICES discards
1984		50 000	-	50 304	-
1985		50 000	-	49 368	-
1986		65 000	-	65 500	-
1987	F _{0.1}	70 000	72 900	75 439	-
1988	F _{0.1}	~ 100 000	90 000	92 828	-
1989	F _{0.1}	95 000	90 000	97 270	3700
1990/1991**	Status quo F	90 000	100 000	101 632	3500
1991/1992**	F _{0.1}	79 000	110 000	98 538	11 000
1992/1993**	F _{0.1}	86 000	110 000	106 653	1800
1993/1994**	No gain in yield by fishing higher than F _{0.1}	110 000†	110 000	101 496	1200
1994/1995**	No gain in yield by fishing higher than F _{0.1}	83 000†	130 000	131 994	2000
1995/1996**	No gain in yield by fishing higher than F _{0.1}	120 000†	110 000	124 963	900
1996/1997**	No gain in yield by fishing higher than F _{0.1}	97 000†	110 000	95 882	-
1997/1998	No gain in yield by fishing higher than F _{0.1}	90 000†	100 000	64 931	-
1998/1999	No gain in yield by fishing higher than F _{0.1}	90 000†	90 000	87 238	-
1999/2000	Current F is sustainable	100 000†	100 000	92 896	-
2000/2001	Current F is sustainable	110 000†	110 000	100 332	-
2001/2002	Current F is sustainable	125 000†	125 000	95 675	-
2002/2003	Current F is sustainable	113 000†	105 000	96 208	-
2003/2004	Current F is sustainable	113 000†	110 000	125 717	-
2004/2005	F = 0.22	106 000	110 000	114 237	-
2005/2006	Status quo catch	110 000	110 000	103 043	-



Year*	ICES advice	Catch corresponding to advice	TAC	ICES landings	ICES discards
2006/2007	Status quo catch	110 000	130 000	135 303	-
2007/2008	Average of the last three years' catch	117 000	150 000	158 917	-
2008/2009	$F_{pa} = 0.22$	131 000	130 000	151 780	-
2009/2010	$F_{pa} = 0.22$	75 000	40 000	46 332	-
2010/2011 ^	Domestic advice autumn 2010	40 000	40 000	43 533	-
2011/2012 ^	Domestic advice autumn 2011, no fishery until then	40 000	45 000	49 446	-
2012/2013	F _{MSY} = 0.22	67 000	68 500	71 976	-
2013/2014	F _{MSY} = 0.22	87 000	87 000	72 058	-
2014/2015	F _{MSY} = 0.22	83 000	83 000	94 975	-
2015/2016	F _{MSY} = 0.22	71 000	71 000	69 729	-
2016/2017	F _{MSY} = 0.22	63 000	63 000	60 403	-
2017/2018	HR _{mgt} = 0.15	38 712	39 000	35 034	-
2018/2019	Management plan	≤ 35 186	35 186	40 683	-
2019/2020	Management plan	≤ 34 572	34 572	30 038	-
2020/2021	No advice requested^^	-	35 490	36 100	-
2021/2022	Management plan	≤ 72 239	72 239	70 084	-
2022/2023	Management plan	≤ 66 195	66 195	72 804	-
2023/2024	Management plan	≤ 92 633	92 633	94 422	
2024/2025	Management plan	≤ 81 367			

^{*} Where two years are given, refers to fishing season starting 01 September unless otherwise specified.

Table 23 above shows, that since the beginning of the time series catches of ISS herring have fluctuated around parity, with TACs being overshot in some years and undershot in others. There is no clear pattern of catches consistently exceeding TACs. Catch balancing mechanisms contribute to TAC overshoots in some years. For example, a 14% TAC overshoot in 2014/2015 resulted, at least in part, from a 17% TAC undershoot in 2013/2014 and the subsequent transfer of a positive quota balance from 2013/2014 to 2014/2015. Over time these inter-annual transfers should balance themselves out and an examination of the last 20 fishing seasons show that, while there have been both over and undershoots in that time, total catches across the period are within 0.1% of total TACs.

References:	See footnotes.	
Non-Conformance N	lumber (if relevant)	NA

^{**} Season starting in October of first year

[†] Catch at F_{0.1}.

[^] No advice was given by ICES until new information on *Ichthyophonus* infection was available from survey monitoring in the following autumn.

^{^^} Advice for 2020/2021 was issued by the Icelandic Marine and Freshwater Research Institute (MFRI) based on the same method agreed by ICES (35 490 tonnes).



10.2.2.2. Clause 2.2.2.

Monitoring, surveillance and information feed-back shall be used to collate information on actual catch. Corrective management measures and/or appropriate adjustments in management decisions shall be implemented when the need is indicated by the relevant information.

Evidence Rating:	Low 🗌	Medium 🗌		High	$\overline{\checkmark}$	
Non-Conformance:	Critical	Major 🔲	None	None	$\overline{\checkmark}$	
Summary Evidence: Monitoring, surveillance and information feed-back is used to collate information on actual catch. Registered weights for each landing are sent to the Directorate, where it is compared to the e-logbook data for the fishing trip, before the appropriate amount is subtracted from the vessel's quota. The official weights used are the standardised registered landing weight with logbook records being used as a supplementary source to cross-check landings.						
Evidence: The Fisheries Directorate have at their disposal several IT based monitoring, reporting and recording systems; these include satellite Vessel Monitoring Systems (VMS), e-log systems and electronic reporting systems. Data on catches and landings is available in near real-time providing a valuable management reporting system for fleet management. The vessel logbook system requires that the operator of a vessel reports information for each haul of the fishing gear to the Directorate including; haul number, date, time, latitude, longitude, catch by species, zone, water depth, seafloor, wind direction, wind speed, gear used, as well as other information. There are also other elements of the system which allow fishing companies to compile the data from their vessel(s) in order to facilitate better targeting of fishing activity in terms of area, species or size class of product dependent on the market demands at the time and also to ensure better traceability of product.						
Information from fresh fish landings is collected through the portside official weighing system that is carried out by official staff and calibrated systems and which is developed to use standardised weights and tares for ice and tubs. The weight registration document for each vessel is transmitted to the Directorate which also receives the e-logbook information where the two datasets are compared before the appropriate reduction is made to the vessel's quota.						
In some cases, an approved in-house company or auction weighing system is used which has been verified by Directorate staff. The system works for all official Icelandic weighing stations and auctions and also for foreign ports with an official designation from the Directorate. Catches processed at sea are registered as processed weights using an officially approved yield which is monitored and verified by the Directorate. Processed weights are converted to live weight equivalents for deduction from each vessel's quota and management purposes by staff at the Directorate. The distribution of the various pieces of information is managed by a central server which enables secure data encryption and backup of the transmitted data. Information is also fed from a secure central server to a shared database that is accessible by both the Directorate (for management/enforcement purposes) and the MFRI (for scientific purposes).						
References:						
Non-Conformance Number (if relevant) NA						



10.2.2.3. Clause 2.2.4.

Participating companies shall:

- 2.2.4.1. Ensure that they have been issued with all required permits;
- 2.2.4.2. Operate in compliance with the relevant rules and regulations;
- 2.2.4.3. Limit the catches of their vessels in accordance with their catch quota.

Evidence Rating:	Low	Medium 🗌	High 🗹
Non-Conformance:	Critical 🗌	Major None	None 🗹

Summary Evidence:

Participating companies ensure that they have been issued with all required permits, operate in compliance with the relevant rules and regulations and limit their catches according to their available quota. These are legal requirements which are monitored by the Fisheries Directorate, Coastguard and Port Authorities and enforcement action is taken.

Evidence:

Commercial vessels participating in the fishery require a permit issued by the Fisheries Directorate. This is a requirement of the Fisheries Management Act No.116/2006. These permits represent the initial legal requirement without which a vessel may not obtain the quota necessary to fish for Icelandic quota stocks. Quotas conform to the overall decision on TAC, through the individual vessel quota share and other allocations. The headline TAC for a species is determined first and all subsequent allocations are in effect subdivisions of that figure. As a result, the allocated catch quotas for a species (when quotas are initially allocated) are assigned in such a way that the combined quotas for that species conform to the currently effective decision on TAC.

Catches by vessel are monitored and recorded in near real-time in a central database maintained by the Fisheries Directorate¹⁹⁹. The official weight of the catch is subtracted from that vessels individual quota share for a particular species. The catch quota of each vessel or vessel group for each fish species and fishing year is available on the Fisheries Directorate website. For each vessel the information available for each species is:

- 1. Allocated quota (initial allocation of quota from the overall TAC based on no. of shares)
- 2. Compensations (quota gained/lost through compensations)
- 3. Quota transferred from the previous year (this may be a negative balance)
- **4.** Quota transferred between vessels (a negative balance indicates an outward transfer of quota (i.e. quota transferred to other vessels) while a positive balance indicates an inward transfer of quota (i.e. quota gained from other vessels)
- 5. Allowed catch (the sum of 1 to 4 above)
- **6.** Catch (vessels landings in the season to date of that species)
- **7.** Balance (Allowed catch Catch)
- 8. Overfished

Specific data on each Icelandic quota species, its allocation to ITQ holders, transfer information, balances and catches to date is available at http://www.fiskistofa.is/english/quotas-and-catches/quota-status-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=en. Registered catches are based on information from ports of landing and information on catches exported unprocessed. The catch statistics are published, subject to change, once they have been compared to submitted logbooks and reports from buyers, and are available on the Fisheries Directorate website. Accordingly, information on the size and composition of the fleet of fishing vessels is available and documented, and the catch quota of each vessel or vessel group, along with the fishing year is recorded in the official central database (GAFL) in a transparent manner and is publicly accessible.

¹⁹⁹ http://www.fiskistofa.is/veidar/aflaheimildir/aflahlutdeildalisti/



Compliance with these rules is monitored by the Fisheries Directorate and Coast Guard. Evidence presented by the Fisheries Directorate and the Icelandic Coast Guard shows that vessel operators and companies are compliant with the relevant legislation and ensure catches by their vessels are in accordance with their catch quota. Where violations are confirmed, enforcement action is taken. Most cases are on the lower end of the scale of seriousness and addressed by administrative penalties, and in particular by reprimands. Relatively few cases involve the more serious penalties such as suspension of fishing permits or weighing licenses or prosecution by the police. See evidence presented in clause 2.1.1.

References:	See footnotes	
Non-Conformance N	lumber (if relevant)	NA



10.2.3. Clause 2.3. Monitoring and Control10.2.3.1. Clause 2.3.1. Vessel registration and catch quotas 10.2.3.1.1. Clause 2.3.1.1.

Allocated catch quotas by species are assigned in such a way that the combined quotas conform with the currently effective decision on TAC.

Evidence Rating:	Low 🗌	Mediur	n 🗌	High	$\overline{\checkmark}$	
Non-Conformance:	Critical 🔲	Major 🗌	None	None	$\overline{\checkmark}$	
Summary Evidence: As the share of the TAC allocated to vessels is based on the number of shares for that species that the vessel owns the overall value of quota allocated cannot in the first instance exceed the TAC set by the Icelandic authorities (i.e. the currently effective decision on TAC). Note that within fishing seasons additional inter-annual, inter-species and/or inter-vessel transfers may cause the amount a vessel can catch increase or decrease.						
Evidence:						
Quotas conform to the overall decision on TAC, through individual vessels' quota shares and other allocations. The headline TAC for a species is determined first and all subsequent allocations are in effect subdivisions of that figure. As a result, the allocated catch quotas for a species (when quotas are initially allocated) are assigned in such a way that the combined quotas for that species conform to the currently effective decision on TAC. As previously discussed, catches by vessel are monitored and recorded in near real-time in a central database curated by the Fisheries Directorate ²⁰⁰ . Data related to landings are processed in the Directorate's database and catches are subtracted from vessels' quotas. The system is designed such that reports are received in near real-time so that the Directorate can act quickly if vessels are approaching the end of their quotas. In addition, vessels are aware or can easily check online their current quota status for a particular species. Deviations where they occur can sometimes be rectified using the flexibility within the system (e.g. by using inter-annual, inter-vessel or inter-species transfers to cover catches of a species for which the vessel did not already have quota, or by purchase of additional quota if possible). Should a vessel not have sufficient quota to cover its landings it may rent in quota, transfer quota between species based on the cod equivalent values of each species, keep 20% of the value of the overage while forfeiting the remainder to scientific research or transfer a limited amount to the following fishing season where it is taken off that vessels individual quota share for that species. Excess catches which are not corrected using these flexibility measures can result in a revocation of fishing licenses and fines ²⁰¹ .						
References:	See footnotes					
Non-Conformance Number (if relevant) NA						

200 http://www.fiskistofa.is/veidar/aflaheimildir/aflahlutdeildalisti/ 201 http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Vidurlog



10.2.3.1.2. Clause 2.3.1.2.

Commercial fishing shall be solely conducted with registered vessels authorised to participate in the fishery by the competent authorities.

Evidence Rating:	Low	Medium 🗌		High 🗹		
Non-Conformance:	Critical 🗌	Major 🗌	None	None 🗹		
Summary Evidence: Commercial vessels participating in the fishery require a permit issued by the Fisheries Directorate. Permits are only granted to fishing vessels holding certificates of seaworthiness and registered in the Registry of Vessels.						
Evidence: Commercial vessels participating in the fishery require a permit issued by the Fisheries Directorate. This is a requirement of the Fisheries Management Act No.116/2006. These permits represent the initial legal requirement without which a vessel may not obtain the quota necessary to fish for Icelandic quota stocks, such as ISS herring. General fishing permits are of two types, a general fishing permit with a catch quota or a general fishing permit with a hook-and-line quota. A vessel may only hold one type of fishing permit each fishing year. Commercial fishing permits are cancelled if a fishing vessel has not been fishing commercially for 12 months (Article 4 of Act No. 116/2006). Foreign vessels are prohibited from fishing in Icelandic waters unless a right of access has been granted (e.g. Greenland, Faroe Islands) (Act on fishing in Iceland's EEZ, No. 79/1997).						
Commercial fishing permits may only be granted to fishing vessels holding certificates of seaworthiness and registered in the Registry of Vessels (Article 5 of Act No. 116/2006). This Registry is administered by the Maritime Division of the Icelandic Transport Authority (ICETRA) ¹⁷⁹ .						
References:	See footnotes					
Non-Conformance Number (if relevant)						



10.2.3.1.3. Clause 2.3.1.3.

The catch quota of each vessel or vessel group for each fish species and fishing year shall be recorded in the official central data base in a transparent manner.

Evidence Rating:	Low 🗌	Medium 🗌		High 🗹		
Non-Conformance:	Critical 🔲	Major 🗌	None	None 🗹		
Summary Evidence: The catch quota of each vessel or vessel group for each fish species and fishing year is recorded in the official central data base and is readily accessible to stakeholders in a transparent manner via the Fisheries Directorate website. The Fisheries Directorate maintain a catch registration system (GAFL database) which is updated with information on registered catches from ports of landing and information on catches exported unprocessed. The catch statistics are published, subject to change, once they have been compared to submitted logbooks and reports from buyers, and are available on the Fisheries Directorate website.						
Evidence:						
Evidence:						
 The catch quota of each vessel or vessel group for each fish species and fishing year is available on the Fisheries Directorate website. For each vessel the information available for each species is: Allocated quota (initial allocation of quota from the overall TAC based on no. of shares) Compensations (quota gained/lost through compensations) Quota transferred from the previous year (Note this may be a negative balance) Quota transferred between vessels (a negative balance indicates an outward transfer of quota (i.e. quota transferred to other vessels) while a positive balance indicates an inward transfer of quota (i.e. quota gained from other vessels) Allowed catch (the sum of 1 to 4 above) Catch (vessels landings in the season to date of that species) Balance (Allowed catch - Catch) Overfished 						
Information on the size and composition of the fleet of fishing vessels is available and documented, and the catch quota of each vessel or vessel group, along with the fishing year is recorded in the official central database (GAFL) in a transparent manner and is publicly accessible.						
In late 2021 Fiskistofa reported that a new data department has been created to allow for further data analysis relating to catch recording and day to day implementation of management measures, ultimately to improve the ability to detect discrepancies and enforce regulations.						
Registered catches are based on information from ports of landing and information on catches exported unprocessed. The catch statistics are published, subject to change, once they have been compared to submitted logbooks and reports from buyers, and are available on the Fisheries Directorate website ²⁰² .						
References:	See footnotes					

 $202\ \underline{\text{http://www.fiskistofa.is/english/quotas-and-catches/quota-status-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches/quota-status-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches/quota-status-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches/quota-status-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp.$



Non-Conformance Number (if relevant)	NA

10.2.3.1.4. Clause 2.3.1.4.

Information on the size and composition of the fleet of fishing vessels shall be available, documented and include the following provisions:

- 1) An officially maintained fishing vessel registry;
- 2) Participation in the fishery must be subject to licence;
- 3) Only vessels on the fishing vessel registry shall be authorised to participate in the fishery;²⁰³
- 4) For the stock under consideration, the allowed catch by species for each vessel or vessel group shall be specified.

Evidence Rating:	Low 🗌	Medium		High 🗹	
Non-Conformance:	Critical	Major 🔲	Minor 🗌	None 🗹	
Summary Evidence: Information on the size and composition of fishing fleet is available, documented which includes an official fishing vessel registry maintained by the Icelandic Transport Authority (ICETRA). Participation in the commercial fisheries in Icelandic waters requires a fishing permit granted by the Fisheries Directorate and only vessels on the aforementioned vessel registry can be granted a permit. The allowed catch of ISS herring for each vessel or vessel					
group is specified on the Fisheries Directorate website. Evidence: As noted in clause 2.3.1.2 vessels participating in the fishery require a fishery permit and must be registered on the ICETRA. Foreign vessels are prohibited unless agreement has been reached to allow access. See clause 2.3.1.2 for further information. As discussed previously, the allowed catch by species, for all quota species including the stock under consideration here, for each vessel is specified and this information is publicly available online at: http://www.fiskistofa.is/english/quotas-and-catches/quota-status-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=en					
References:					
Non-Conformance N	lumber (if relevant)			NA	

²⁰³ Foreign registered vessels may be allowed to fish in Icelandic waters by international agreement; such vessels require specific permit from the Icelandic authorities and their catches are strictly monitored.



10.2.3.2. Clause 2.3.2. Fishing vessel monitoring and control systems 10.2.3.2.1. Clause 2.3.2.1.

A program for the monitoring and control of fishing vessel activities shall be operated and enforcement shall be in place to prevent fishing by unauthorised vessels.

Evidence Rating:	Low 🗌	Medium 🗌	High 🗹
Non-Conformance:	Critical 🗌	Major None	None 🗹

Summary Evidence:

The Icelandic Coast Guard, working closely with the Fisheries Directorate, administers an integrated monitoring, control and surveillance system which covers the activities of Icelandic and foreign fishing vessels. It involves several different but complementary electronic vessel monitoring systems including satellite-based systems, comprising VMS and use of satellite imagery, the monitoring of coastal activity through a dedicated land-based very high frequency (VHF) system and the use of the Automatic Identification System (AIS).

The integrated system uses all available data such as identification of the vessel, its movements, IUU (illegal, unreported and unregulated) lists, notifications, reports, fishing licenses, permits, port State control reports, etc. to detect and prevent unauthorised fishing in the Icelandic Exclusive Economic Zone (EEZ) and the North Atlantic Ocean. At-sea inspections are undertaken by the Coast Guard and inspectors from the Fisheries Directorate. The Directorate's inspectors also undertake in-port inspections.

Surveillance is strategic and risk-based, using information supplied by the Fisheries Directorate to identify highest risk activities where monitoring effort is then concentrated, for example, at present on the gillnet fisheries. VMS is used by the Coastguard to enforce temporary and long-term fisheries closures. Vessels fishing in proximity to closed areas are monitored at the Coast Guard operation centre and vessels are directly contacted if they encroach on prohibited areas. This is the first point at which the Coast Guard operator may issue a warning to the vessel and decide to escalate if necessary.

Evidence:

The Icelandic Coastguard (ICG) administers the VMS for all Icelandic vessels and for all foreign vessels (including fishing vessels) that enter Icelandic waters as part of an integrated monitoring, control and surveillance (MCS) system. The purposes of the MCS system are numerous and it incorporates several related services including maritime traffic control, marine search and rescue, fisheries enforcement, coastal radio and border control in a single Operations Centre²⁰⁴. The importance of the fisheries sector to the Icelandic economy and the need for greater efficiency has led to high levels of collaboration and integration resulting in creative and dedicated approaches to fisheries management and enforcement. For example, the Directorate of Fisheries produce a risk analysis for the Coast Guard, enabling a strategic, risk-led approach to surveillance and best use of available resources over the large area monitored. The fisheries MCS system in Iceland has at its core the effective use of available technology meaning relatively small staff numbers can achieve extensive monitoring of the Icelandic fishing industry.

The MCS system uses all available data such as identification of the vessel, its movements, IUU lists, notifications, reports, fishing licenses, permits, port State control reports, etc. and has proved to be effective in combating and eliminating illegal, unreported and unregulated (IUU) fishing in the Icelandic EEZ and the North Atlantic Ocean. Bilateral tracking agreements are in place with Greenland, Faroe Islands, Norway and Russia whose vessels must follow automatic procedures and report catches daily when operating in Icelandic waters.

The ICG uses several different but complementary electronic vessel monitoring systems including satellite-based systems comprising VMS and use of satellite imagery, the monitoring of coastal activity through a dedicated land-based very high frequency (VHF) system and the use of the Automatic Identification System (AIS). During the February 2018 site visit, the assessment team visited the Operation Centre and witnessed these systems in use.

204 http://www.lhg.is/media/LHG80/Landhelgisgasla Islands enska2 .pdf



The use of complementary systems ensures that the limitations that arise when any one system is used in a standalone capacity are mitigated. These electronic MCS systems are further backed up by traditional surveillance methods such as patrol vessels and aircraft; indeed the use of electronic systems in the effective targeting of traditional surveillance methods increases the efficiency of these systems. Recently satellite imagery has been added to the list of surveillance methods (80 images are taken each month) which can be used for example in detection of the uncommon occurrence of vessels not using VMS (Coast Guard pers. comm., site visit November 2018). Coast Guard are also investigating other ways (e.g. drones) to enhance the detection of discarding drawing on experience elsewhere (Norway) and other technologies including aerial surveillance (pers. com. site visit, 2024)

Emphasis is placed on data analysis including the use of VMS data in conjunction with other sources (e.g. IUU vessel lists, vessel registries, fishing licences, permits, port State control reports); the below schematic outlines the inputs which make up the integrated MCS system in Iceland (Figure 70).

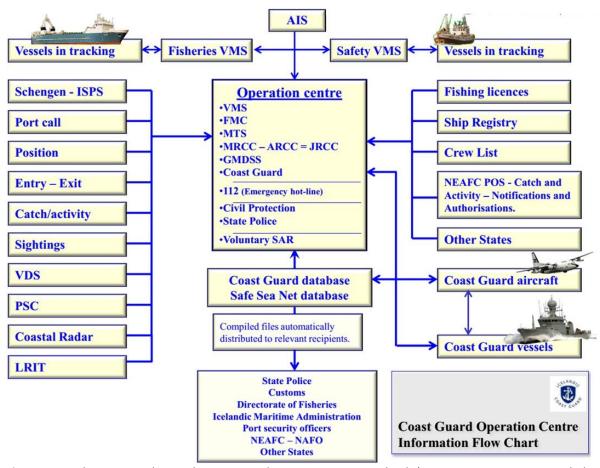


Figure 70. Schematic outlining the integrated MCS system in Iceland (Source: presentation entitled Iceland's application for membership of the EU. Chapter 13, 28 February Icelandic Coast Guard ERS/VMS/AIS²⁰⁵).

References:	See footnotes.	
Non-Conformance N	lumber (if relevant)	NA

205 https://slideplayer.com/slide/4644333/





10.2.3.2.2. Clause 2.3.2.2.

The fishing gear shall be subject to inspection, as well as the composition of the catch and its handling onboard the fishing vessels.

Evidence Rating:	Low	Mediur	m 🔲	High	$\overline{\checkmark}$
Non-Conformance:	Critical 🗌	Major 🗌	None	None	$\overline{\checkmark}$
Summary Evidence: The fishing gear as well as the composition of the catch and its handling onboard the fishing vessels are subject to inspection. At-sea inspections are undertaken during boardings by the Coast Guard and on fishing trips accompanied by the inspectors of the Fisheries Directorate. Evidence: As noted in clause 2.1.1 and 2.3.2.1 fishing vessels are subject to surveillance at sea by the coastguard and Inspectors of the Fisheries Directorate.					
The Coastguard conduct unannounced at-sea vessel boarding's in order to inspect gear, catch and catch records including logbooks as well as to perform inspections of mandatory safety equipment. Fisheries Directorate Inspectors also accompany vessels on fishing trips during which they check fishing methods and catches, including gear configuration, mesh sizes, validity of fishing permits, the weighing and recording of catches as well as the species and size composition of the catch. The catch of vessels that are permitted to fully process catches on board is converted into a live weight based on the measured utilisation of the catch. The inspectors check that samples taken to monitor this process are correctly taken and accurately reflect the processing utilisation ^{206,207} .					
On land, inspectors from the Directorate of Fisheries inspect logbooks and monitor the landing of catches and ensure that they are correctly weighed and recorded, according to legal requirements. Surveillance is strategic and risk-based, using information supplied by the Fisheries Directorate to identify highest risk activities where monitoring effort is then concentrated.					
Further information in References:	is presented in clauses 2.1. See footnotes	.1 and 2.3.2.1.			
Non-Conformance N	umber (if relevant)				NA

²⁰⁶ The Icelandic Directorate of Fisheries – Responsibilities and main tasks. Page 8. http://www.fiskistofa.is/media/utgefid efni/DOF.pdf 207 Fiskistofa Annual Report, 2017. Maritime surveillance chapter. http://www.fiskistofa.is/umfiskistofu/arsskyrsla-2013/eftirlit-a-sjo/



10.2.3.2.3. Clause 2.3.2.3.

Areas closed from fishing shall be monitored by the authorities.

Evidence Rating:	Low	Medium		High		
Non-Conformance:	Critical 🗌	Major 🗌	None	None	e 🗹	
Summary Evidence: Areas closed to fishing are monitored by the authorities primarily the Icelandic Coastguard using the VMS system. Vessels fishing in proximity to closed areas are monitored at the Coast Guard Operation Centre and vessels are directly contacted if they encroach on prohibited areas.						
directly contacted if they encroach on prohibited areas. Evidence: Both short and long term closures are primarily monitored and enforced by the Icelandic Coastguard using the available AIS and VMS systems. Vessels fishing in proximity to closed areas are monitored at the Coast Guard operation centre and vessels are directly contacted if they encroach on prohibited areas; this is the first point at which the Coast Guard operator may issue a warning to the vessel and decide to escalate if necessary.						
References:	See footnotes					
Non-Conformance N	lumber (if relevant)				NA	



10.2.3.2.4. Clause 2.3.2.4.

Catch amounts by species and fishing area shall be estimated and continually recorded in fishing logbooks onboard the fishing vessels.

Evidence Rating:	Low	Medium	High 🗹
Non-Conformance:	Critical	Major	None 🗹

Summary Evidence:

Although required by legislation, there is some evidence of non-reporting/under-reporting of seabirds and marine mammal bycatch. The client along with various stakeholders has implemented specific actions in relation to this issue which was raised as a non-conformance in 2019. Work was undertaken in the form of an information campaign to produce and distribute material to all members of Fisheries Iceland on the regulation and the obligation of reporting of seabirds and marine mammal bycatch. The Directorate of Fisheries compared data from vessels fishing in the same fishing grounds with and without on-board inspectors to analyse conspicuous difference in registration of catch and by-catch including seabirds and mammals. This information was analysed by the MFRI which concluded that the results presented here show considerable improvements in most fisheries, and the estimates or rates are quite similar in both data sources in many cases (MFRI report, Appendix 2).

Evidence:

Catches by vessel are monitored and recorded in near real-time in a central database maintained by the Fisheries Directorate²⁰⁸. Vessel operators are required by law to up-date and transmit data on fishing activity after each haul (fishing event occasion). The recording of marine mammals and seabirds by number and species is required by Icelandic regulation²⁰⁹.

Regardless of the implementation of new mandatory logbook reporting procedures for seabird and marine mammal bycatch, available evidence suggests that far fewer incidences of seabird and marine mammal bycatch are reported via the electronic logbook system than would be expected given the levels reported by onboard inspectors. This suggests significant levels of under-reporting and/or non-reporting of seabird and marine mammal bycatch. Examples of available evidence to support this conclusion include the findings of Pálsson *et al.* 2015²¹⁰ and the March 2018 MFRI report titled: "Bycatch of Seabirds and Marine Mammals in lumpsucker gillnets 2014-2017". Overall, the marine mammal and seabird bycatch rate during inspector trips was around four times higher than reported by the fleet in 2017²¹¹. Furthermore, according to a 2017 presentation to NAMMCO's Working group on bycatch of marine mammals; "logbooks have unfortunately proven unreliable" and "bycatch of birds and marine mammals [is] 18x higher when inspector is present vs logbook records".

One important development in terms of corrective action is the development and use of an app to facilitate catch and bycatch recording in smaller vessels. Fiskistofa, the MFRI and the Client group representative confirmed that starting in September 2020, smaller Icelandic vessels are required to log their catches in a phone/tablet app (essentially an elogbook) which contains information on catch and bycatch, including that of marine mammals and seabirds. This follows regulation 298/2020²¹². The App also called Afladagbókina or catch diary²¹³ automatically records the location of the boat during fishing and the captains then records the catch, its condition and by-catch, in a very simple

²⁰⁸ http://www.fiskistofa.is/veidar/aflaheimildir/aflahlutdeildalisti/

²⁰⁹ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/18967

²¹⁰ https://www.hafogvatn.is/static/research/files/fjolrit-178.pdf

^{211 &}lt;a href="https://www.hafogvatn.is/static/files/skjol/techreport-bycatch-of-birds-and-marine-mammals-lumpsucker-en-final-draft.pdf">https://www.hafogvatn.is/static/files/skjol/techreport-bycatch-of-birds-and-marine-mammals-lumpsucker-en-final-draft.pdf

²¹² https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887

 $^{{}^{213}\,\}underline{http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla}$

²¹⁴ https://www.mbl.is/200milur/frettir/2020/08/31/oll aflaskraning rafraen fra og med morgundeginum/



way. The app replaces paper logbooks in the small boat sector, with an electronic catch recording system. Updates from 2021 (previous surveillance audit) and 2022 (current surveillance audit are provided below for full context:

2021 Updates. In November 2021, the system continued to be used in the small vessel sector and catch with bycatch data being collected by Fiskistofa and sent to MFRI for management purposes. MFRI staff reported that data from the App is in the process of being made available to the MFRI through MFRI/Firskistofa IT staff collaboration. Fiskistofa also reported as part of the 2nd surveillance audit that since the beginning of the App's implementation it has been mandatory to register all catch and bycatch according to regulation 298/2020 and the data is being received by the authorities. Their inspectors have been busy training fishers and captains at the quaysides during landing, and their helpline was quite busy in the beginning of the coastal fleet season. Also, one physical meeting was held in Akranes with coastal fishers. A tutorial video on the use of the App was also published on the Fiskistofa website https://www.fiskistofa.is/ymsaruppl/tilkynningar/afladagbokarapp-myndband and on the Fiskistofa Facebook site ²¹⁵. Furthermore, a traceability component to the App has been implemented in April 2021 which is been used to further help with the detection of discrepancies in catch records and to allow better traceability across the supply chain. This traceability component is currently subject to further development.

2022 Updates. The App is no longer operated/managed by Fiskistofa. The companies Aflarinn, Trackwell and Fontos are now operating the small vessels App. Fiskistofa noted during the October 2022 on site meeting that this data is being sent to the MFRI. However, the MFRI stated that although work is ongoing to getting access to that data stream, staff in charge of bycatch analysis (i.e. Dr Guðjón Már Sigurðsson) does not yet have access to the data from the App.

2023/24 Updates. ICG reported (27th Sep 2024) that their boarding teams check if there is an equipment used to avoid bycatch of seabirds when onboard longliners but ICG teams do not register the result. ICG staff spoke with Icelandic captains, and they stated that most of the longliners have such equipment, normally "sound gun". ICG noted that they do not have the percentage of vessel using the equipment.

The client along with various stakeholders has implemented specific actions in relation to the condition:

- A communication via phone call was implemented with every single gillnet fishery vessel owner. Discussions have been made to review the necessity of logging any single bird and equally important to deliver the zero reports (as the lack of handing in zero reports maybe is mistaken as negligence).
- A dedicated visit was made to the largest longliner fishery vessel. Meeting with the CEO and managers took place, who have reiterated the message to their captains to mind logging of any single bird which may interact with the line. The zero logging was also flagged.

The electronic logbooks already have been configured to include bycatch of birds. A summary will be added to the fisheries' main dashboard to quickly show trends in the future.

- Fisheries Iceland (SFS) sent monthly emails at the beginning of the year, to all gillnet fishery vessel owners to remind them to log each bird.
- Managers of the fishing companies agreed to monitor more closely and submit zero reports, as improvements are always the objective.

Further, a meeting with the Ministry was held which resulted in a review of the regulation in order to identify if there are gaps in the long running strategies of protecting or preserving birds, and if the strategies are being followed and implemented. The meeting was held at the MFRI offices with the participation of representatives of the Ministry, MFRI,

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²¹⁵ https://www.facebook.com/Fiskistofa-1151844504903713/videos/304666984614930/



Directorate of Fisheries, Fisheries Iceland and ISF. Following the meeting the actions taken and are in implementation are:

- DoF provided the Ministry with proposals from best practise guidance methods which could decrease bycatch of bird in longline and gillnet fisheries.
- DoF, Fisheries Iceland and MFRI are working on information leaflet which will be distributed to fishers.
- DoF has held training sessions with inspectors which are to engage with fishers with education on importance of accurate bycatch logging in relation to stock assessment and certifications.
- MFRI has compiled a fact sheet regarding the conditions with updated information.
- Ministry has outlined the facts on a memo for the Minister.

The assessment team concludes that special attention was given specifically to the gillnet and longline fisheries. Consultations with relevant stakeholders in order to collect the available data on bird bycatch, understanding the population of relevant bird bycatch and determining the nature and the existence of the problem were implemented.

Based on the above, the assessment team considers that the client has consulted with industry and all stakeholders on a proposed strategy. Furthermore, the client has started to implement measures in cooperation with the industry and various stakeholders.

In October 2024, the MRI sent data with records of survey/inspection (2020-2023) vs logbook bycatch for marine mammals and seabirds. They also sent a summary report in lieu of the full report which will be available in June 2025. (Appendix 2).

Although the report only captures one year of data in logbook records (2023) and does not estimate the proportion or scale of reporting/underreporting across Icelandic fleets/gear types, it does meet the action plan criteria of a report being available. From this report the assessment team considers that underreporting is still likely, especially for cod gillnets where general logbook underreporting appears to be still significant, especially so for harbour porpoise (0.9 observer catch rate vs 0.009 reported bycatch rate) and common guillemot (2.027 reported catch rate vs 0.000 reported bycatch rate). Although some minor improvements in logbook recording may have occurred since 2019, logbook data has been provided for one year only (2023) and it is hard to draw any solid and defensible conclusions e.g. adoption/behavioural trends from it.

Further the assessment team questioned whether catch amounts by species (i.e. marine mammals and seabirds) and fishing area are estimated and continually recorded in fishing logbooks on-board of fishing vessels. It was concluded that available information does not support the determination that these catches are fully recorded in logbooks, or for that matter recorded in the majority of instances when they may occur. In addition, enforcement information received to date did not provide any convincing evidence that the Coast Guard can or does record any potential violation of these requirements to record marine mammal and seabird bycatch data in fishing logbooks. The observer coverage, currently averaging 1.5-2%, is considered quite low. The assessment team consider such a degree of coverage most likely unable to capture common bycatch rates or even less bycatch rates or rarer/sensitive/TEP species. The MRAG study on observer rates²¹⁶ states that in order to confidently extrapolate more common bycatch rates to the whole fishery, coverage should be a minimum 20% of the total fishing effort (Babcock and Pikitch 2003; Wolfaardt 2015; Black et al. 2008). To achieve a similar level of accuracy, rare species (bycatch less than 0.1% of catch) would require more than 50% observer coverage (Babcock and Pikitch 2003; Debski, Pierre and Knowles. 2016).

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²¹⁶ MRAG, 2021. Review of optimal levels of observer coverage in fishery monitoring Marine Stewardship Council GB2966 Final Report https://www.msc.org/docs/default-source/default-document-library/stakeholders/fsr-consultant-reports/msc-fisheries-standard-review--consultancy-report--observer-coverage-review-(may-2021).pdf?sfvrsn=27ba6f0e_4



The MFRI concluded that the results presented here show considerable improvements in most fisheries, and the estimates or rates are quite similar in both data sources in many cases (MFRI report, Appendix 2).

'In an earlier comparison between two data sources, based on data from 2009-2019 the differences in bycatch rates between logbooks and onboard inspector data in Icelandic net fisheries were staggering, with the rates from inspectors being hundreds or thousands percent higher, and suggested that very little part of the fleet was reporting bycatch in logbooks at that time, particularly in the cod gillnets (Basran and Sigurdsson 2021).

The results from both the lumpsucker and the longline fishery, and to lesser extent the demersal trawl fishery, show more species in the logbooks, which suggests that onboard monitoring levels are not high enough to catch bycatch events of rarer species. The logbook data from those two fisheries therefore compliment the data from onboard inspections by elucidating rarer events. Bycatch rates in cod gillnets based on logbooks are still quite a bit lower than the rates based on onboard observations by inspectors or during the MFRI survey, and fewer species are reported in the logbooks. While reporting has improved considerably compared to the study mentioned above (Basran and Sigurdsson 2021), there is perhaps more room for improvement in that fishery than in others where the estimates/rates are more similar.' MRFI letter October 2024 (Appendix 2).

References:	See footnotes	
Non-Conformance N	lumber (if relevant)	NA



10.2.3.2.5. Clause 2.3.2.5.

Fishing logbooks shall be subject to unannounced inspection.

	Low [_]	Mediu	m [_]	High	$\overline{\checkmark}$
Non-Conformance:	Critical	Major 🗌	None	None	$\overline{\checkmark}$
	akes unannounced inspections in the case of the case o		_		ngs. Fisheries
Evidence: It is a legal requirement logbooks (Regulation or unannounced inspection	that vessels give inspectors n Catch Books No. 746/201 is at sea and check logbooks of logbooks during port inspect	of the Fisheries Dir L6) ²¹⁷ . As noted in during these boardir	ectorate and the Co clause 2.3.2.2, the ngs. Fisheries Directo	oast Guard a Coast Guard orate inspecto	d undertakes ors also make
References:	See footnote			8	
Non-Conformance Nu	mber (if relevant)				NA
The timely and correct	Clause 2.3.2.6. recording of catches in figure catch stored aboard the v			by comparii	ng the record
The timely and correct	recording of catches in fi		spection.	by comparii High	ng the record
The timely and correct catch amounts with the	recording of catches in fi catch stored aboard the v	vessel at time of in	spection.		
The timely and correct catch amounts with the Evidence Rating: Non-Conformance: Summary Evidence: The timely and correct amounts with the catch	recording of catches in fiecatch stored aboard the v	Medium Major Shing logbooks is met time of inspection.	spection. m	High None saring the reseat-sea boa	corded catch

The results of some of these inspections can be seen in the supporting evidence for <u>Clause 2.1.1</u> which presents the main reasons for the generation of remarks during Coast Guard inspections in 2017. Remarks related to discrepancies between declared and actual catch fall under the "Veiðar" or "Catch" category. Clause 2.1.1

²¹⁷ https://www.stjornartidindi.is/Advert.aspx?RecordID=42a16a67-60a7-4ae7-ad7c-0f53fc254654



also presents information on the results of inspections by the Fisheries Directorate including monitoring of logbooks and the detection of violations and enforcement action subsequently taken.

References: See footnotes

Non-Conformance Number (if relevant)

NA

10.2.3.2.7. Clause 2.3.2.7.

Discarding of catch from stock under consideration shall be prohibited. Discarding that may occur shall be monitored, e.g. by estimating amount of catch discarded due to size based high grading by species, season, gear type and area as feasible. The method for the monitoring of discards shall be specified.

•			•		
Evidence Rating:	Low 🗌	Mediur	n 🗌	High	$\overline{\checkmark}$
Non-Conformance:	Critical 🔲	Major 🗌	None	None	
Summary Evidence: Discarding of ISS herring is prohibited as part of a complete ban on discarding in Icelandic waters. Discarding that may occur is monitored, e.g. by estimating amount of catch discarded due to size based high grading by species, season, gear type and area as feasible. The method for the monitoring of discards is specified. The Coast Guard is currently investigating additional means to enhance detection of discarding.					
Treatment of Comment do not have sufficient the quota transfer system catches they must sust or about 3,000 to 60 composition of the carries Directorate board for one day or	ercial species is prohibited recial Marine Fish, No. 57/19 quota to cover the species stem. Consequently, if vestigend all fishing activities. 10,000 EUR). As noted in atch (species, size) or its chas powers to place the vestigen fishing trip. The vessel must in a fishing year (Article 2)	996) and this included they have caught assels do not have so Discarding is subject previous clauses, quality differ from the vessel under closer ust pay the Directors.	des ISS herring. They are required ufficient catch quet to penalty ²¹⁸ (4 catches are more other vessels fis surveillance by trate's costs (e.g.	his means to attain uotas for the 00,000 to nitored ar hing in the placing ar	s that if vessels quota through their probable 0 8,000,000 ISK and should the ne vicinity, the in inspector on
	investigating other ways (e ere (Norway) and other te				
Comparison between inspector measured catch compositions and self-reporting by fishers ensures that a high level of compliance with the ban on discarding is maintained. Discards are not included in the fisheries assessments as they are generally considered to be negligible; however, should the situation change and discards increase then these changes should be detectable within the system.					
References: Non-Conformance Nu	See footnotes. umber (if relevant)				NA



10.2.3.2.8. Clause 2.3.2.8.

Vessels must comply with relevant national fishery management measures, which may include; TAC and quota allocations, effort management measures (e.g. days at sea, access limitation, gear restrictions, maximum allowable proportion of undersized fish, closure of areas with a high proportion of fish recruiting to the fishery, etc.), and technical conservation measures (e.g. mesh size and other gear selectivity measures).

Evidence Rating:	Low 🗌	Medium		High	$\overline{\checkmark}$
Non-Conformance:	Critical 🔲	Major 🔲	None	None	$\overline{\checkmark}$
Summary Evidence: Vessels must comply wi	th relevant national fishery i	management and te	chnical conservation	on measures	S
Vessels must comply with relevant national fishery management and technical conservation measures Evidence: Vessels are required to comply with relevant national fishery management and technical conservation measures, through the laws and regulations summarised in clause 2.1.1 and compliance is monitored through remote surveillance and inspections at sea and on land by the Coast Guard and the Fisheries Directorate with penalties applied where violations are detected. See evidence presented in clause 2.1.1. Penalties for violations of fishery management rules and regulations are in place and can include (depending on the violation) imprisonment, confiscation of fishing gear and catch, temporary suspension of licences and fines of increasing magnitude depending on the severity of the offense and whether or not it represents a repeat violation.					
References:	See footnotes.				
Non-Conformance Number (if relevant)					NA



10.2.3.2.9. Clause 2.3.2.9.

Monitoring and control measures shall be in place and shall be conducted in a manner to encourage and demonstrate compliance (and deter unreported landings).

Evidence Rating:	Low 🗌	Mediur	m 🔲	High 🗹		
Non-Conformance:	Critical 🗌	Major 🗌	None	None 🗹		
Summary Evidence: Monitoring and control measures are in place. The Icelandic management model has been designed to promote compliance through reporting and includes provisions which create flexibility, enabling fishers to avoid non-compliance with rules and regulations and effectively encourages compliance. The rapid reporting system further encourages compliance through near real-time information on the catch of each vessel, quota allocation and transfers. This transparency in effect introduces an element of 'self-policing' into the management system.						
Evidence: As mentioned earlier on, there are numerous monitoring and control measures in place aiming to promote "buying-in" of the Icelandic 'management model' and encourage compliance behavior. There are many provisions within the system to increase flexibility and provide avenues to address the majority of issues fishers might encounter within the system. The level of flexibility allowed for within the rules and regulations provides many alternative pathways that fishers may use to avoid non-compliance with rules and regulations and effectively encourages compliance.						
The system is transparent with information relating to the quota allocations and performance of individual vessels being readily publicly available ²¹⁹ . This transparency in effect introduces an element of 'self-policing' into the management system and information provided by authorities indicates that fishers are prepared to report non-compliance on the part of their fellow fishers to the relevant authorities.						
References:	See footnotes.					
Non-Conformance Nu	mber (if relevant)			NA		

²¹⁹ http://www.fiskistofa.is/fyrirspurnatorg/fyrirspurnir-tengdar-afla/



10.2.3.2.10. Clause 2.3.2.10.

Catches shall be landed in authorised fishing ports. Authorised fishing ports provide the necessary facilities for handling and weighing of the catch.

Evidence Rating:	Low	Mediur	m 🔲	High	$\overline{\checkmark}$
Non-Conformance:	Critical	Major 🗌	None	None	· 🗹
Summary Evidence: Law requires that all catches by Icelandic vessels from Icelandic waters must be landed and weighed in an Icelandic port. Weighing is undertaken on official port scales, or on other approved scales at private companies or Fish Markets, that have been certified by the Fisheries Directorate and operated by individuals authorised by the Directorate. The Fisheries Directorate maintains a list on their website, organised by port, of all official Icelandic weighing license holders that they audit and the type of weighing license held.					
Evidence: The Treatment of Commercial Marine Stocks Act 57/1996 ²²⁰ and Regulation No. 745/2016 on the weighing and registration of marine catch require that all catches by Icelandic vessels from Icelandic waters must be landed and weighed in an Icelandic port. Exceptions are made for special circumstances e.g. serious engine failure in which case the Fisheries Directorate may authorise landings abroad (Article 5 of Act No. 57/1996).					
audit and the type o	ains a list, organised by po f weighing license held o rts but this is no longer the	n their website ²²¹ .	Landings were	previously	permitted at
Authorised fishing ports provide the necessary facilities for handling and officially weighing landings including accredited weighing stations and officially licensed scale operators. Act 57/2006, and Regulation No. 745/2016 on Weighing and Recording of Marine Resources ²²³ also make provisions for processing at sea, weighing by auction houses and transfer of quotas to cover landings and allowances for ice in the weighing process.					
During surveillance site visits for other already certified fisheries assessors witnessed the landing, transfer to auction, weighing, tipping, re-icing and sale of fish using the electronic auction system as well as the labelling of catch for the purposes of traceability. The official weights are the sold and registered weights recorded on the calibrated scales and these are then submitted to the central database.					
References: See footnotes.					
Non-Conformance Number (if relevant) NA					

²²⁰ Act 57/1996 Treatment of Commercial Marine Stocks Act: http://www.althingi.is/lagas/nuna/1996057.html

²²¹ http://www.fiskistofa.is/fiskveidistjorn/vigtunafla/

²²² https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/0745-2016

²²³ https://www.stjornartidindi.is/Advert.aspx?RecordID=884be309-64a5-4367-9e4d-f5e7216b6f40



10.2.3.2.11. Clause 2.3.2.11.

In cases of mixed species catches, all commercial species shall be landed.

Evidence Rating:	Low	Mediun	n 🔲	High 🗹	
Non-Conformance:	Critical	Major 🗌	None	None 🗹	
Summary Evidence: Discarding of commercial species is prohibited by law and all commercial species must be landed. All commercial species are separated and declared by logbook and landed weight. This is monitored by Fisheries Directorate inspectors and penalties are in place for non-compliance.					
Evidence:					
Discarding of comme	rcial species is prohibited	d by law and all co	ommercial specie	es must be landed (Act	
Concerning the Treatr	ment of Commercial Mari	ne Fish, No. 57/199	96) _. All commercia	al species are separated	
and declared by logb	ook and landed weight (Article 9, Act No. 5	57/1996). This is	monitored by Fisheries	
Directorate inspectors	s and penalties are in pla	ice for non-complia	ance. Species wit	thin the Icelandic quota	
system are as set out i	in the table below.				
Table 24. Species in th	ne Icelandic quota system				
Cod Þorskur	Haddock Ý	sa .	Saithe <i>Ufsi</i>		
Golden redfish Karfi,	/gullkarfi Ling Langa		Blue ling <i>Bla</i>	álanga	
Tusk <i>Keila</i>	Atlantic wo	lffish <i>Steinbítur</i>	Spotted wo	lffish <i>Hlýri</i>	
Angler Skötuselur	Greater Ar	rgentine <i>Gulllax</i> Greenland halibu		nalibut <i>Grálúða</i>	
Plaice Skarkoli	Lemon sole	. Þykkvalúra / Sólko	li Witch floun	der <i>Langlúra</i>	
Common dab Sandko	oli Long rough	dab <i>Skrápflúra</i>	Atlantic her	ring Síld	
Norway lobster Hum	ar Shrimp – O	ffshore <i>Rækja – Úh</i>	. Shrimp - Arı	narfjord <i>Rækja – Arn.</i>	
Shrimp – Djúp <i>Rækja</i>	- Djúp Shrimp – S	næfellsnes <i>Rækja Si</i>	n. Norway red	lfish <i>Litli karfi</i>	
Scallop – Breidafjord	Skel - Breid. Deepwater	redfish <i>Djúpkarfi</i>			
In addition to formal quota species, there are a suite of other commercial species which are landed. The Directorate's website has a public search function which lists 65 of these species ²²⁵ . Some of these are species for which there is a ban on direct fishing (e.g. Atlantic halibut, certain sharks, etc) but that are landed as part of the discarding prohibition. Others do not have a formal national TAC but are landed and sold commercially.					
References:	See footnotes				
Non-Conformance Number (if relevant)				NA	

^{224 &}lt;a href="http://www.fiskistofa.is/english/quotas-and-catches/total-catch-and-quota-status/">http://www.fiskistofa.is/english/quotas-and-catches/total-catch-and-quota-status/
225 http://www.fiskistofa.is/veidar/aflaupplysingar/afliallartegundir/



10.2.3.2.12. Clause 2.3.2.12.

Landings shall be monitored. Harbor officials and fisheries inspectors shall monitor the correct weighing and registration of the catch.

Evidence Rating:	Low 🗌	Medium 🗌	High 🗹
Non-Conformance:	Critical	Major None	None 🗹

Summary Evidence:

Landings are monitored by port authority officials and fisheries inspectors to ensure the correct weighing and registration of catches including the risk posed by incorrect weighing of ice.

Evidence:

The legal requirements on the monitoring of landings and the weighing and registration of catch are comprehensive. They are set out in Act No. 57/1996 concerning the Treatment of Commercial Stocks, and Regulation No. 745/2016 on Weighing and Recording of Marine Resources. Inspectors from the Directorate inspect logbooks and monitor the landing of catches and ensure that they are correctly weighed and recorded according to the legal requirements. Port authorities also have a role in this process. All Icelandic catches from Icelandic waters must be landed and weighed in an Icelandic port. Exceptions are made for special circumstances e.g. serious engine failure in which case the Directorate may authorise landings abroad (Article 5 of Act No. 57/1996).

Separation by species (if not already done on board), weighing and recording of the catch must occur within two hours of landing. Weighing is undertaken on official port scales certified by the Directorate and operated by individuals authorised by the Directorate. As required by Article 10 of Regulation No. 745/2016, each landing generates a weighing receipt^{226,227} recording:

- Vessel name, registration number and district number;
- Landing port and date of landing;
- Name of seller, buyer and recipient of the catch;
- Official weight by species of catch;
- Proportion of undersize fish in catch;
- Number, type and weight of tubs/boxes/barrels;
- Fishing gear used;
- Total number of pallets of platforms;
- Registration number and tare of transport vehicle;
- Whether catch is to be re-weighed;
- Whether any of the catch is un-gutted and needs to be either weighed after gutting or converted to a gutted weight using coefficients provided by Directorate.

The information is sent within 1 day by port authorities to the Directorate who record it on their Catch Registration System (The Directorate of Fisheries and Landing Ports database, GAFL). The Directorate also receives the e-logbook information. These two sets of information are compared, and the appropriate reduction is made to the vessel quota. Any transfer under the ITQ system for each vessel is also monitored to ensure that any additional quota requirements are rented from other vessels within a 3-day period. The reporting system is not real time but is very near real time (circa. 24 hours). Adjustments can be made by the Directorate to correct for errors – the system is transparent in so far that anyone can enter a vessel registration number on the Directorates website and obtain the catch, species, quota, remaining quota, quota rents for any vessel.

In circumstances where there are significant difficulties in using a port scale, private weighing scales can be used provided the company involved has been approved by the port authority, the scales and operators using them are

²²⁶ https://www.fmis.is/blank

²²⁷ http://www.unuftp.is/static/fellows/document/pan09prf.pdf



certified and Directorate inspectors have unimpeded access to the facilities. This is known as a 'Home-weighing license' ²²⁸. Fish markets can also be authorised to weigh catches by the Directorate. These private companies and fish markets are required to send weighing information to the relevant port authority who then submit it to the Directorate's catch registration system (GAFL). There are also legal requirements covering the licensing of the re-weighing of catch or weighing after gutting on land which are also monitored.

Catches processed at sea are registered as processed weights using an officially approved yield which is monitored and verified by the Directorate. Weights at landing are checked at the processing base by Directorate staff. Processed weights are converted to live weight equivalents for deduction from each vessels quota and management purposes by staff at the Directorate.

Monitoring of weighing license holders is risk-based with the aim of directing surveillance where it is most needed. Assessment of risk is based on various factors such as the quantity weighed, number of weightings, the number of vessels that land with the licensee concerned, etc. Recently, attention has been focussed on the percentage of ice measured during weighing of catches by weighing licensees. After gross weighing on the port scale, it is permissible to send catch for re-weighing in fish processing companies or on a fish market which has been authorized for re-weighing catch²²⁹. The catch is then either balanced or sampled according to certain rules, ice is separated, and the net weight of the fish is found. Monitoring by the Directorate found significant deviations in the percentage of ice recorded in the catch when inspectors were present compared to when they were not²³⁰. The results of this monitoring are published on the 'news' page of the Directorate's website²³¹ as bi-monthly reports²³².

To address the risk posed by incorrect weighing of ice, in 2017 the Act on the Treatment of Marine Fish Stocks (Act No. 57/1996) was amended by Act No. 48/2017 (Act amending the Act on the Treatment of Marine Fish Stocks and the Act on the Directorate of Fisheries (monitoring of weighing license holders))²³³. The Act empowers the Fisheries Directorate to monitor all weighing by a weighing license holder for a period of up to six weeks in cases where monitoring of the weighing license holder by the Directorate detects a significant deviation of the percentage of ice in the vessel's catch in a particular fish species, compared to the average ice percentage for that vessel. The license holder is required to pay all the costs of this monitoring. Repeated infringements can result in result in suspension of the weighing license holder for up to a year. The Directorate of Fisheries began applying this measure in autumn 2017.

References:	See footnotes	
Non-Conformance Nu	umber (if relevant)	NA

 $^{{\}color{red}228\,\underline{\text{http://www.fiskistofa.is/fiskveidistjorn/vigtunafla/}}}$

²²⁹ Fiskistofa Annual Report, 2017. Maritime surveillance chapter. http://www.fiskistofa.is/umfiskistofu/arsskyrsla-2013/eftirlit-a-sjo/

²³⁰ Fiskistofa Annual Report 2017. http://www.fiskistofa.is/umfiskistofu/arsskyrsla-2013/eftirlit-a-landi/

²³¹ http://www.fiskistofa.is/umfiskistofu/frettir/

²³² http://www.fiskistofa.is/umfiskistofu/frettir/ishlutfall-i-november-og-desember

²³³ https://www.althingi.is/altext/stjt/2017.048.html



10.2.3.2.13. Clause 2.3.2.13.

Catch shall be weighed by species at landing.

Evidence Rating:	Low	Mediur	m 🔲	High 🔽		
Non-Conformance:	Critical 🔲	Major 🗌	None	None 🗹		
Summary Evidence: Within two hours of landing catches are officially separated, weighed and recorded by accredited weighing stations and reported against the appropriate quota allocation following provisions outlined in law.						
Evidence: As noted in clause 2.1.1, within two hours of landing catches are officially separated, weighed and recorded by accredited weighing stations and reported against the appropriate quota allocation following provisions outlined in the Act No 57, 1996 concerning the Treatment of Commercial Stocks, and Regulation No. 745/2016 on Weighing and Paccording of Marine Paccourses. As required by Article 10 of Pacculation No. 745/2016, each landing generates a weighing						
Recording of Marine Resources. As required by Article 10 of Regulation No. 745/2016, each landing generates a weighing receipt, recording: • Vessel name, registration number and district number; • Landing port and date of landing; • Name of seller, buyer and recipient of the catch; • Official weight by species of catch; • Proportion of undersize fish in catch; • Number, type and weight of tubs/boxes/barrels; • Fishing gear used; • Total number of pallets of platforms; • Registration number and tare of transport vehicle; • Whether catch is to be re-weighed; • Whether any of the catch is un-gutted and needs to be either weighed after gutting or converted to a gutted weight using coefficients provided by the Directorate.						
References:	See footnotes					
Non-Conformance Number (if relevant) NA						



10.2.3.2.14. Clause 2.3.2.14.

The weight (whole weight or gutted weight) by species of all catches of stock under consideration and by-catch species shall be measured by authorised harbour officials at landing and recorded in the official central data base (date, vessel, gear type, location, species, quantity).

Evidence Rating:	Low	Medium 🗌		High	\square
Non-Conformance:	Critical 🔲	Major 🗌	None	None	e 🗹
Summary Evidence: The weight (whole weight or gutted weight) by species of all catches and by-catch species is measured by authorised harbour officials at landing and recorded in the Fisheries Directorate's catch registration system.					
Evidence: Landings must be weighed (whole weight or gutted weight) by species of all catches (including the stock under consideration and non-target/by-catch species) within 2 hours of landing by an official weigher using calibrated scales. Following allowances for ice the official weight is recorded in the official central database where it can be accessed by the Directorate for comparison with the corresponding logbook entry. Catches processed at sea are registered as processed weights using an officially approved yield which is monitored and verified by the Directorate.					
References:	See footnotes				
Non-Conformance Number (if relevant) NA					



10.2.3.2.15. Clause 2.3.2.15.

There is systematic monitoring of landing, weighing and registration of catches and discrepancies/deviations shall be recorded.

Evidence Rating:	Low	Mediun	n 🗌	High	$\overline{\checkmark}$
Non-Conformance:	Critical 🗌	Major 🗌	None	None	
Summary Evidence: There is systematic monitoring of landing, weighing and registration of catches with all catches being weighed and recorded at the port of landing by an official weigher using licensed scales before the official catch is recorded on a central catch registration system. The Fisheries Directorate compares information on catches from the portside official weighing system with the corresponding logbook entry for that landing and discrepancies/deviations are recorded and investigated.					
Evidence: As noted in clause 2.1.1, there is systematic monitoring of landing, weighing and registration of catches with all catches being weighed and recorded at the port of landing by an official weigher using licensed scales before the official catch is recorded on a central catch registration system (The Fisheries Directorate and Port Authorities database, GAFL).					
The Fisheries Directorate compares information on catches from the portside official weighing system with the corresponding logbook entry for that landing before the appropriate reduction is made to the vessel's quota. At this point in the discrepancies/deviations between the declared and official records of a landing are detectable if present and are recorded. Depending on the nature of the discrepancy/deviation the Fisheries may then decide whether or not further action is warranted.					
Article 16 of the Regulation 849/2023 on commercial fishing in the 2023/2024 fishing year and the 2024 calendar year oblige captains to keep fish on board fishing vessels separated by species. Moreover, on board fishing vessels there must be equipment to prevent birds and mammals from getting stuck in fishing gear when fishing gear is put into the sea. Article 17 sets an obligation to the captains of fishing vessels to keep special catch logs, cf. regulation on registration and electronic submission of catch information. This obligation is described analytically in Regulation 307/2023 on digital registration and submission of catch information. Article 1 of the latter Regulation obliges the captains of vessels that have a commercial fishing license according to the Fisheries Management Act, or a special fishing license, to record the catch information stipulated in this regulation, and send it digitally to Fiskistofa's web service before the end of the fishing trip. The number and species of marine mammals and seabirds must be recorded, among the other information, as accurately as possible, as mentioned in Article 3. This information must be sent to the web service of Fiskistofa before the ship docks at the port of landing after the fishing trip (Article 4). Article 6 provides information about the access to catch information by the inspectors of Fiskistofa and the employees of the Icelandic Coast Guard. Furthermore, penalties according to law no. 57/1996, on handling marine resources are imposed for any violation of the Regulation 307/2023 according to Article 7.					
References:	See footnotes				
Non-Conformance Number (if relevant) NA					



10.2.3.2.16. Clause 2.3.2.16.

Reasons for deviations shall be analysed and corrections made to reduce the likelihood of recurrence.

Evidence Rating:	Low	Mediur	n 🗌	High	
Non-Conformance:	Critical 🗌	Major 🗌	Minor	None	e 🗹
Summary Evidence: Data related to landings are processed in the Directorate's database and catches are subtracted from vessels' quotas. Deviations where they occur can sometimes be rectified using the flexibility within the system (e.g. by using inter-annual, inter-vessel or inter-species transfers to cover catches of a species for which the vessel did not already have quota). Excess catches which are not corrected using these flexibility measures can result in a revocation of fishing licenses and fines.					
Evidence: Data related to landings are processed in the Directorate's database and catches are subtracted from vessels' quotas. The system is designed such that reports are received in near real-time so that the Directorate can act quickly if vessels are approaching the end of their quotas. In addition vessels are aware or can easily check online their current quota status for a particular species. All processors purchasing fish, be it directly or at auction, are obliged to submit monthly reports to the Directorate. In addition, the fish auction reports all sales of fish directly to the Directorate.					
Deviations where they occur can sometimes be rectified using the flexibility within the system (e.g. by using interannual, inter-vessel or inter-species transfers to cover catches of a species for which the vessel did not already have quota). Excess catches which are not corrected using these flexibility measures can result in a revocation of fishing licenses and fines.					
In addition to the landing, weighing and registration system for catches, export documentation provides an independent comparative check on catch quantities. Analysis of catches includes the comparison of reported catches with the amount of sold or exported products to verify independently that reported landings aligned accurately with those reported. If comparison reveals discrepancies in reported and actual landings received from quayside weighing by registered weighers corrective action is taken as appropriate.					
References:					
Non-Conformance Number (if relevant)					



10.2.3.2.17. Clause 2.3.2.17.

In cases of passive fishing gear left unattended at sea, there shall be regulation that requires fishing gear to be marked so that the owner can be identified, where relevant.²³⁴

Evidence Rating:	Low 🗌	Mediun	n 🗌	High	$\overline{\checkmark}$
Non-Conformance:	Critical 🗌	Major 🗌	None	None	
Summary Evidence: In cases of passive fishing gear left unattended at sea, there are regulations that requires fishing gear to be marked so that the owner can be identified. Note: Acts/Laws and Regulations referenced herein may be accessed (in Icelandic) by searching by Act/Law/Regulation No./Year (e.g. 116/2006) at http://www.althingi.is/lagasafn/ (for Acts/Laws) or https://www.reglugerd.is/ (for Regulations).					
Evidence: There are a number of initiatives and regulations in place to avoid the loss of fishing gear and subsequent ghost fishing of lost and abandoned gear. Where the Fishing Directorate finds and recovers lost or abandoned gear they recover the cost of recovery from the gears' owner. The Coastguard also reports any buoys it feels might represent lost or abandoned fishing gear to the Directorate. All regulations relating to fishing gear may be found in the various Articles of Fisheries Management 2018 Laws and regulations ²³⁵ . During the 2024 site visits, the directorate confirmed that gear loss (e.g. longlines, gillnets) and as such ghost fishing is not considered an issue and that reporting lost gear is compulsory.					
Another important factor that contributes to low levels of lost fishing gear is the high price of that gear. This means that fishers are careful to avoid losing their gear. In the case of trawls the majority of vessels carry special grapples onboard that allow them to retrieve lost gear even when both towing warps have parted, which is a rare situation.					
The Icelandic ITQ system allows for a slower paced fishery than would be expected if there was only an overall TAC with all boats fishing against it. The system allows fishers to target their efforts in optimum weather conditions leading to decreased rates of lost fishing gear.					
References: See footnotes					
Non-Conformance Number (if relevant) NA					NA

 $^{^{\}rm 234}$ This clause is applicable to gillnets, traps and pots.

²³⁵ http://vefbirting.oddi.is/raduneyti/fiskveidar2018/108/



10.2.3.3. Clause 2.3.3. Catches are subtracted from relevant quotas 10.2.3.3.1. Clause 2.3.3.1.

Landed catches shall be subtracted from the relevant quotas (allowable catch) of the vessel or vessel group.

Evidence Rating:	Low	Medium		High	
Non-Conformance:	Critical 🗌	Major 🗌	None	None	
Summary Evidence: Landed catches are subtracted from the relevant quotas (allowable catch) of the vessel or vessel group. Vessels must weigh catch within two hours of landing. The official weighed catch for each vessel is then submitted by the Port Authority to the Fisheries Directorate's catch registration system and deducted from the vessel's quota. Comparison of the official weighed catch is made with the vessel's logbook as part of this process. Transfers of quota to meet any shortfall are also monitored to ensure any additional quota required is secured. Processed at sea catch is also monitored, including its conversion to live weights which are then deducted from the vessel's quota.					
, · · · ·					
References:	See footnote.				
Non-Conformance Number (if relevant) NA					NA

²³⁶ http://www.fiskistofa.is/veidar/aflaheimildir/aflahlutdeildalisti/



10.2.3.3.2. Clause 2.3.3.2.

Limited allowance may be made for the use of quota for one species to count against landings of another species, with the objective of providing the necessary minimum flexibility and discouraging discards.

Evidence Rating:	Low	Medium 🗌		High	$\overline{\square}$
Non-Conformance:	Critical 🗌	Major 🗌	None	None	
Summary Evidence: Some flexibility occurs in the quota management system so that the species composition of catches may be matched with the quota portfolio available to individual fishing vessels and to discourage discarding. This includes provision for some limited quota transfer between different species using 'cod-equivalents'. Evidence:					
Deviations where they occur can sometimes be rectified using the flexibility within the system (e.g. by using inter-annual, inter-vessel or inter-species transfers to cover catches of a species for which the vessel did not already have quota, or by purchase of additional quota if possible). Excess catches which are not corrected using these flexibility measures can result in a revocation of fishing licenses and fines ²³⁷ .					
In addition to within-species quota transfers between vessels and/or fishing seasons the system also makes provision for some limited quota transfer between different species. Interspecies transfers of quota are based on 'cod-equivalents' a nominal value based around the market value of cod which is set annually by the Ministry as set out in Article 19 of Act No. 116/2006 ²³⁸ . Note that it is not possible to convert quota of other species for cod quota (e.g. cod quota may be exchanged for ISS herring quota, but ISS herring quota may not be exchanged for cod).					
References:	See footnotes				
Non-Conformance Number (if relevant) NA					NA

²³⁷ http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Vidurlog

²³⁸ http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/thorskigildisstudlar/



10.2.3.3.3. Clause 2.3.3.3.

When a vessel's quota is used up, additional quota must be transferred to the vessel from other vessels or the vessel stops fishing.

Evidence Rating:	Low	Medium 🗌	High 🗹
Non-Conformance:	Critical 🗌	Major None	None 🔽

Summary Evidence:

It is illegal to fish without quota and this is monitored by the Coast Guard and inspectors of the Fisheries Directorate. The quota management system includes a degree of flexibility so that the species composition of catches may be matched with the quota portfolio available to individual fishing vessels. Flexibility is facilitated by a number of provisions including the ability to use a limited amount of the following season's quota or to transfer a limited amount of unused quota to the following season, or transfer quota between species. Where a vessel has exhausted these options, it must transfer quota from other vessels and if unable to do this it must stop fishing.

Evidence:

Icelandic law prohibits fishing vessels going to sea without sufficient quota (Act No. 57/1996). This is monitored by the Fisheries Directorate inspectors and Coast Guard and penalties apply under the Act for violations of its provisions including suspension of the commercial fishing license (Article 14), the requirement to have an inspector on board the vessel for a period of time up to two months paid for by the vessel (Article 16), fines, and in the event of major or repeated deliberate violation, imprisonment for up to 6 years (Article 23). See clause 2.1.1 for further information on the results of this surveillance and enforcement. Consequently, where a vessel has exhausted its quota (including availing of all the additional quota it is allowed to generate within the rules) the only option it is left at that point is to transfer additional quota from other vessels and where it is unable to do so the vessel must stop fishing.

A central fishing vessel registry is maintained; only registered vessels that have been granted a fishing licence may engage in commercial fishing. Before embarking on a fishing trip, the vessel's operators must ensure that the vessel has quota registered which suffices for the expected catch. Recording of vessel catch quotas and catches is done in the Fisheries Directorate's central data base which is accessible to all; thus transparency is ensured.

All catches shall be landed in officially designated landing harbours; Accredited harbour officials weigh the catch by species and record in the central data base; Landed catch is subtracted from the vessel's quota. When quota is used up, the vessel owner must acquire additional quota for the vessel, else fishing must stop; failing that, the vessel loses its fishing license. The Directorate of Fisheries and the Icelandic Coast Guard monitor and control commercial fishing and the landing of catches.

In order to match each the composition of the catch to the quota portfolio for individual fishing vessels or companies, and to reduce incentives for discard, a variety of flexibility provisions are in place. The main provisions, in addition to quota transfer, are the following:

- A provision allowing the use of catch quota for one species to count against a limited catch amount of another species. Interspecies transfers of quota are based on 'cod-equivalents' a nominal value based around the market value of cod which is set annually by the Ministry as set out in Article 19 of Act No. 116/2006²³⁹. Note that it is not possible to convert quota of other species for cod quota (e.g. cod quota may be exchanged for herring quota, but herring quota may not be exchanged for cod). The results of some of inter-vessel and interseasonal transfers aimed at balancing catches and quotas may be seen in under Clause 2.3.1.
- Auctioned catch; it is permitted to land a small fraction of the year's catches without use of quota; such catches go to auction and the proceeds go to a public fund to for supporting research.
- It is permitted for the year's catch to exceed the year's quota by 5% for in some species; the excess is then deducted from the following year's quota.

²³⁹ http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/thorskigildisstudlar/



- It is permitted to postpone fishing for part of the quota and to transfer up to 15% of the year's quota to the following fishing year; postponement of fishing in considered beneficial to the growth of long-lived fish stocks.
- Catches of undersized fish in some cases (e.g. cod <50 cm) count only as half their weight against quota; this is to discourage discards; the actual amounts are small.

References:	
Non-Conformance Number (if relevant)	NA

10.2.3.3.4. Clause 2.3.3.4.

Transfer of quota between vessels shall take effect only after it has been authorised and recorded to the official central data base.

Evidence Rating:	Low	Mediur	m 🗌	High	$\overline{\checkmark}$	
Non-Conformance:	Critical 🗌	Major 🗌	None	None	V	
Summary Evidence: All transfers of quota must be authorised by the Fisheries Directorate and does not come into effect until they have confirmed it. Information on the catch quota, including quota transfers, of each vessel or vessel group, is recorded in the Fisheries Directorate's official central database.						
the Fisheries Directorate's official central database. Evidence: Application forms for the transfer of quota, including between vessels, are available online (in Icelandic) at: http://www.fiskistofa.is/eydublod/flutningurveidiheimilda/ All transfers of quota must be authorised by the Fisheries Directorate. The Directorate of Fisheries must be notified of the transfer of quota and must receive this no later than 15 days after the end of the fishing season. The transfer does not take effect until the Fisheries Administration has confirmed them (Article 15, Act No. 116/2006). Application forms for the transfer of quota are available online ²⁴⁰ and must be transmitted directly to the Directorate for authorisation of the transfer. Information on the catch quota, including quota transfers, of each vessel or vessel group, is recorded in						
References:	base (GAFL) (see evidence pre See footnotes	esented in clause 2.3	.1.3).			
	233.233333					
Non-Conformance Number (if relevant)					NA	

 $^{240\ \}underline{\text{http://www.fiskistofa.is/eydublod/flutningurveidiheimilda/}}$



10.2.3.3.5. Clause 2.3.3.5.

Information on each vessels catch quota and quota use shall be updated regularly and made public and accessible to all on the official web-site, thus ensuring transparency.

Evidence Rating:	Low	Mediur	n 🗌	High	$\overline{\checkmark}$	
Non-Conformance:	Critical 🗌	Major 🗌	None	None		
	ssels' catch quota and quota us ensuring transparency.	use is updated regul	arly and made pub	lic and acce	ssible to all on	
	· ·	= -	-		ne in near real-	
As discussed previously, catch statistics are published by individual vessel and are readily available online in near real-time thus ensuring transparency ²⁴¹ . For each vessel the information available for each species is: 1. Allocated quota (initial allocation of quota from the overall TAC based on no. of shares) 2. Compensations (quota gained/lost through compensations) 3. Quota transferred from the previous year (Note this may be a negative balance) 4. Quota transferred between vessels (a negative balance indicates an outward transfer of quota (i.e. quota transferred to other vessels) while a positive balance indicates an inward transfer of quota (i.e. quota gained from other vessels) 5. Allowed catch (the sum of 1 to 4 above) 6. Catch (vessels landings in the season to date of that species) 7. Balance (Allowed catch - Catch) 8. Overfished						
References:	See footnotes					
Non-Conformance Nu	mber (if relevant)				NA	

 $^{{\}bf 241}\ \underline{http://www.fiskistofa.is/english/quotas-and-catches/quota-status-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches/quota-status-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp?lang=english/quotas-and-catches-of-species-by-vessel/aflastodulisti.jsp.$



10.2.3.4. Clause 2.3.4. Rules are enforced 10.2.3.4.1. Clause 2.3.4.1.

Rules shall be enforced. There shall be penalties for serious infractions.

Evidence Rating:	Low	Mediun	n 🗌	High	$\overline{\checkmark}$			
Non-Conformance:	Critical	Major 🗌	None	None	$\overline{\checkmark}$			
Summary Evidence: There is a clearly established legal framework which sets out rules and regulations relating to fishing activity within Icelandic waters and the penalties for violation of these rules. It gives powers to the Ministry, the Fisheries Directorate, the Coast Guard and the MFRI to monitor fishing activities and enforce these rules. Penalties exist for serious infractions. This largely comprises administrative penalties ranging from guidance letters and reprimands to suspension of fishing permits and weighing licenses. More serious cases are sent to the police for prosecution under the criminal system which can result in imprisonment.								
Evidence:								
Minister, in charge of th	e of Fisheries, or Fiskistofa ²⁴² , ne day to day implementatior t of fisheries and for supervisi	n of the Act on Fishe	ries Management	and related le				
sea and air patrols of lo fishing within the zone and Innovation. The Coa	ord ²⁴³ is responsible for controceland's 200-mile exclusive e in consultation with the Mar ast Guard operates the Iceland fety at sea but can also take a	economic zone and 1 ine and Freshwater I dic Maritime Traffic S	12-mile territorial Research Institute Service within its op	waters, and mand Ministry oerations cent	nonitoring of of Industries			
are provided in detail in Provisions of the Act on the issue of reprimands	ent Act sets out penalties for to the Act Concerning the Tre a Special Fee for Illegal Mari by the Directorate of Fisheric epeated deliberate violation,	eatment of Commero ine Catch ²⁴⁵ are also es and the suspensio	cial Marine Fish St applied as appropi n of commercial fi	ocks (Act No. riate. Penalties shing permits	57 1996 ²⁴⁴). s range from to fines and,			
Summary of relevant up	odates.							
by the Coastguard on VI published on the MFRI v fall of 2020. Some regula	ures (generally 2 weeks trigge IF radio on a specified wavele website. The short-term closu ation regarding the short-tern which led to significant decrea	ength and on the radioure Fire monitoring (and in the closures was also closures was also cl	o before the news a ssuing of) was tran hanged in 2020, wh	and weather. In standard weather. In standard weather. In section we have a second we had been also and we had been also we h	They are also kistofa in the gger size limit			

management authorities (MFRI and Fiskistofa) up to 2023 is shown below.

Table 25. Short term closures in Iceland for herring for the year 2023.

²⁴² https://www.fiskistofa.is/umfiskistofu/

²⁴³ http://www.lhg.is/english

²⁴⁴ https://www.althingi.is/lagas/149a/1996057.html

https://www.althingi.is/lagas/149a/1992037.html



Year	Species	Number of closures
2023	Herring	1

In 2023 the short term (real-time) closures in Iceland for 2023 by gear were: for bottom trawl 6; for line 2 and for pelagic trawl 1.

Directorate Inspections at Sea

Days spent by Fisheries Directorate inspectors at sea inspecting midwater trawlers and purse seiners vessels provided during the June IRFM site visit as the Fiskistofa coverage in the past fishing season 2022/2023:

- 3% purse seine coverage from 9 trips
- 2.2% midwater trawl coverage from 11 inspected trips.

Enforcement by Fiskistofa

The Directorate of Fisheries monitors compliance with laws and regulations which apply to fishing, handling of commercial stocks and treatment catch. In many cases, the Directorate of Fisheries is intended to respond to violations of laws and regulations through the application of administrative sanctions. Sanctions are intended to have a protective effect to reduce or prevent further violations. The main resources available to the Directorate of Fisheries for violations are reprimands and revocation of a fishing license. Alleged violations can also be prosecuted by the police and in some cases it is the only available remedy to respond to violations. Then the Directorate of Fisheries can in individual cases, deprive individuals of a fishing license to enforce law enforcement and rules. During the 2024 audit, Fiskistofa confirmed (3th Oct 2024) that twelve fishing licences were revoked in 2023/2024. Most of them relating to discard or seven, one for logbook violations, two weighing violations and two for wrongly reported catch. The most recent violations detected by Fiskistofa are shown below.

Two hundred and thirty (230) cases were registered with the Fisheries Control Division in the year 2023. In 2023, 40 cases were closed sanction decisions.

Table 26. Fiskistofa suspected violations in 2020, 2021 and 2023. Source: Fiskistofa 2020²⁴⁶ and 2021 Annual Report²⁴⁷ and 2023 (https://island.is/s/fiskistofa/arsskyrsla-2023). Note, the information between 2020, 2021 and 2023 is not directly comparable, and offenses of a similar nature may have been combined into one case.

Currented violeties		2021	2023
Suspected violation	No.	No.	No.
Veiðar án leyfis / Fishing without a permit	14	1	6
Brottkast / offences	11	70	22
Vigtun afla / weighing of catch	24	2	
þar af vigtun vigtarleyfishafa / of which the weighing by the weighing licensee	9	3	
Framhjálöndun / landing	6	1	
Afladagbók / logbook	40	91	162
Vanskil afladagbókar / submitting logbook late	470		
Veiðar án aflaheimilda / Fishing with insufficient catch quotas	6	1	

²⁴⁶ https://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla Fiskistofu 2020.pdf

²⁴⁷ https://www.fiskistofa.is/media/arsskyrslur/arsskyrsla-2021.pdf



Mál vegna umframafla / Cases due to excess catch * mostly daily allowance in coastal vessels	1321	1456	
Lax og silungsveiði / salmon and trout fishing	24	13	4
Undirmálsfiskur / bottom fish fishing	4	11	
Hafnríkiseftirlit / Port Authority Control			2
Röng tilgreining tegunda / Incorrect identification of species	3	3	
Línuívilnun / Line concession			2
Grásleppuveiðar / Lumpsucker fishing	13	2	
Ólöglegar veiðar á lúðu / Illegal fishing of halibut			1
Veiðarfæri / Fishing without fishing opportunities			13
Veiðileyfi / Fishing License			4
Strandveiðar / coastal fishing	42	2	
Annað s.s. tilkynningarskylda, löggilding vigtarmanns, vigtun án löggilts			
vigtarmanns, ónákvæmni við áætlun afla og hindrun eftirlits. / Other s.s.	14	16	14
notification obligation, certification of the weigher, weighing without a	14	10	14
certified weigher, inaccuracy in the catch plan and obstruction of control.			

Enforcement by the Icelandic Coast Guard

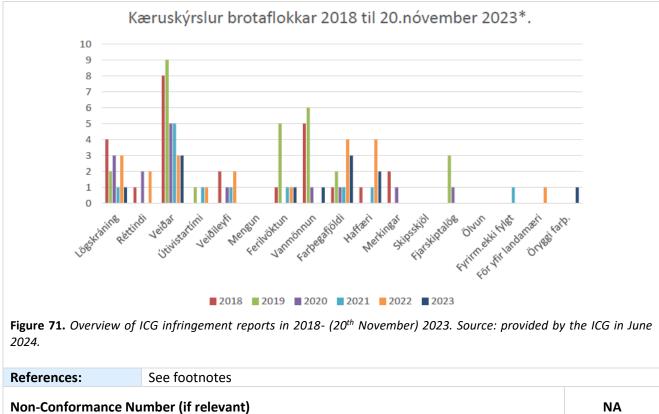
At sea surveillance is primarily the remit of the Icelandic Coast Guard (ICG). The Icelandic Coast Guard monitors commercial fishing vessels in Iceland's EEZ on a continuous basis. There are requirements surrounding the reporting of vessel position (manually or using VMS systems) and the reporting of catch on entering or leaving Icelandic waters, among others.

The ICG reported increased support and cooperation with Directorate of Fisheries by operating drones for surveillance from ICG patrol vessels.

In spite of the Coast Guard efforts the pandemic has had its impact. Fewer inspections and boarding's of vessels resulted in less measuring of fish, which was reflected in fewer Short Time Closures in 2020 and 2021 and 2022 (see **Table 26**) and none based on Fisheries inspections by ICG. However the overall number of ICG inspections in 2023 increased again. Trials with a bigger drone from EMSA (type Schiebel S 100 Camcopter) proved to be a lesson for future use of larger drones operating from a vessel. The trials with the EMSA drone tied up, in part, the activities of the vessels which can in part explain fewer boardings. However, the drones are an extension of the vessel and information is used to inspect vessels more selectively than doing random checks. In the summer of 2022, the ICG recorded several incidents of inspections after anomalies were spotted by the drone crews.

In terms of overall infringements, 7 reports of apparent infringements were reported in 2023, noting however that not all reports are due to fishing infringements and one report can include more than one type of Apparent Infringement. The types of apparent infringement in 2023, included: Lögskráningar/Crew registry, Veiðar /Fisheries, Ferilvöktun /Vessel monitoring, Vanmönnun /Manning, Farþegafjöldi /Passengers, Haffæri /Sea worthiness and a new addition Öryggi farþega /Safety of Passengers. These are shown below (until the 20th November 2023) compared to historical data up to 2018.







10.2.3.5. Clause 2.3.5. Analysis is carried out 10.2.3.5.1. Clause 2.3.5.1.

Analysis shall be carried out with the aim of detecting any deviations that may occur of the actual total catch from the Total Allowable Catch (TAC). Measures are available and are adopted when indicated.

Evidence Rating:	Low	Medium		High 🔽			
Non-Conformance:	Critical 🔲	Major 🔲	None	None 🗹			
Summary Evidence: Analysis is carried out with the aim of detecting any deviations that may occur of the actual total catch from the Total Allowable Catch (TAC). Measures are available and are adopted when indicated.							
Allowable Catch (TAC). Measures are available and are adopted when indicated. Evidence: In late 2021 Fiskistofa reported that a new data department has been created to allow for further data analysis relating to catch recording and day to day implementation of management measures, ultimately to improve the ability to detect discrepancies and enforce regulations. Given the fact that all catches are recorded on the central database any deviations between actual total catch and the TAC for a particular species are easily detectable. The ITQ system has rules and flexibilities to allow for corrective management measures and adjustments to be incorporated. Consequently, deviations may be attributable to the legitimate inter-species, inter-vessel or inter-annual quota transfers which are subject to certain limits.							
References:							
Non-Conformance Number (if relevant)				NA			



10.2.3.5.2. Clause 2.3.5.2.

Anyone purchasing and/or selling catches shall be obligated to present reports to the appropriate authorities, containing information on the purchase, sale and other disposition of fish catches. If analysis reveals discrepancy between the information stated in the reports and the information received from the harbour weighing, corrective measures shall be taken when this is deemed appropriate.

Evidence Rating:	Low	Medium		High	$\overline{\checkmark}$		
Non-Conformance:	Critical 🗌	Major 🗌	None	None			
Summary Evidence: All processors purchasing fish, be it directly or at auction, are obliged to submit monthly reports to the Directorate. In addition, the fish auction reports all sales of fish directly to the Directorate. Analysis of catches includes the comparison of reported catches with the amount of sold or exported products to verify independently that landings aligned accurately with those reported. If comparison reveals discrepancies in reported and actual landings received from quayside weighing by registered weighers corrective action is taken as appropriate.							
Evidence:			• • •				
· ·	g fish, be it directly or at auc n reports all sales of fish direc	_		orts to the	Directorate. In		
Export documentation provides an independent comparative check on catch quantities for different species. Analysis of catches includes the comparison of reported catches with the amount of sold or exported products to verify independently that reported landings aligned accurately with those reported. If comparison reveals discrepancies in reported and actual landings received from quayside weighing by registered weighers corrective action is taken as appropriate.							
References:	See footnotes						
Non-Conformance Number (if relevant)					NA		



10.2.3.5.3. Clause 2.3.5.3.

There shall be full traceability from catch, through processing, export and delivery on the market.

Evidence Rating:	Low	Medium		High	$\overline{\checkmark}$	
Non-Conformance:	Critical 🗌	Major 🗌	None	None		
Summary Evidence: Where required, full tra	ceability from catch, through	h processing, export	and delivery on th	e market is	s possible.	
Evidence: There are effective systems in place to ensure the traceability of catch. The detailed spatial information available for each fishing trip means catch may be traced directly from whence it was caught through subsequent processing, export and delivery to final market. Information relating to the provenance of the catch is communicated both to the Directorate's website and directly to the purchaser.						
The official registration of landings contains a unique vessel identifier relating to the fishing vessel that landed the catch allowing traceability to individual vessels. In most cases, the unique vessel identifier remains with the batch throughout production and often on the final pack. For wet fish sales, from the auction, a vessel unique number is registered within the central e-auction for tracking purposes.						
Full traceability is possible using all the tools within the system, however, not all buyers require full traceability from fishing vessel to the final product.						
References:	See footnotes					
Non-Conformance Number (if relevant)					NA	



10.3. Section 3: Ecosystem Considerations 10.3.1. Clause 3.1. Guiding Principle 10.3.1.1. Clause 3.1.1.

Adverse impacts of the fishery on the ecosystem shall be considered and appropriately assessed and effectively addressed²⁴⁸, consistent with the precautionary approach²⁴⁹.

Evidence Rating:	Low 🗌	Mediu	m 🗌	High 🗹		
Non-Conformance:	Critical	Major 🔲	Minor 🗌	None 🗹		
Summary Evidence: Adverse impacts of the fis consistent with the precau	shery on the ecosystem are tionary approach.	considered, approp	oriately assessed an	nd effectively addressed,		
The MFRI undertakes research into fish stocks, the wider marine ecosystem and their interaction with fisheries. The Institute provides scientific advice on fisheries management within an ecosystem approach framework. Within Icelandic fisheries, discarding is prohibited, and all commercial species caught must be landed subject to the limited flexibility built into the system. This also applies to protected species, including Atlantic halibut, spurdog and spotted wolffish unless they are caught alive in which case they must be released. The fishery has been dominated by pelagic trawls in recent years, but both purse seine and pelagic trawls are considered 'clean' fisheries with relatively little bycatch. The main species that may be caught with ISS herring are blue whiting, capelin, mackerel and Norwegian Spring-spawning herring. All of these species are above their biological limit points. During the previous assessment cycle understanding of the by-catch of non-commercial species and marine mammals and seabirds was found to be poor as there wasn't systematic recording and some concerns were raised about the reliability of the logbook and inspector records but measures have been put in place to improve recording and further work is being undertaken in this area. In 2024 the MFRI has noted an improvement in the recording by fishers as compared to the observer data. Fiskistofa have confirmed the monitoring of recording of catches of seabirds and marine mammals. However, interactions with vulnerable species and seabed VMEs are considered limited due to the use of pelagic gears in the fishery. Interactions with TEP and marine mammals and seabirds are considered low. Killer whale are associated with herring which is an important prey item for them but available evidence from inspectors and logbooks indicates there is little by-catch. The available evidence indicates that the adverse impacts of the fishery on the ecosystem are considered, assessed and appropriately addressed in a manner consistent with the precaution						

The Marine and Freshwater Research Institute of Iceland (MFRI) is a government institute under the auspices of the Ministry of Food, Agriculture and Fisheries (Matvælaráðuneytið). The MFRI was established on July 1, 2016 as a result of a

Evidence:

²⁴⁸ FAO Code of Conduct for Responsible Fisheries, Article 7.2.

²⁴⁹ In this context refer to 2009 FAO Guidelines for Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries, Article 3I: Adverse impacts of the fishery on the ecosystem should be appropriately addressed. Much greater scientific uncertainty is to be expected in assessing possible adverse ecosystem impacts of fisheries than in assessing the state of target stocks. This issue can be addressed by taking a "risk assessment/risk management approach". For the purpose of development of ecolabelling schemes, the most probable adverse impacts should be considered, taking into account available scientific information, and traditional, fisher or community knowledge provided that its validity can be objectively verified. Those impacts that are likely to have serious consequences should be addressed. This may take the form of an immediate management response or further analysis of the identified risk. ...



merger of two inveterate Icelandic research institutes, the Institute of Freshwater Fisheries (founded in 1946), and the Marine Research Institute (founded in 1965).²⁵⁰

MFRI conducts various marine and freshwater research and provides the Ministry with scientific advice based on its research on marine and freshwater resources and the environment. MFRI is leading in marine and freshwater research in Icelandic territories and the arctic, providing advice on sustainable use and protection of the environment with an ecosystem approach by monitoring marine and freshwater ecosystems. The main research priorities are research on marine and freshwater ecosystems, sustainable exploitation of main stocks, ecosystem approach to fisheries management, research on fishing technology and seafloor and habitat mapping.

At the Pelagic Division the focus is on research on pelagic fish species, zooplankton and marine mammals. The projects includes research on biology and ecology of different species, long-term monitoring of the ecosystem and stock assessment in relation to advice on sustainable use of marine resources.

Zooplankton plays a critical role in the marine environment and is a prey for all fish stocks at least at the early stages of their life. Pelagic fish stocks and baleen whales prey almost entirely on zooplankton, though some species feed on other prey for part of the year. Studies on zooplankton aim to improve the biological understanding of different species as well as to determine the spatial and temporal variability in density and species composition. In addition, the MFRI work on developing methods to improve use of echosounders to quantify the larger krill species (euphausiids).

Studies on pelagic fish species are extensive in the division. The main emphasis is on estimating stock size and fishing opportunities of capelin, summer-spawning herring, Norwegian spring-spawning herring, blue whiting, mackerel, and lumpfish. The goal of sustainable use of marine resources demands also various research on biology, distribution, migrations, and ecological connectivity among these fish stocks, including the connectivity with the environment, zooplankton and marine mammals. Furthermore, there is an increasing focus on studies on mesopelagic fish (e.g., lanternfish and Mueller's pearlside) due to possible exploitation of those species.

The focus of the marine mammal's research is, as with fish stocks, the estimation of stock size of the various mammals found in Icelandic waters, including all whale species and the two seal species that bear their young in Iceland. Various studies on biology, ecology, migrations, and behaviour of marine mammals take also place.

The overarching objective of all research in the Pelagic Division is to give advice to government on sustainable use of marine resources, to study ecological connections of the diverse species and the effects of environmental variability there on.²⁵¹

The MFRI also monitors the wider marine ecosystem, undertaking collection and analysis of oceanographic and physical data, measurement of retained catches and interactions between Endangered, Threatened and Protected species (TEPs) and commercial fisheries, fishing gears and seabed habitats and between commercial fisheries and the ecosystem e.g. impacts of fisheries on predator-prey dynamics. In a study done in 2021 (Basran and Sigurdsson 2021), using both logbook and onboard inspector data from 2016-2019 differences between bycatch rates of marine mammals in cod and Greenland halibut gillnets was extreme, or almost 27000%. In the comparison conducted this fall using inspector and gillnet survey data from 2020-2023 and logbook data from 2023 the difference for the most common marine mammal, the harbour porpoise, is 9822% higher, indicating much improved reporting. Furthermore, if the MFRI gillnet survey is excluded, and only inspector data is compared with the logbook entries, the difference is much less, or 2311%. While there is still considerable room for improvement in the logbooks, there has been major increase in reporting.

In Regulation 307/2023 on digital registration and submission of catch information, Article 3 states that captains must record information as accurately as possible. The regulation lists 10 items that must be recorded, including: Item 7: Seabirds by number and species

²⁵⁰ https://www.hafogvatn.is/en/about/mfri

²⁵¹ https://www.hafogvatn.is/en/about/mfri/pelagic-division



Item 8: Marine mammals by number and type

Fiskistofa reported to the assessment team that it considers violations of items 7 and 8 to be serious infringements. If an inspector becomes aware of such violations, deviation reports are registered and sent for legal processing. In this light, inspectors of Fiskistofa ensure that the registration in the catch logbook is as accurate as possible when conducting sea inspections during fishing trips, staying on board for the entire fishing trip. Special inspections are regularly conducted; for example, during the 2023 lumpfish season, 5% of fishing trips were inspected to ensure correct entries in the catch logbook. Fiskistofa also uses PBI reports from catch registers to monitor the registration of marine mammals and birds. Fiskistofa has confirmed the purchase of a longer-range drone, with training already in progress. We expect that surveillance with these drones will begin in the autumn of 2024. Drone monitoring will be a part of the overall monitoring of bycatch registration for birds and marine mammals. Over the past year, special emphasis has been placed on inspectors checking for the presence of birds or marine mammals in fishing gear during drone surveillance. (Fiskistofa letter, July 2024).

Bycatch

The bycatch species /associated catch to the ISS herring fishery are blue whiting, capelin, mackerel and Norwegian spring spawning herring. The status of these species has been updated and is shown below. As all these species have SSB above Blim it is likely that they are above their PRIs and the fishery for herring is not adversely affecting them.

KOLMUNNI – BLUE WHITING (Micromesistius poutassou)²⁵²

Fishing pressure on the stock is above FMSY and Fpa but below Flim; spawning-stock size is above MSY Btrigger, Bpa, and Blim (**Figure 72**).

²⁵² https://www.hafogvatn.is/static/extras/images/34-blue whiting1407347.pdf



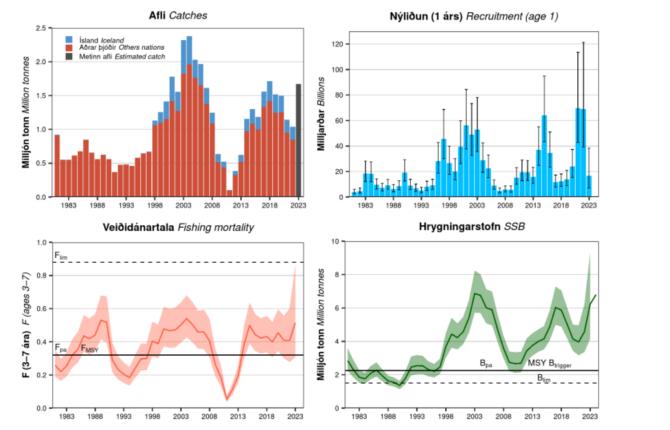


Figure 72 Total and Icelandic catches, recruitment at age 1, fishing mortality and spawning stock biomass (SSB).

LOĐNA - CAPELIN (Mallotus villosus)²⁵³

MFRI advises that when the harvest control rule agreed by the Coastal States is applied, there should be zero catch in winter 2023/2024. This advice will be revised based on results of acoustic measurements of the fishable stock in early 2024 Figure 73.

Document #: 30680; Revision: 04; Status: Release; Release Date: 26 Apr 2024; Printed on: 23 Jul 2025 This is a confidential document and may be reproduced only with the permission of GTC.

²⁵³ https://www.hafogvatn.is/static/extras/images/31-capelin-autumn1408221.pdf



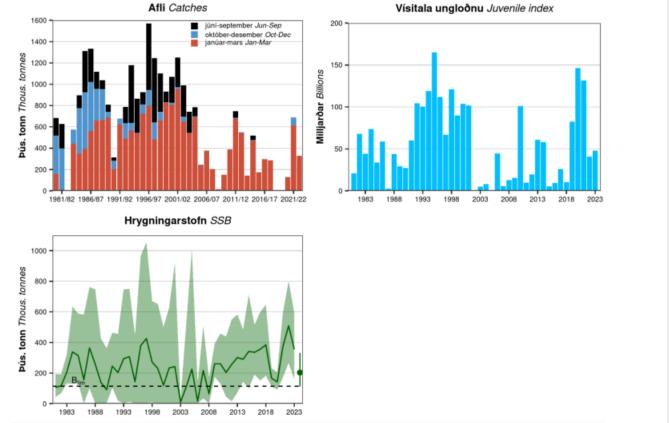


Figure 73 Capelin. Catches, acoustic index for immatures from autumn surveys, and SSB at spawning time (with 90% confidence limits). The estimate of the SSB in 2024 is a projected value.

MAKRÍLL - MACKEREL (Scomber scombrus)²⁵⁴

ICES advises that when the MSY approach is applied, catches in 2024 should be no more than 739 386 tonnes. Fishing pressure on the stock is above FMSY but below Fpa and Flim; spawning-stock size is above MSY Btrigger, Bpa, and Blim.

²⁵⁴ https://www.hafogvatn.is/static/extras/images/36-mackerel1407353.pdf



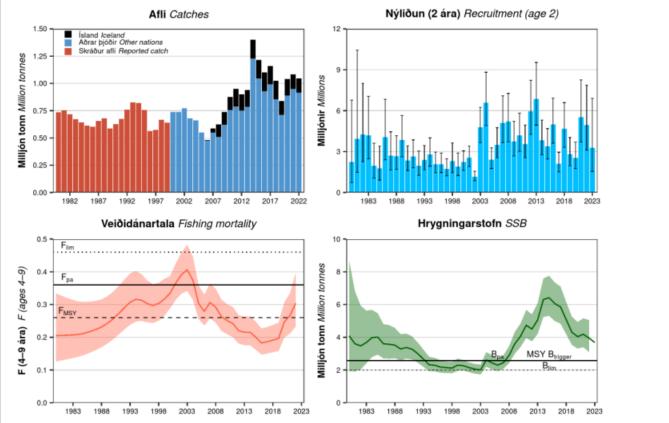


Figure 74. Mackerel harvest rate and biomass.

NORSK-ÍSLENSK VORGOTSSÍLD NORWEGIAN SPRING-SPAWNING HERRING (Clupea harengus)²⁵⁵

Fishing pressure on the stock is above FMSY and between Fpa and Flim, and spawning-stock size is above MGT Btrigger, Bpa, and Blim.

²⁵⁵ https://www.hafogvatn.is/static/extras/images/830-nss herring1407351.pdf



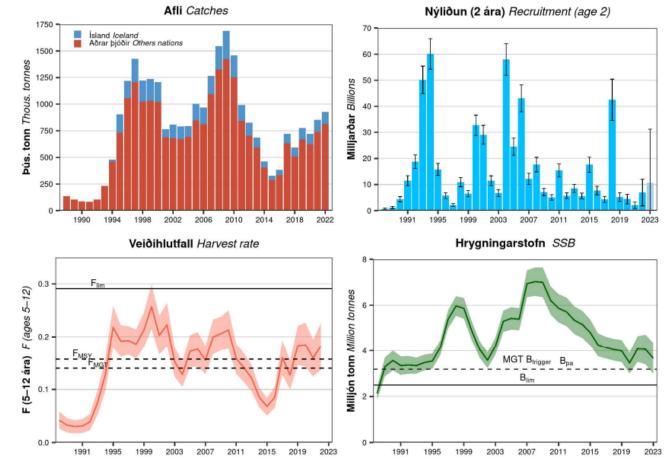


Figure 75 Norwegian spring-spawning herring. Summary of the stock assessment. The assumed recruitment value for 2023 is shaded in light blue.

TEP

The MFRI provided further bycatch estimates for marine mammals and seabirds in 2024 for years 2022 -2023. Observed bycatch by onboard inspectors and in surveys in 2022 was reported in the 2023 ICES Working Group on Bycatch (WGBYC) report²⁵⁶. The 2023 ICES WGBYC report⁹³ stated that in the Iceland Sea Ecoregion in 2022, 113 days at sea were monitored in nets and 327 days in bottom trawls, with a monitoring coverage of 3.47%. All monitoring was performed by at-sea observers. During the site visit in June 2024 the following observer coverage was confirmed by Fiskistofa staff for the fishing season 2022/2023:

- 3% purse seine coverage from 9 trips
- 2.2% midwater trawl coverage from 11 inspected trips

Relevant updates for species for which data is available is provided in section 5.7.1.

TEP conclusion

²⁵⁶ ICES (2023). Working Group on Bycatch of Protected Species (WGBYC). ICES Scientific Reports. Report. https://doi.org/10.17895/ices.pub.24659484.v2



Although evidence of the degree to which ISSH fisheries and marine mammals interact is sparse, available evidence would indicate that, in Icelandic waters, direct mortality of marine mammals as a result of interactions with pelagic fishing gears used in the fishery is likely to be low and unlikely to have detrimental effects at the population level. Therefore, it can be said that the fishery for herring is not adversely affecting any TEP species.

Habitats

There have been no significant changes in the impact of the fishery on habitats since the last surveillance audit. According to the ICES report on the "Icelandic Waters Ecoregion – Ecosystem overview" (ICES 2022), the main abrasive pressure in the Icelandic Waters ecoregion is caused by mobile bottom-fishing gears (targeting fish, shrimp, and Norway lobster).

The bulk of the fisheries in Iceland waters, both pelagic and trawl fisheries, occurs at depths less than 500 m. There has been an overall reduction since 2005 in fishing effort for fisheries using trawl, longline, gillnet, seine and Danish seine, but an increase in the effort for pelagic trawl and jiggers see **Figure 76** (ICES 2022). The total fishing effort by bottom trawls targeting fish and shrimp has decreased by around 40% in 2000–2014; in the same period the Nephrops trawling effort remained at the same level. The decrease in fishing effort varied locally, with decreases mainly being noted on the southern shelf (Subarea 1) and at typical shrimp trawling grounds on the northern shelf (ICES 2022).

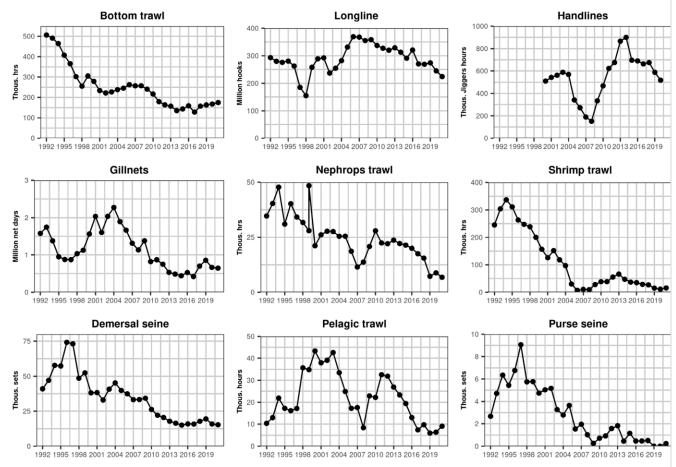


Figure 76 Temporal trends in effort by gear 1992–2021, based on logbook entries. Information on the anglerfish gillnet is not available (source: ICES 2022).

Seabed mapping



Seabed mapping is one of the Marine and Freshwater Research Institute's projects which started with the launching of the research vessel, Arni Fridriksson RE 200, in the year 2000. The vessel is equipped with a multibeam echo sounder which enables a detailed mapping of the seabed. Until spring 2017 the multibeam echo sounder was of the type Kongsberg EM 300 (30 kHz, 135 beams, 2°x2°) but was then updated to Kongsberg EM 302 (30 kHz, 432 beams, 1°x2°, water column data) and a subbottom profiler, Kongsberg TOPAS PS18.

From the year 2017 the seabed mapping project is one of MFRI's major initiatives for the next 12 years. The main emphasis is to gain information within the economic zone which is useful for multifaceted purpose and is a prerequisite for scientific approach for sustainable utilization, protection and research of resources in the ocean, on, in and under the seabed. The detailed mapping has been valuable for the research of the marine environment, the physical properties of the ocean and the marine geology. Mapping fishing grounds and vulnerable areas, i.e. benthic communities and habitats, has played a significant role. About 50% of the economic zone has been mapped, or approximately 377,000 square kilometers of the country's total 754,000 square kilometer economic zone see **Figure 77** below.

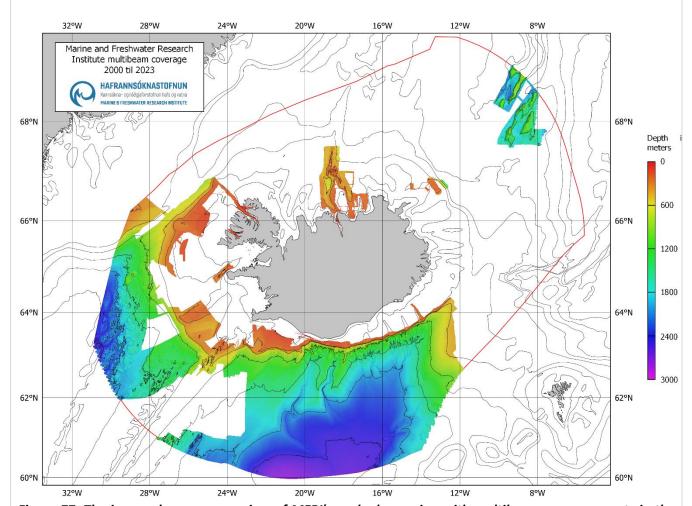


Figure 77. The image shows an overview of MFRI's seabed mapping with multibeam measurements in the years 2000-2023. (https://www.hafogvatn.is/en/research/seabed-mapping)

NovasArc project



In NovasArc I spatial distribution of VMEs within the sub-arctic waters were predicted. NovasArc II updated the predictions with new observations to produce spatial estimates of the predictive uncertainty and the outputs of the earlier models were updated and validated. NovasArc predicted the distribution of eleven VMEs and generated estimates of the area at risk from bottom fishing for these. This co-operation has resulted in successful data and knowledge sharing of VMEs and fishing effort.

During NovasArc II, a new set of 12 models were fitted combining the indicator taxa from each VME that had similar predicted distributions according to Burgos et al., (2020). In this way, the overprediction was controlled but also produced more robust models that incorporated a larger number of samples. The environmental predictors were the same as used in the previous models. Distribution of suitable habitat for VME indicator taxa was predicted using the maximum entropy algorithm MaxEnt (Radosavljevic & Anderson 2014).

Fishing pressure map based on trawling data (VMS records) was produced for the study area. Fishing intensity estimates were derived from Vessel Monitoring System (VMS) and Automatic Identification System (AIS) data (see Buhl-Mortensen et al. 2019). NovasArc has generated spatial estimates of the degree of risk from bottom fishing on seafloor integrity, e.g. areas where there is high overlap between the spatial distribution of VME indicators (based on their predicted suitability) and fishing effort (Buhl-Mortensen et. al. 2023).

The MFRI has also been involved in various discrete projects over the years (some ongoing) (COMFORT,²⁵⁷ EATFISH,²⁵⁸ ECOTIP,²⁵⁹ EurofleetsPlus,²⁶⁰ iAtlantic,²⁶¹ Marine SABRES,²⁶² MEESO,²⁶³ MISSION ATLANTIC,²⁶⁴ SUMMER²⁶⁵) including the BIOICE (Benthic Invertebrates in Icelandic Waters) (1992 – 2004²⁶⁶), CoralFISH project (2009 – 2012²⁶⁷) and IceAGE (Icelandic marine Animals - Genetics and Ecology) (2008 – ongoing²⁶⁸) which offer important baseline on benthic habitats around Iceland. Additionally, a Seafood Conference took place in 2023 with sustainability being the main topic discussed.

Long term area closures

Fiskistofa has created a new GIS platform where all spatial data relevant to Icelandic fisheries management has been integrated. The **Figure 78** for example contains information on long term spatial closures in Iceland.

During the field visit, the assessment team was informed that a number of new areas have been protected from various fishing activities under the new regulation No 188 February 2023.²⁶⁹ (**Figure 79**).

New areas have been protected for all fishing these include sponge aggregations, sea-pen fields, hydropthermal vents (Figure 78).

²⁵⁷ COMFORT project webpage: https://comfort.w.uib.no/

²⁵⁸ EATFISH project webpage: https://eatfish-msc.com/

²⁵⁹ ECOTIP project webpage: https://ecotip-arctic.eu/

²⁶⁰ EurofleetsPlus project webpage: https://eurocean.org/blog/news-events-calls/

²⁶¹ iAtlantic project webpage: https://www.iatlantic.eu/

²⁶² Marine SABRES project webpage: https://www.marinesabres.eu/

²⁶³ MEESO project webpage: http://www.meeso.org/

²⁶⁴ MISSION ATLANTIC project webpage: https://missionatlantic.eu/

²⁶⁵SUMMER project webpage: https://summerh2020.eu/

²⁶⁶ BIOICE project webpage: https://www.ni.is/greinar/botndyr-a-islandsmidum-bioice-nanar

²⁶⁷ CoralFISH project webpage: http://eu-fp7-coralfish.net/

²⁶⁸ IceAge project webpage: https://www.iceage-project.org/

²⁶⁹ https://www.stjornartidindi.is/Advert.aspx?RecordID=df88f6db-5dc5-4e03-80c0-7ca095b16b20



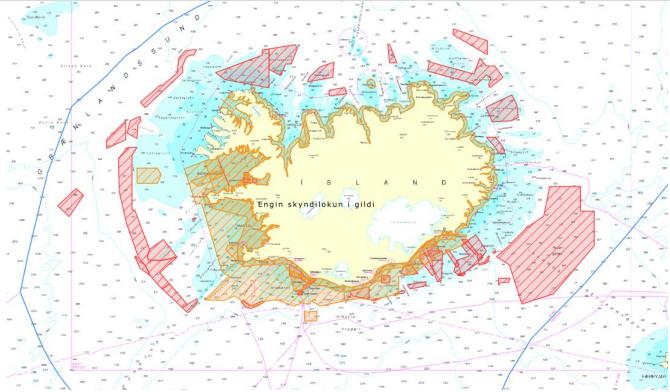


Figure 78 Regulatory long-term closures in Iceland, all gear types. Red closures are for bottom trawl and at times all gear closures. Yellow/orange boxes with internal lines near the coast (East, West and North West) are longline closures. For details on each closure including dates and gear restrictions please click on each red box in the Atlas/GIS website managed by Fiskistofa at http://atlas.lmi.is/mapview/?application=haf.



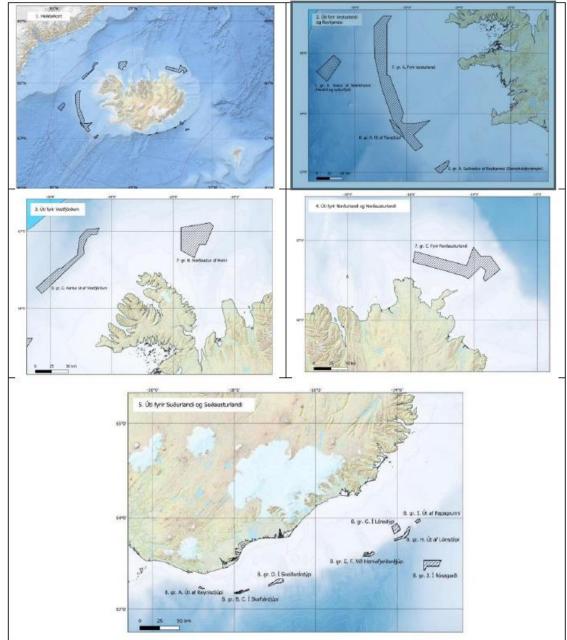


Figure 79 Map of protected areas under regulation No 188. 1, 2 and 3. From the left to the right, top and bottom; images 1,2 and 3 areas are aimed at protection of less disturbed marine areas. All fishing, except fishing with hand tools and fishing for pelagic fish with floating cast and purse seine. Picture 4 and 5 areas are aimed at coral conservation and protection of special benthic ecosystems on the seabed. All fishing, except fishing for pelagic fish with floating casts and purse seines, is prohibited in the following areas. Source Appendix of Regulation No 188.

Violations of the provisions of this regulation are subject to penalties according to provisions 15-21. The area is marked by a line drawn in between 79/1997, on fishing in Iceland's fishing territorial waters. Furthermore, regulation no. 959/2019, on conservation areas near Iceland, and regulation no. 942/2016, on the protection of coral reefs off South and Southeast Iceland are also in place.



Habitat conclusion

Interactions between fishing gears and the seabed are highly dependent on gear type. Pelagic gears used in this fishery are not designed to be used in contact with the seafloor and considered unlikely to interact significantly with benthic ecosystems. The spatial distribution of fishing effort around Iceland is known, available data on fishing effort of the Icelandic fleet provided by satellite Vessel Monitoring Systems (VMS) are very accurate and have made it possible to map in detail the distribution of fishing effort.

Ecosystem

In Icelandic waters herring are both a major predator of zooplankton and an important prey species with numerous species of fish, marine mammals and seabirds all being major predators of herring. Herring, therefore, are an important part of the ecosystem with many trophic connections. However, the Icelandic marine ecosystem is not considered to be waspwaisted due to the presence of several other abundant, high biomass, low trophic level stocks including capelin, mackerel and blue whiting. These other abundant high biomass stocks demonstrate similar levels of trophic connectivity and provide alternative pathways through which energy can be transferred to higher trophic levels. This was shown in a study by Stulodottir et al. in 2018²⁷⁰ in an 'end-to-end' dynamic ecosystem model of Icelandic waters using the Atlantis framework. In addition, predators of herring are primarily highly mobile, opportunistic feeders that are not reliant exclusively on herring as a food source.

The stock was at high levels around 2002 but showed a steady decline to 2017 despite a low fishing mortality. The reduction is a consequence of mortality induced by the *Ichthyophonus* outbreak in the stock in 2009–2011 and 2016–2018 in addition to small year classes entering the stock since around 2005, particularly the 2011–2014-year classes. The 2017- 2019-year classes are large and will be the foundation of the fishable stock in the coming years. Consequently, SSB has been growing since 2021, but these strong year-classes are not perceived as strong in the latest assessment, causing the SSB to shift downwards in 2024.

The Icelandic summer-spawning herring fishery is conducted entirely within the Icelandic EEZ. The key elements of the ecosystem have been identified, they are:

1. Physical oceanographic processes

The physical oceanographic processes that maintain the ecosystem are the oceanic currents from the Atlantic and Arctic which mix with Icelandic coastal waters in the UoAs and establish a highly productive ecosystem based on high primary production by phytoplankton and a large zooplankton population.

Anthropogenic impacts physical oceanographic processes in pelagic ecosystems have been studied. The main impacts are felt through long-term climate change and also eutrophication of coastal waters. There is no evidence that the use of pelagic fishing gear can affect these processes.

2. Trophic interactions

The feeding habits of pelagic fish, marine mammals and seabirds in Icelandic waters have been thoroughly studied (MRI 1997, Gislason et. al 2009, Skaret and Pitcher 2016, Ribeiro *et al.* 2018). Ecosystem models (e.g. Barbaro *et al.* 2008, Pálsson 1997, Gislason et al. 2009, Skaret and Pitcher 2016, Stefánsson 2003, Ribeiro *et al.* 2018) indicate that Icelandic waters exhibit high primary productivity that supports a large zooplankton population which are in turn food for small pelagic fishes (sandeel, capelin, herring, mackerel etc.), concluding in supporting level 4 and upper predators. These studies have helped identify the main functional groups as well as the trophic interactions between them (**Figure 80**). Capelin (*Mallotus villosus*) is shown to present a key prey species and that cod (*Gadus morhua*) is a major fish predator in the marine ecosystem around Iceland.

²⁷⁰ https://www.sciencedirect.com/science/article/pii/S0165783618301620



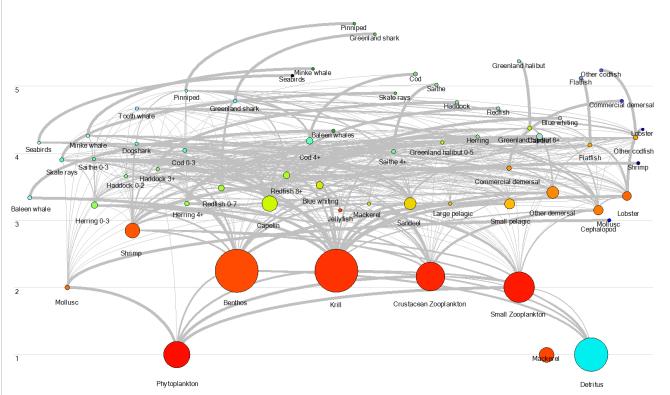


Figure 80 Ecopath model of Icelandic waters showing the distribution of functional groups by trophic level (scale at left of diagram). Larger nodes indicate bigger stock size. [Note that this diagram shows the state of the ecosystem in 1984 based on historical information and that the relative size of nodes may have changed subsequently.] (Source: Ribeiro et al. 2018).

On the basis of no evidence of an impact of the UoAs on either physical oceanographic processes or trophic interactions it is considered that the risk of this UoA adversely affecting the key elements underlying ecosystem is low.

References:

- MFRI, 2023. Kolmunni Blue whiting: https://www.hafogvatn.is/static/extras/images/34-blue_whiting1407346.pdf and ICES, 2023. Blue whiting (*Micromesistius poutassou*) in subareas 1–9, 12, and 14 (Northeast
 - Atlantic and adjacent waters). In Report of the ICES Advisory Committee, 2023. ICES Advice 2023, whb.27.1-91214,
 - https://doi.org/10.17895/ices.advice.21856554
- MFRI, 2023. Makríll Mackerel: https://www.hafogvatn.is/static/extras/images/36-mackerel1407354.pdf and ICES, 2023. Mackerel (*Scomber scombrus*) in subareas 1–8 and 14 and division 9.a (the Northeast Atlantic and adjacent waters). In Report of the ICES Advisory Committee, 2023. ICES Advice 2023, mac.27.nea, https://doi.org/10.17895/ices.advice.21856533.
- MFRI, 2024. Djúpkarfi-Demersal beaked redfish:
 https://www.hafogvatn.is/static/extras/images/61-slope mentella advice is.html.

Non-Conformance Number (if relevant)

NA





10.3.1.2. Clause 3.1.2.

Those impacts that are likely to have serious consequences shall be addressed. This may take the form of an immediate management response or further analysis of the identified risk.²⁷¹

Evidence Rating:	Low	Medium		High 🗹
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹

Summary Evidence:

Impacts that may have serious consequences include on retained species, vulnerable species and life stages, benthic ecosystems including Vulnerable Marine Ecosystems (VMEs) and interactions with seabirds and mammals. Those impacts that are likely to have serious consequences are addressed including measures to reduce impacts on nontarget commercial species through the ITQ system and prohibition of discarding. A system of real time, permanent and temporary closures exists to protect vulnerable life stages of fish species including spawning and juvenile stages. Vulnerable Marine Ecosystems are protected by closures although there is thought to be limited interaction between pelagic gears used in this fishery and these benthic habitats.

Information about interactions between Icelandic fisheries and non-commercial by-catch species, seabirds and mammals is available from the landing tables presented previously and the MFRI observer reports that have been collated by MFRI and submitted to both the ICES Working Group on Bycatch (WGBYC) and also to the North Atlantic Marine Mammal Commission.

What information is available suggests mortality is unlikely to have population level effects. Further evidence of reliable data collection from the improved inspector programme and electronic logbooks reporting system would increase confidence in this judgement.

Evidence:

Management responses

Information is available on the legal specification of fishing gear in the Icelandic pelagic fishery (see 3.2.1.1 for gear specific information). The primary aim of fishing gear regulations is size selectivity with a secondary aim being species selectivity. Gears are regulated in several ways to regulate both size and species selectivity. The MFRI provide advice for 40 fish stocks in Iceland as well as advice for harvest of marine mammal species (e.g. fin whale and common minke whale). Their most recent advice (i.e. 2024), which include results of routine monitoring and assessment efforts is available online at https://www.hafogvatn.is/en/harvesting-advice. The Directorate of Fisheries monitors catches of a larger suite of species (many of them non-target species) including starry ray/thorny skate, common skate, dogfish, Greenland shark, Porbeagle shark, Atlantic halibut, orange roughy, shagreen ray, etc... Catch records for over 50 species can be retrieved on their website. 272

There have been no changes in the gear used in Icelandic waters.

Two new regulations were implemented in 2023 which affect the TEPs species and non-target species. Regulation no. 849/2023²⁷³ about preventing TEP bycatch and new digital reporting and registration of catch data regulation no. 307/2023²⁷⁴

The two new regulations that entered into force in 2023, can constitute additional evidence in the steps made for protecting and preserving marine mammals and seabirds. According to Article 16 of the Regulation 849/2023 on

²⁷¹ 2005/2009 FAO Guidelines for Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries.

²⁷² http://www.fiskistofa.is/veidar/aflastada/aflastodulisti/

²⁷³ https://island.is/reglugerdir/nr/0849-2023

²⁷⁴ https://island.is/reglugerdir/nr/0307-2023



commercial fishing in the 2023/2024 fishing year and the 2024 calendar year, captains are obliged to keep fish on board fishing vessels separated by species. Moreover, on board fishing vessels there must be equipment to prevent birds and mammals from getting stuck in fishing gear when fishing gear is put into the sea. Article 17 sets an obligation to the captains of fishing vessels to keep special catch logs, cf. regulation on registration and electronic submission of catch information. This obligation is described analytically in Regulation 307/2023 on digital registration and submission of catch information. Article 1 of the latter Regulation obliges the captains of vessels that have a commercial fishing license according to the Fisheries Management Act, or a special fishing license, to record the catch information stipulated in this regulation, and send it digitally to Fiskistofa before the end of the fishing trip. The number and species of marine mammals and seabirds must be recorded, among the other information, as accurately as possible, as mentioned in Article 3. This information must be sent to the web service of Fiskistofa before the ship docks at the port of landing after the fishing trip (Article 4). Article 6 provides information about the access to catch information by the inspectors of Fiskistofa and the employees of the Icelandic Coast Guard. Furthermore, penalties according to law no. 57/1996, on handling marine resources are imposed for any violation of the Regulation 307/2023 according to Article 7.

Bycatch

Information about interactions between Icelandic fisheries and non-commercial by-catch species, seabirds and mammals is available from the landing tables presented previously and the MFRI observer reports that have been collated by MFRI and submitted to both the ICES Working Group on Bycatch (WGBYC) and also to the North Atlantic Marine Mammal Commission (NAMMCO) (Sigurdsson, 2017; Granquist et al., 2019; ICES WGBYC, 2023; NAMMCO, 2024), MFRI Data (Table 8 & Table 9).

The fishery targets dense shoals of herring so that catches tend to be homogeneous with little mixing with other stocks. With regards to retained catches, most commercially fished species in Iceland are now part of the ITQ system. Discarding of these commercial species is prohibited and comparison between inspector measured catch compositions and self-reporting by fishers ensures that a high level of compliance with the ban on discarding is maintained. Note that in Iceland inspectors are referred to as 'Inspectors' and unlike most inspectors have the authority to fine or charge the vessel with criminal charges.

According to section 2 of Act no. 57/1996, concerning the treatment of commercial marine stocks, discard of catches (although with minor exceptions) is prohibited, hence the very vast majority if not all catches are landed. Actual discards are illegal and considered relatively small in Icelandic waters. Discarding violations are subject to penalty ranging from ISK 400K to 8M. One feature of this ban is that it has some inbuilt flexibility, as any 5% of demersal catches from a fishing trip (called VS catch), irrespective of fish species or size, may be excluded from quota restriction (which means that VS catches are additional to the TAC). On sale of VS catches in public fish markets 20% of the revenue generated is paid to the vessel with the remaining 80% going to a designated research and development fund (the VS fund, under the auspices of the Ministry). A maximum of 20% return on VS catches means that there are limited incentives for fishers to land such catches.

The status of bycatch and associated species has been detailed in the previous clause. Spotted wolffish is depleted and must be released as survival rates are considered high. Vulnerable species effects are considered generally limited and not significantly affecting any of the species listed by OSPAR, or the marine mammals and seabirds regularly caught in the gillnet fisheries (mostly in lumpfish).

Although evidence of the degree to which ISSH fisheries and marine mammals interact is sparse available evidence would indicate that, in Icelandic waters, direct mortality of marine mammals as a result of interactions with pelagic fishing gears used in the fishery is likely to be low and unlikely to have detrimental effects at the population level. Further evidence of reliable data collection from the improved inspector programme and electronic logbooks reporting system is required to increase confidence in this judgement.



Indirect effects including competition between fisheries and marine mammals and seabirds for stocks of forage species such as capelin, herring, mackerel etc. are likely to pose a greater threat to populations of marine mammals and seabirds than direct fishing related mortality. These potential ecosystem effects of the ISS herring fisheries are discussed in more detail in the supporting evidence for Clause 3.2.4. Foodweb Considerations.

Habitat -VMEs

Interactions of fishing gear with benthic ecosystems

Interactions between fishing gears and the seabed are highly dependent on gear type. Pelagic gears used in this fishery are not designed to be used in contact with the seafloor and considered unlikely to interact significantly with benthic ecosystems. The spatial distribution of fishing effort around Iceland is known, available data on fishing effort of the Icelandic fleet provided by satellite Vessel Monitoring Systems (VMS) are very accurate and have made it possible to map in detail the distribution of fishing effort.

Protection of Vulnerable Marine Ecosystems (VMEs)

It is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs; sponge communities, cold-water corals and hydrothermal vents), from significant adverse impact from bottom contacting fishing gear. As a result of this policy, large areas of Icelandic waters are closed, temporarily or permanently, to fishing for a variety of reasons; these include the protection of juveniles, spawning fish and VMEs.

Cumulatively, a large portion of Icelandic shelf area within which fishing activities occur is closed to fishing. Furthermore, not all the fishable shelf areas outside closed areas are trawlable, as some parts of the seabed are unsuitable for trawl gear. The closures, in particular those of a permanent nature, provide wider ecological benefits over and above their intended fisheries management objective by offering *de facto* protection from fishing activity to other elements of the marine environment. A map indicating most of the current closures in Icelandic waters is shown in clause 3.1.1.

VMEs of particular importance within Icelandic waters are sponge and cold-water coral communities and hydrothermal vent areas. Increasingly attention is also being given to sea-pen communities. Further information on these communities and habitats is provided in clause 3.1.1. As noted previously pelagic gears are thought to have minimal interaction with these seabed VMEs.

References: Sigurdsson, 2017;

Granquist et al., 2019; ICES WGBYC, 2023; NAMMCO, 2024

Non-Conformance Number (if relevant)

NA



10.3.2. Clause 3.2. Specific Criteria10.3.2.1. Clause 3.2.1. Information gathering and advice 10.3.2.1.1. Clause 3.2.1.1.

Information shall be available on fishing gear used in the fishery, including the fishing gears' selectivity and its potential impact on the ecosystem. Stocks of non-target species commonly caught in the fisheries for the stock under consideration may be monitored and their state assessed, as appropriate.

Evidence Rating:	Low	Mediur	m 🔲	High 🗹		
Non-Conformance:	Critical	Major 🔲	Minor 🗌	None 🗹		
Summary Evidence: Information is available on fishing gear used in the fishery, including the fishing gears' selectivity and its potential impact on the ecosystem. Stocks of non-target species commonly caught in the fisheries for the stock under consideration are monitored and their state assessed, as appropriate.						
Evidence: There is information available on the legal specification of fishing gear in Icelandic fisheries. The primary aim of fishing gear regulations is size selectivity of the gear with a secondary aim being species selectivity. The minimum mesh size for herring seines is 31.4 mm, the minimum codend mesh size in pelagic trawls targeting herring is 40 mm and the minimum mesh size (stretched) for herring driftnets is 63 mm. The use of sorting grids in trawls may be required in some areas, if it is felt this is necessary to avoid bycatch.						
The MFRI routinely conducts selectivity experiments to assess the performance of the main fishing gears and to assess ways in which selectivity might be improved. Since the introduction of electronic logbooks in the Icelandic fleet, more technical details of fishing gear construction have been routinely gathered. The gear technology group have also investigated the utility of this type of data in terms of refinements in CPUE estimates and trawl footprint (swept area).						
Stocks of non-target species commonly caught in the fisheries for the stock under consideration are monitored and their state assessed as appropriate; non-target species in this instance refer to other commercially fished stocks and not to other marine organisms that may be retained. The MFRI provides annual catch advice for 35 different species, while catch statistics are routinely collected and publicly available for many more. See discussion and figures relating to retained species in clause 3.1.1 for further details.						
References: https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/7553						
Non-Conformance Number (if relevant) NA					IA	



10.3.2.1.2. Clause 3.2.1.2.

Information shall be available on the potential effect of fishing on endangered, threatened and protected species²⁷⁵, as appropriate and relevant in the context of the unit of certification.

Evidence Rating:	Low	Mediun	n 🗹	High 🔲	
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗹	None	
are vulnerable and /or used in the ISS herrin species (TEP) species. pelagic fisheries from submitted to both the	R Convention, as reported in TEP species occurring in Ice g fishery have the potential Evidence is available on th the UoAs landings profile, e ICES Working Group on Byo), and also reports of intera	landic waters. Both I to capture a range e direct interaction MFRI observer rep catch (WGBYC) and	the pelagic trawling of endangered, to between non-tail orts that have be also to the North	ng and purse seining gears hreatened and protected rget species and Icelandic en collated by MFRI and Atlantic Marine Mammal	
As of February 2014, stricter rules were implemented regarding recording marine mammal by-catch (all interactions between fishing gears and marine mammals/seabirds including the number and species of the animal in question must be reported) and supervision of inspectors. Regardless of the implementation of these new mandatory logbook reporting procedures for seabird and marine mammal bycatch, available evidence suggests that far fewer incidences of seabird and marine mammal bycatch are reported via the electronic logbook system than would be expected given the levels reported by onboard inspectors. This suggests significant levels of under-reporting and/or non-reporting of seabird and marine mammal bycatch. While a recent study by Basran and Sigurdsson (2021) showed much improved reporting since 2020, there is still considerable room for improvement in the logbooks.					
The available evidence indicates by-catch of non-commercial fish species, marine mammals and seabirds that may be considered TEP species is considered very low in the pelagic fleet. However, further evidence of reliable data collection from the improved inspector programme and electronic logbooks reporting system would increase confidence in this judgement. Therefore, it cannot be said that information is available on the potential effect of fishing on endangered,					
threatened and protected species, as appropriate and relevant in the context of the unit of certification Evidence: Different sources of information (MFRI observer reports, the Directorate of Fisheries landings database, and logbook records from the client fleet) all indicate that there is a negligible impact on TEP species in the UoA areas from either métier used in the Icelandic summer-spawning herring fisheries.					
The MFRI provided further bycatch estimates for marine mammals and seabirds in 2024 for years 2022 -2023. Observed bycatch by onboard inspectors and in surveys in 2022 was reported in the 2023 ICES Working Group on Bycatch (WGBYC) report (ICES 2023). The 2023 ICES WGBYC report stated that in the Iceland Sea Ecoregion in 2022, 113 days at sea were monitored in nets and 327 days in bottom trawls, with a monitoring coverage of 3.47%. All monitoring was performed by at-sea observers.					
3% purse seine coverag	e following observer coverage ge from 9 trips overage from 11 inspected tri	•	iskistofa staff:		

²⁷⁵ Species recognised by Icelandic legislation and/or binding international agreements to which the Icelandic authorities are party. Binding international agreements as applicable in Icelandic jurisdiction.



The status of TEP species in the area is kept under review by scientists from Iceland and from other nations (for instance in their cooperation in ICES and NAMMCO working groups). These quantitative data provide information about population trends and are adequate to determine whether any of the TEP species in the UoA area is under threat. Table 8 shows seines were responsible for 1 Blue skate in 2022, no further records of TEP were attributed to purse seine or pelagic trawl.

Gear loss and resulting ghost fishing was not reported for the concerning UoAs in the area concerned. Moreover, as mentioned in the habitat background section, there has been an overall reduction since 2005 in fishing effort for fisheries using purse seine and an overall reduction since 2011 for pelagic trawls and this is extra evidence that the UoAs impact on several species is decreased.

The MRFI provided the assessment team with data from logbooks provided by the Directorate of Fisheries for the year 2023 (Table 9). Earlier years were not available, due to the transition from paper logbooks to logbook apps and electronic logbook forms. Although, Bastran and Siggurson (2021) reported an improvement in reporting, significant underreporting is still likely, especially for cod gillnets where general logbook underreporting appears to be still significant, especially so for harbour porpoise (0.9 observer catch rate vs 0.009 reported bycatch rate) and common guillemot (2.027 reported catch rate vs 0.000 reported bycatch rate). Although some minor improvements in logbook recording may have occurred since 2019, logbook data has been provided for one year only (2023) and it is hard to draw any solid and defensible conclusions e.g. adoption/behavioural trends from it. Therefore, it cannot be said that information is available on the potential effect of fishing on endangered, threatened and protected species, as appropriate and relevant in the context of the unit of certification and a non-conformance is raised.

References:	ICES (2023). Working Group on Bycatch of Protected Species (WGBYC). ICES SReport. https://doi.org/10.17895/ices.pub.24659484.v2	Scientific Reports.
Non-Conformance N	umber (if relevant)	2



10.3.2.2. Clause 3.2.2. By-catch and discards 10.3.2.2.1. Clause 3.2.2.1.

Discarding, including discarding of catches from non-target commercial stocks, is prohibited.

Evidence Rating:	Low	Medium		High 🗹			
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🔽			
Summary Evidence: Discarding, including d	Summary Evidence: Discarding, including discarding of catches from non-target commercial stocks, is prohibited under Icelandic law.						
Evidence: Icelandic fishery law prohibits the discarding of all commercial stocks. Commercial species are listed yearly in documents such as the annual MRI advice. Catches of these species are subjected to a discard ban (regulation no. 57/1996) with inbuilt flexibility measures as previously discussed in Section 3.1. Monitoring for compliance is a responsibility of the at sea inspectors and the Coast Guard.							
References: Act 57/1996 concerning the Treatment of Commercial Marine Stocks (Act No. 57 1996). Ministry of Business and Innovation. https://www.althingi.is/lagas/nuna/1996057.html							
Non-Conformance Number (if relevant)							



10.3.2.2.2. Clause 3.2.2.2.

Where relevant, appropriate steps shall be taken to avoid, minimize or mitigate encounters with seabirds and marine mammals.

Evidence Rating:	Low	Medium		High 🗹
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹

Summary Evidence:

Although evidence of the degree to which ISS herring fisheries and marine mammals interact is sparse available evidence would indicate that, in Icelandic waters, direct mortality of marine mammals due to interactions with pelagic fishing gears used in the fishery is likely to be low and unlikely to have detrimental effects at the population level. This indicates that appropriate steps are being taken to avoid, minimize or mitigate encounters with seabirds and marine mammals. Further evidence of reliable data collection from the improved inspector programme and electronic logbooks reporting system would increase confidence in this judgement.

Evidence:

The MFRI provided further bycatch estimates for marine mammals and seabirds in 2024 for years 2022 -2023. Observed bycatch by onboard inspectors and in surveys in 2022 was reported in the 2023 ICES Working Group on Bycatch (WGBYC) report²⁷⁶. The 2023 ICES WGBYC report⁹³ stated that in the Iceland Sea Ecoregion in 2022, 113 days at sea were monitored in nets and 327 days in bottom trawls, with a monitoring coverage of 3.47%. All monitoring was performed by at-sea observers. During the site visit the following observer coverage was confirmed by Fiskistofa staff:

- 3% purse seine coverage from 9 trips
- 2.2% midwater trawl coverage from 11 inspected trips

A smartphone app is also developed by the Directorate of Fisheries, which intended to make both the reporting and identification of bycatch easier for operators in the fishery. During the 2024 site visits the Directorate reported that this app prioritises the need for recording marine mammals and seabird interactions/bycatch first before fish catches are submitted, to enable more consistent and reliable reporting.

As noted in TEP background section, no TEP species have been identified as caught in the Icelandic herring fisheries. Nonetheless, appropriate steps have been taken for managing the fisheries impact on TEP species. This includes a requirement on fishers to record catches of non-commercial by-catch including marine mammals and seabirds.

Monitoring as detailed above is also undertaken by inspectors on vessels. TEP species are provided legal protection. A number of Acts form the basis of Iceland regulations affording protection to individual species and requiring catches to be reported, including:

- Act no. 64/1994 on the protection, conservation and hunting of birds and wild mammals extends protection to all birds and land mammals, with a few exceptions such as feral mink and rats; this Act also allows for the hunting of many bird species, including in some cases the collection of chicks and/or eggs.
- Act no. 57/1996, on the handling of marine resources including reporting requirements.
- Act no. 79/1997 (The Fisheries Act (with numerous subsequent amendments)), on fishing in Iceland's exclusive fishing zone.
- Act no. 116/2006 (The Fisheries Management Act), promotes the protection and efficient utilization of commercial stocks in Icelandic waters.

²⁷⁶ ICES (2023). Working Group on Bycatch of Protected Species (WGBYC). ICES Scientific Reports. Report. https://doi.org/10.17895/ices.pub.24659484.v2



Act no. 60/2013 (The Nature Conservation Act (originally enacted as Act 44/1999)) provides statutory
protection to relevant species and habitats and enables the Minister to protect species and their
supporting habitats and ecosystems.

In accordance with these Acts (as well as some others not listed here), numerous management measures, enacted through specific Regulations, are in place to protect particular species including *inter alia*:

- Regulation 456/2017 which protects a number of shark species (porbeagle (*Lamna nasus*; ISL: Hámer), basking shark (*Cetorhinus maximus*; ISL: Beinhákarl) and spurdog (*Squalus acanthias*; ISL: Háfur)) and prohibits directed fishing for these species with the Icelandic EEZ. It further specifies that incidentally caught individuals be released alive if viable and that unviable individuals be landed and sold with the majority of proceeds going to research.
- Regulation 298/2020 (replaced Reg. 746/2016 which in turn replaced Reg. 557/2007) which requires catch information to be reported electronically via e-logbooks or a specific smartphone app.
 Article 3 requires masters to record *inter alia* catch by quantity and species (§4), seabirds (§7) and marine mammals by number and species (§8) and information on catches caught but released (§9)
- Regulation 165/2020 on lumpfish fishing in 2020 which closed 13 areas to lumpfish fishing in an effort to reduce marine mammal and seabird bycatch.
- Regulation 959/2019 on protected areas around Iceland (amended by Reg. 1102/2020) designates marine
 protected areas in the Icelandic EEZ to promote the efficient utilization of exploitable stocks and the
 protection of sensitive sea areas.
- Regulation 849/2023 on commercial fishing in the 2023/2024 fishing year and the 2024 calendar year which
 obliges captains to bring equipment on board fishing vessels so as to prevent birds and mammals from getting
 stuck in fishing gear when fishing gear is put into the sea,
- Regulation 307/2023 on digital registration and submission of catch information which obliges the captains to record and register, among others, the number and species of marine mammals and seabirds

A comprehensive monitoring control and surveillance system is in place in Iceland, AIS and VMS are obligatory for all vessels regardless of size, also inshore. Inspectors from Fiskistofa accompany fishing vessels on trips and the Icelandic Coast Guard also have a role in surveillance. The Coast Guard has three offshore patrol vessels, as well as a number of smaller boats, helicopters and a surveillance aircraft. Drone surveillance was introduced in 2022 giving additional information. At-sea inspections includes control of the logbook, catch and gear. Catch data from the logbook goes to Fiskistofa and the harbour authorities before the vessel enters the harbour and landings are checked by Inspectors.

Although evidence of the degree to which ISSH fisheries and marine mammals interact is sparse available evidence would indicate that, in Icelandic waters, direct mortality of marine mammals as a result of interactions with pelagic fishing gears used in the fishery is likely to be low and unlikely to have detrimental effects at the population level. This indicates that appropriate steps are being taken to avoid, minimize or mitigate encounters with seabirds and marine mammals. Further supporting information on the interaction between the fishing gears and marine mammals an seabirds is found in clause 3.1.1

References:	Regulation No. 126/2014. https://mww.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/18967 NAMMCO (2018). Report of the NAMMCO Scientific Working Group on By-catch https://nammco.no/wp-content/uploads/2018/05/report-nammco-sc-bycwg-040420 ICES. 2021. Icelandic Waters ecoregion —Ecosystem overview. In Report of the ICES Adv 2021. ICES Advice 2021, Section 11.1, https://doi.org/10.17895/ices.advice.9440	
Non-Conformance N	lumber (if relevant)	NA



10.3.2.2.3. Clause 3.2.2.3.

Non-target catches, including discards, of stocks other than the "stock under consideration" should not threaten these non-target stocks with serious risk of extinction; if serious risks of extinction arise, effective remedial action should be taken.

Evidence Rating:	Low 🗌	Mediur	n 🗌	High 🔽		
Non-Conformance:	Critical 🗌	Major 🔲	Minor 🗌	None 🗸		
Summary Evidence: A system of ITQ is in place in Iceland and discarding of non-target commercial catches is prohibited. This also applies to protected species including Atlantic halibut, spurdog, porbeagle, basking shark and spotted wolffish unless they are captured alive in which case they must be released. Measures are in place to protect vulnerable life stages of commercial species including spawning and juveniles through real time, permanent and temporary closures. This fishery targets dense shoals of herring and the catch tends to be homogenous with little mixing with other stocks. The main species caught with ISSH are subject to stock assessment and TAC-setting and all are above their biological limit points. There is likely to be little interaction between this pelagic fishery and identified vulnerable species which are demersal. Consequently, non-target catches, including discards, of stocks other than the target stock do not threaten these non-target stocks with serious risk of extinction						
Evidence:						
	s in place to minimise the improvided under clause 3.1.	pact of the fishery or	n retained species a	nd vulnerable spe	cies and	
 Act no. 57/1996, on the handling of marine resources: https://www.althingi.is/lagas/nuna/1996057.html. Regulation 165/2020 on lumpfish fishing in 2020 (in Icelandic): https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvegaog-nyskopunarraduneyti/nr/21836 Regulation 849/2023 on commercial fishing in the 2023/2024 fishing year and the 2024 calendar year (in Icelandic). https://island.is/reglugerdir/nr/0849-2023 Regulation 307/2023 on digital registration and submission of catch information (in Icelandic). https://island.is/reglugerdir/nr/0307-2023. 						
Non-Conformance Number (if relevant)				ı	NA	



10.3.2.2.4. Clause 3.2.2.4.

Suitable steps shall be considered to avoid, minimize or mitigate encounters with endangered, threatened and protected species, as appropriate and relevant in the context of the unit of certification.

Evidence Rating:	Low	Medium 🗌	High 🔽
Non-Conformance:	Critical 🔲	Major Minor Minor	None 🗸

Summary Evidence:

Several species are protected under national fisheries regulations including Atlantic halibut, spurdog, porbeagle and spotted wolffish. These regulations prohibit directed fisheries and require live fish to be released to the sea and recorded in the electronic logbook. All birds are also protected under national legislation.

Both the pelagic trawling and purse seining gears used in the ISS herring fishery have the potential to capture a range of TEP species. Data on interactions between non-commercial by-catch including fish, elasmobranchs and seabirds and Icelandic gears has not been collected systematically.

Recording all marine mammals and seabirds catches (by species and numbers) in e-logbooks is a legal requirement (Reg. 126/2014). The Directorate of Fisheries has deployed a smartphone app to make reporting and identifying bycatch easier for small boat operators.

However, by-catch of marine mammals and seabirds is considered very low in the UoA. In its latest report to ICES Working Group on Bycatch (WGBYC), Iceland noted that there were no reports of by-catch from the pelagic trawl fleet. However, inspector/observer coverage is very low, 3% purse seine coverage from 9 trips, 2.2% midwater trawl coverage from 11 inspected trips (Source: Fiskistofa 2024). A similar situation exists for vulnerable fish species that may be considered TEP, notably the skate, Atlantic halibut, spurdog, Greenland shark and spotted wolffish referred to in clause 3.1.1.

These species are unlikely to interact significantly with the gears used in the ISS herring fishery. In the last year, there were no landings reported of these species by pelagic / mid-water gears (2019-2023). This indicates suitable steps are made to avoid, minimize or mitigate encounters with TEP species, as appropriate and relevant in the context of the unit of certification.

Evidence:

Certain vulnerable fish species are protected in law namely Atlantic halibut *Hippoglossus hippoglossus* under Regulation No. 470, 2012²⁷⁷, and porbeagle *Lamna nasus*, basking shark *Cetorhinus maximus*, spurdog *Squalus acanthias* under Regulation No. 456, 2017²⁷⁸ and spotted wolffish *Anarhichas minor* as per Regulation 1256/2020²⁷⁹. These must be recorded in logbooks and landed under the VS catch provisions set out in Act No. 37 1992²⁸⁰,²⁸¹; unless they are captured alive in which case they must be released. No other marine species have been protected under Icelandic domestic legislation as 'Endangered, Threatened or Protected'. Hunting for seals is permitted in Iceland, and whaling is also permitted (for fin and minke whales within the EEZ), subject to strict controls applied by the Government (ICES, 2019b).

²⁷⁷ Regulation 470/2012. https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/18302

²⁷⁸ Regulation 456/2017. https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/0456-2017

²⁷⁹ Reglugerð um (2.) breytingu á reglugerð nr. 468/2013, um nýtingu afla og aukaafurða. https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/22242

²⁸⁰ For further information see Fiskistofa website, 'Flexibility in the catch system'.

http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Sveigjanleiki i aflamarkskerfinu

²⁸¹ Act 37/1992 on a Special Fee for Illegal Marine Catch. https://www.althingi.is/lagas/149a/1992037.html



The foundation of current legislation governing the protection, conservation and hunting of wild animals in Iceland (excluding seals, cetaceans, pets and livestock) is Act 61/1994²⁸², Article 6 of which protects all wild animals, including residents and non-residents, unless otherwise stated in the Act. While hunting or the collection of chicks and/or eggs of certain species is thereafter permitted, the inclusion of seabirds in this foundational act on the protection of species qualifies all seabirds for consideration as **TEP** species.

Several species are protected under national fisheries regulations including Atlantic halibut, spurdog and spotted wolffish which prohibits directed fisheries and requires live fish to be released to the sea and recorded in the electronic logbook.

Iceland has also ratified several international conventions on species protection and management, such as the Bern Convention on the Conservation of European Wildlife and Natural Habitats, the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the OSPAR Convention and the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA). These conventions have established objectives for conserving endangered, threatened or protected species and habitats, and if issues are identified relating to TEP species, a number of mechanisms have been developed to detect and reduce impacts. Iceland's implementation of these international conventions and resolutions is the responsibility, either partially or fully, of the Icelandic Institute of Natural History (IINH)²⁸³ on behalf of the Ministry for the Environment and Climate²⁸⁴.

Iceland is also a member of the North Atlantic Marine Mammal Commission (NAMMCO)²⁸⁵ an international regional body for cooperation on conservation, management and study of cetaceans and pinnipeds in the North Atlantic.

Evidence is available on the direct interactions between non-target species and Icelandic pelagic fisheries from the Fiskistofa landings data, MFRI observer data and also reports of interactions reported by fishing vessels in their catch logs. This information is set out in section 5.7 of this report. An analysis of this information with respect to the RFM clauses for identifying TEP species is set out in section 5.7.1.1. In summary: -

- 1. National TEP legislation none of the species reported to have been caught in the fishery (Table 5) is protected under the relevant national TEP legislation for Iceland.
- 2. CITES Appendix I none of the species that are reported to have been caught in the fishery (Table 5) are listed in CITES Appendix I.
- 3. Binding Agreements under the Convention on Migratory Species Iceland is not a party to CMS but is a party to the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) which is a CMS instrument²⁸⁶. AEWA covers 255 species of birds that are ecologically dependent on wetlands for at least part of their annual cycle (including many species of divers, grebes, cormorants, waders, gulls, terns, auks and even the South African penguin). There is no evidence of any interaction with any of the species listed in AEWA.
- 4. IUCN Red list species there is one species classified by the IUCN as vulnerable, endangered or critically endangered that are listed in the landings data in the fisheries catching Icelandic summer-spawning herring (Table 5). Golden redfish is classed as vulnerable and small quantities are caught in the fishery. As the IUCN Red List is not recognized in national legislation, Golden Redfish are not considered further as TEP.

²⁸² Act No. 61/1994 (in Icelandic). http://www.althingi.is/lagas/nuna/1994064.html

²⁸³ https://www.ni.is/en/about/role-and-organisation

²⁸⁴ https://www.government.is/ministries/ministry-of-the-environment-energy-and-climate/

²⁸⁵ https://nammco.no/

²⁸⁶ https://www.cms.int/en/legalinstrument/aewa



This indicates suitable steps are made to avoid, minimize or mitigate encounters with TEP species, as appropriate and relevant in the context of the unit of certification.

References: https://www.ni.is/en/about/role-and-organisation

https://www.government.is/ministries/ministry-of-the-environment-energy-and-climate/

https://www.cms.int/country/iceland

https://www.cms.int/en/legalinstrument/aewa

https://www.iucnredlist.org/species/18237880/45863343

Non-Conformance Number (if relevant)

NA



10.3.2.2.5. Clause 3.2.2.5.

Appropriate steps shall be taken to avoid the loss of fishing gear and ghost fishing of lost and abandoned gear.

Evidence Rating:	Low	Mediur	m 🔲	High	\checkmark	
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None	e 🗹	
Summary Evidence:						
Appropriate steps ar	e taken to avoid the loss o	f fishing gear and g	shost fishing of lo	st and ab	andoned gear.	
Evidence:		. 00	,			
Lost gear is considered more of an issue for gillnet fisheries compared to other fisheries and is not thought to occur in fisheries using purse seines and trawls. Gear is expensive, and fishers are careful to avoid losing it. Several initiatives and regulations are in place to avoid the loss of fishing gear and subsequent ghost fishing of lost and abandoned gear. Lost gear must be reported to the Coastguard and it is illegal to dump old gear at sea.						
Iceland has ratified Annex V to the International Convention on the Prevention of Pollution from Ships that deals with the handling of waste resulting from the operation of ships. Substantial efforts were made to reduce the release of waste into the ocean and establish adequate receiving points for litter in Iceland's harbours. From the beginning of 2005, a recycling fee has to be paid for fishing gear, lines and nets that contain plastic. Return of plastic waste from gear, nets and lines at harbours, is therefore free of charge for the disposer. The same applies to metal, where scrap metal can be brought to collecting facilities free of charge or stored in the harbour area for later use or recycling. Furthermore, organic fish waste from the Icelandic fishing fleet is estimated at 32.000 tons per year of which 95% is recycled. ²⁸⁷						
Where the Fisheries d	Recycling schemes are in place to encourage fishers to bring old gear ashore and it is illegal to dump old gear at sea. Where the Fisheries directorate finds and recovers lost or abandoned gear the Directorate recovers the cost of recovery from the gears' owner.					
In the 2015 lumpfish season the Directorate contracted two vessels to go out and specifically look for and recover lost gear. The Coastguard also reports any buoys it feels might represent lost or abandoned fishing gear to the Directorate. All regulations relating to fishing gear may be found in the various Articles of Fisheries Management 2024 Laws and Regulations ²⁸⁸ . During the June 2024 site visits, the client confirmed that gear loss (e.g. longlines, gillnets) and as such ghost fishing is not considered an issue and that reporting lost gear is compulsory.						
Another important factor that contributes to low levels of lost fishing gear is the high price of that gear. This means that fishers are careful to avoid losing their gear. In the case of trawls the majority of vessels carry special grapples onboard that allow them to retrieve lost gear even when both towing warps have parted, a quite rare situation.						
The Icelandic ITQ system allows for a slower paced fishery than would be expected if there was only an overall TAC with all boats fishing against it. The system allows fishers to target their efforts in optimum weather conditions leading to decreased rates of lost fishing gear.						
References:						
Non-Conformance N	Non-Conformance Number (if relevant) NA					

²⁸⁷ https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2005/06/07/Sjalfbaerar-fiskveidar-og-malefni-hafsins/
288 Reglugerõasafn (island.is)





10.3.2.3. Clause 3.2.3 – Habitat Considerations 10.3.2.3.1. Clause 3.2.3.1.

If studies show that the spawning or nursery areas or other essential habitats in the fishing area are at risk and highly vulnerable to negative impacts of particular fishing gear, such impacts shall be limited in range relative to the full spatial range of the habitat or else action is taken to avoid, minimise or mitigate such impacts.

Evidence Rating:	Low 🗌	Mediur	m 🔲	High 🗹		
Non-Conformance:	Critical	Major 🔲	Minor 🗌	None 🗹		
Summary Evidence: Permanent, seasonal and real-time closures are implemented by Icelandic authorities to protect spawning and juvenile fish. Vulnerable Marine Ecosystems (VMEs) have been identified and protected by closures. Interactions with these seabed VMEs are considered limited since the pelagic gears used in this fishery are not designed to be used in contact with the seafloor. Consequently, action has been taken to avoid, minimise or mitigate impacts on spawning, nursery areas or other essential habitats that are at risk from the negative impacts of the fishing gear.						
Evidence: Fishing for herring in the UoAs is conducted using pelagic trawls and purse seine nets, which are designed to operate in the water column without contacting the seabed. Studies of the impacts of purse seine nets and pelagic trawls elsewhere in the world indicate that these fishing methods have no physical impact on pelagic habitats (FAO Fisheries Resources Division 2001, 2018, Hilborn et. al. 2023). The key anthropogenic impact on Atlantic oceanographic processes is considered to be climate change.						
Icelandic authorities have implemented an extensive array of permanent, seasonal and periodic real closures within the Icelandic EEZ. These closures, in particular those of a permanent nature, provide wider ecological benefits over and above their intended fisheries management objective by offering de facto protection from fishing activity to other elements of the marine environment.						
been in operation sind saleable size in catches weeks; or one week in	of real-time spatial closures in the system of the system of the case of pelagic species. Remore permanent basis.	areas in which the potential areas in which the potential areas in the control of	proportion of fish tain percentage are	below the minimum legal closed for a period of two		
It is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs; cold-water corals and hydrothermal vents), from significant adverse impact from bottom contacting gear. Known cold-water coral reefs and hydrothermal vents are protected through permanent closures. As noted previously pelagic gears are thought to have minimal interaction with these seabed VMEs.						
For more information relating to closed areas within the Icelandic EEZ see supporting evidence for clause 3.1.						
References:	FAO Fisheries Resources Division. 2001. Fishing Gear types. Purse seines. Technology Fact Sheets. http://www.fao.org/fishery/geartype/249/en .					
	FAO Fisheries Resources Division. 2018. Fishing Gear Types - Midwater Trawls. Technology Fact Sheets. http://www.fao.org/fishery/geartype/400/en .					
R Hilborn, R Amoroso, J Collie, J G Hiddink, M J Kaiser, T Mazor, R A McConnaughey, A M Parma, C R Pitcher, M Sciberras, P Suuronen, Evaluating the sustainability and environmental impacts of trawling compared to other food production systems, <i>ICES Journal of Marine Science</i> , Volume 80, Issue 6, August 2023, Pages 1567–1579, https://doi.org/10.1093/icesims/fsad115						



Non-Conformance Number (if relevant)	NA



10.3.2.3.2. Clause 3.2.3.2.

Management measures must take into account significant continuous stony coral areas, identified through scientific and formal methods.

Evidence Rating:	Low	Mediur	n 🗌	High 🗹			
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹			
Summary Evidence: Pelagic gears used in this fishery are not designed to be used in contact with the seafloor and considered unlikely to interact significantly with continuous stony coral areas. However, the Icelandic government has undertaken seabed mapping to identify, through scientific and formal methods, vulnerable marine ecosystems (VMEs) including continuous stony coral areas and implemented closures to protect them.							
Evidence: It is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs) including cold water coral areas from significant adverse impact from fishing gear. As a result of this policy, large areas of Icelandic waters are closed, temporarily or permanently, to fishing for a variety of reasons; these include the protection of juveniles, spawning fish and VMEs. Cumulatively, a large portion of Icelandic shelf area within which fishing activities occur is closed to fishing. Furthermore, not all the fishable shelf areas outside closed areas are trawlable, as some parts of the seabed are unsuitable for trawl gear. The closures, in particular those of a permanent nature, provide wider ecological benefits over and above their intended fisheries management objective by offering <i>de facto</i> protection from fishing activity to other elements of the marine environment.							
There are designated protected areas, and these areas are closed for fisheries that may affect relevant habitats and species (Figure 81). Specific closures have also been implemented to protect <i>Lophelia pertusa</i> , a species of cold-water coral which is extremely slow growing, associated with diverse communities and may be harmed by destructive fishing practices. In 2004 a research project mapped coral areas off Iceland and as a result 10 areas into the southeast of Iceland were permanently closed to fishing. A large area west of Iceland is closed for otter and pelagic trawling, to protect juvenile golden redfish. In 2019, three areas southeast of Iceland were closed for otter trawling to protect Nephrops.							



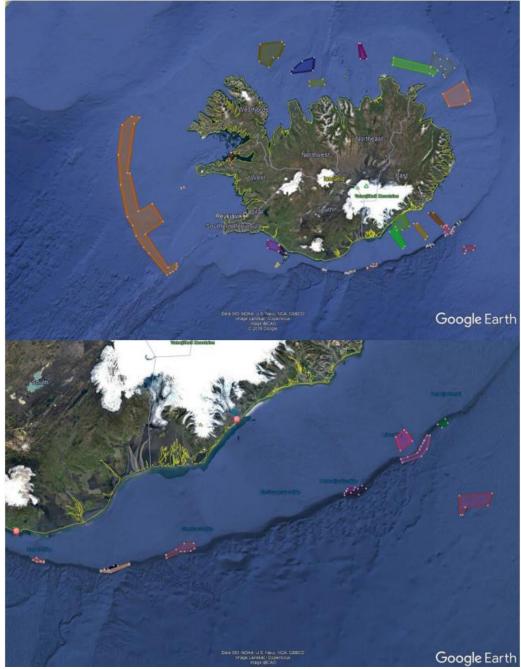


Figure 81. Top: permanently closed areas for otter trawling. Bottom: permanently closed areas for all fishing to protect cold-water corals.

As noted previously pelagic gears are thought to have minimal interaction with these seabed VMEs

References: ICES. 2021. Icelandic Waters ecosystem – Fisheries overview. *In* Report of the ICES Advisory Committee, 2022. ICES Advice 2022, section 11.2.

https://doi.org/10.17895/ices.advice.21487635 https://atlas.lmi.is/mapview/?application=haf



Non-Conformance Number (if relevant)	NA

10.3.2.3.3. Clause 3.2.3.4.

activity to other elements of the marine environment.

Known thermal vents structures shall be protected through area closure to fishing activities with gear that has significant bottom impact during normal operation.

Evidence Rating:	Low 🗌	Medium 🔲		High 🗹			
Non-Conformance:	Critical 🔲	Major 🗌	Minor 🗌	None 🗹			
Summary Evidence: Known thermal vents structures are protected through area closure to fishing activities with gear that has significant bottom impact during normal operation. However, the pelagic gears used in this fishery are not designed to be used in contact with the seafloor and considered unlikely to interact significantly with this habitat during normal operation.							
Evidence: It is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs) including hydrothermal vent areas from significant adverse impact from fishing gear. As a result of this policy, large areas of Icelandic waters are closed, temporarily or permanently, to fishing for a variety of reasons; these include the protection of juveniles, spawning fish and VMEs. Cumulatively, a large portion of Icelandic shelf area within which fishing activities occur is closed to fishing. Furthermore, not all the fishable shelf areas outside closed areas are trawlable, as some parts of the seabed are unsuitable for trawl gear. The closures, in particular those of a permanent nature, provide wider ecological benefits over and above their intended fisheries management objective by offering <i>de facto</i> protection from fishing							

There are two known hydrothermal vent areas with series of chimneys and fissures on the Icelandic continental shelf. Both are inside Eyafjörður to the north of the island and are fully protected by environmental law (see Figure 82, Figure 83). There are additional known hydrothermal vents in deeper waters to north, south and southwest of Iceland. These are in more remote areas and have less surface structure and are not considered threatened by fishing activities.





Figure 82 Coordinates and location of protected natural resources (i.e. hydrothermal vent) at Arnarnesstrýtur in Eyjafjörður north of the Arnarnes river²⁸⁹.

289 https://www.ust.is/library/Skrar/Einstaklingar/Fridlyst-svaedi/Auglysingar/Hverastrytur Arnarnesnofum kort.pdf



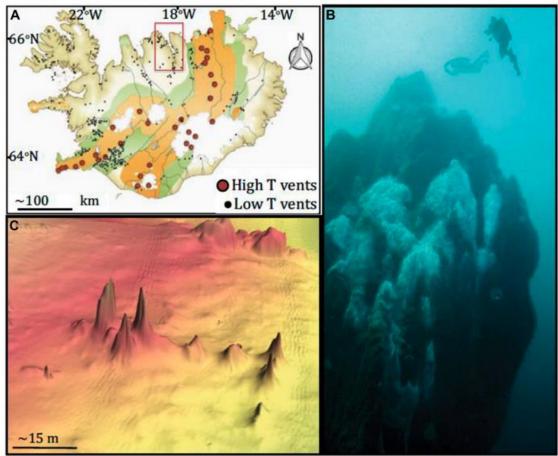


Figure 83 (A) Map of Iceland, highlighting hydrothermal vents. Eyjafjördur, where Big Strýtan and Arnarnesstrýtan are located, highlighted by the red box; (B) photograph of Big Strýtan chimney (courtesy of E. Bogason); (C) bathymetric map of Arnarnesstrýtan. Figure from Price et al. (2017).

As noted previously pelagic gears are thought to have minimal interaction with these seabed VMEs.

References:

- Price, R., Boyd, E. S., Hoehler, T. M., Wehrmann, L. M., Bogason, E., Valtisson, H. b, et al. (2017). Alkaline vents and steep Na+ gradients from ridge-flank basalts— Implications for the origin and evolution of life. Geology 45, 1135–1138. doi: 10.1130/G39474.1
- Twing KI, Ward LM, Kane ZK, Sanders A, Price RE, Pendleton HL, Giovannelli D, Brazelton WJ and McGlynn SE (2022) Microbial ecology of a shallow alkaline hydrothermal vent: Strýtan Hydrothermal Field, Eyjafördur, northern Iceland. Front. Microbiol. 13:960335. doi: 10.3389/fmicb.2022.960335
- https://www.ust.is/library/Skrar/Einstaklingar/Fridlystsvaedi/Auglysingar/Hverastrytur Arnarnesnofum kort.pdf

Non-Conformance Number (if relevant)

NA



10.3.2.4. Clause 3.2.4. Foodweb Considerations 10.3.2.4.1. Clause 3.2.4.1.

If the stock under consideration is a key prey species in the ecosystem, the harvesting policy and management measures shall be directed to avoid severe adverse impacts on dependent predators.

Evidence Rating:	Low	Medium 🗌		High 🗹
Non-Conformance:	Critical 🗌	Major 🗌	Minor 🗌	None 🗹
Summary Evidence: Herring is a key prey species in the ecosystem, together with a number of other abundant, high biomass stocks with similar levels of trophic connectivity notably capelin, blue whiting and mackerel. It is above its precautionary limit				

The Icelandic harvesting policy and management measures means that there is little risk of Icelandic fisheries reducing herring stocks to the point where populations of dependent predators would be adversely affected.

and these other stocks are above their MSY reference points where these are defined.

Available evidence would therefore suggest that indirect impacts of ISS herring fisheries are unlikely to have severe adverse impacts on dependent predators.

Evidence:

The Icelandic Waters ecoregion foodweb is characterized by high primary production. Capelin is a key species in the ecoregion and its lifecycle and migration pattern is an important energy transfer in the ecosystem. Capelin feeds mainly on copepods and euphausiids in waters north of Iceland and then moves to Icelandic waters where it is one of the most important prey for many species, e.g. cod, haddock, saithe, Greenland halibut, seabirds, and marine mammals. Other prey species of lesser importance are shrimp and sandeel. The annual consumption of fish, cephalopods, and crustaceans by cetaceans within the Icelandic Waters ecoregion has been estimated at 6.3 million tonnes. The foodweb has been affected by changes in hydrography, the capelin fishery, increased immigration of mackerel, and the increasing abundance of large baleen whales. Unlike capelin, mackerel feeds in the ecoregion and are a minor prey item, thereby exporting energy from the system (ICES, 2021).

Capelin (Mallotus villosus)

The median spawning-stock size is above Blim however the 5th percentile is below Blim; no reference points for fishing pressure have been defined for this stock. Thus, the stock is likely to be above its PRI. Stock size is not "substantially higher" than B_{lim} suggesting that the species is not fluctuating around a level consistent with MSY.

Mackerel (Scomber scombrus)

According to the latest assessment, SSB has been above B_{lim} and MSY $B_{trigger}$ since 2008. Fishing mortality has been well below F_{lim} (0.46) since 1980 and below F_{pa} (0.36) since 2004. Currently, fishing mortality is above F_{MSY} (0.26) but it was below F_{MSY} (0.26) since 2012. Recruitment and catches have increased in recent years.

 SSB_{2024} (2,774,753 t) is estimated greater that both B_{lim} (2,000,000 t) and MSY $B_{trigger}$ (2,580,000 t). Thus, the stock is highly likely to be above its PRI. Stock size is not "substantially higher" than $B_{trigger}$ (x1.1) suggesting that the species is not fluctuating around a level consistent with MSY.

Blue whiting (Micromesistius poutassou)

According to the latest assessment, SSB is well above MSY $B_{trigger}$, B_{pa} , and B_{lim} since 1997. Fishing mortality (F) has increased from a historical low in 2011 to above F_{MSY} and F_{pa} in 2014 (but well below F_{lim}). Recruitment has increased in recent years. SSB₂₀₂₅ (5,966,970 t) is estimated greater that both B_{lim} (1,500,000 t) and MSY $B_{trigger}$ (2,250,000 t). Thus, the stock is highly likely to be above its PRI. Stock size is "substantially higher" than $B_{trigger}$ (x2.7). This indicates that the stock can be considered as fluctuating around a level consistent with MSY.



In Icelandic waters herring are both a major predator of zooplankton and an important prey species with numerous species of fish, marine mammals and seabirds all being major predators of herring. Herring therefore, are an important part of the ecosystem with many trophic connections. However, the Icelandic marine ecosystem is not considered to be wasp-waisted due to the presence of several other abundant, high biomass, low trophic level stocks including capelin, mackerel and blue whiting. These other abundant high biomass stocks demonstrate similar levels of trophic connectivity and provide alternative pathways through which energy can be transferred to higher trophic levels.

This was shown in a study by Stulodottir et al. in 2018²⁹⁰ in an 'end-to-end' dynamic ecosystem model of Icelandic waters using the Atlantis framework. In addition, predators of herring are primarily highly mobile, opportunistic feeders that are not reliant exclusively on herring as a food source. The ISS herring stock biomass has been significantly above precautionary limits in recent years reaching its highest estimated levels in the late 2000s before falling recently due to high natural mortality caused by an *Ichthyophonus* infection and poor recruitment. Given the current management regime and based on the harvest strategy assumptions, there is little risk of Icelandic fisheries reducing herring stocks to the point where populations of dependent predators would be adversely affected. Spawning stock size is above Btrigger, Bpa and Blim.

Available evidence would suggest that indirect impacts of ISS herring fisheries are unlikely to have severe adverse impacts on dependent predators and the integrity of the stock's role in the marine ecosystem is most likely protected.

References:	ICES. 2021. Icelandic Waters ecosystem – Fisheries overview. <i>In</i> Report of the ICES Advisory						
	Committee,	2022.	ICES	Advice	2022,	section	11.2.
	https://doi.org/	10.17895/ice	s.advice.214	<u>87635</u>			

Non-Conformance Number (if relevant)	
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NA

²⁹⁰ https://www.sciencedirect.com/science/article/pii/S0165783618301620



10.3.2.5. Clause 3.2.5. Precautionary Considerations 10.3.2.5.1. Clause 3.2.3.3.

Such areas shall be documented and protected through their closure to fishing, where appropriate, with gear that has significant bottom impact (established through 3.2.3.2).

Evidence Rating:	Low	Medium		High	\checkmark
Non-Conformance:	Critical 🗌	Major 🗌	Minor	None	e 🗸
Summary Evidence: The Icelandic government has undertaken seabed mapping to identify, through scientific and formal methods, vulnerable marine ecosystems (VMEs) including continuous stony coral areas and implemented closures to protect them. 10 areas have been closed in Southeast Iceland where significant coral cover has been identified through scientific research. However, it should be noted that the pelagic gears used in this fishery are not designed to be used in contact with the seafloor and considered unlikely to interact significantly with this habitat. Evidence:					
Please see the evidenc	e provided under clause 3.2.3	3.2.			
References: ICES. 2021. Icelandic Waters ecosystem – Fisheries overview. <i>In</i> Report of the ICES Advisory Committee, 2022. ICES Advice 2022, section 11.2. https://doi.org/10.17895/ices.advice.21487635 https://atlas.lmi.is/mapview/?application=haf					
Non-Conformance Number (if relevant)					



10.3.2.5.2. Clause 3.2.5.1.

Management plans shall be developed and implemented in a timely fashion for avoiding, minimizing or mitigating any ecosystem issues properly identified. These shall be based on risk analysis and scientific advice, consistent with the precautionary approach²⁹¹, as being of serious concern in the fishery in question.

with the precuationary approach , as being or serious concern in the history in question.						
Evidence Rating:	Low 🗌	Mediur	n 🗌	High 🗹		
Non-Conformance:	Critical 🔲	Major 🗌	Minor	None 🔽		
consequences are add	verse impacts of the Icelandio Iressed. Consideration of the are demonstrably consistent	e adverse impacts of	f the fishery on the	-		
Evidence: The Iceland National Biodiversity Strategy was prepared by the Ministry for the Environment and adopted by the Government of Iceland in 2008. The strategy focuses on a number of priority areas for conservation of biological diversity and sustainable use of its components. Scientific research and knowledge is considered to be the basic foundation for conservation and in that sense strengthening research and monitoring is emphasized. The strategy comprises a number of actions to strengthen the knowledge base and actions for conservation of biological diversity ²⁹² .						
fishing and legislation where vulnerable ecos of Icelandic fisheries ²⁹³ and permanent areal fisheries and where ap	Icelandic government policy aims to protect vulnerable marine ecosystems from significant adverse impact from fishing and legislation exists to provide for the prohibition of fishing activities with bottom-contacting gear in areas where vulnerable ecosystems occur. The annual MFRI advice book includes a specific section on the ecosystem impacts of Icelandic fisheries ²⁹³ . Measures to minimize or mitigate any ecosystem issues identified include real time, temporary and permanent areal closures, technical measures such as minimum mesh size in purse seine and pelagic trawl fisheries and where appropriate the specific consideration of predation in some stock assessments as is the case in the assessment of capelin which considers the cod-capelin predator-prey relationship.					
A short-term sudden closure system has been in force since 1976 with the objective to protect juvenile fish. If, in a given area, there are several consecutive sudden closures, the minister of Fisheries can issue a regulation to close the area for a longer time period, thus directing the fleet to other areas. Restrictions are mainly to protect juvenile fish but also to decrease the effort towards bigger spawners. Additionally, many areas have been closed permanently. These closures are based on knowledge of the biology of various stocks with the aim of protecting juveniles and vulnerable marine ecosystems, e.g. coldwater corals.						
As mentioned above, large areas within the Icelandic EEZ are closed for fishing, either temporarily or permanently. Restrictions on the use of gear are also in effect. The use of bottom trawl and pelagic trawl is not permitted inside 12 nm along the northern coast of Iceland. Similar restrictions are implemented elsewhere based on engine size and size of vessels for example large demersal trawlers are not permitted to fish within 12 nm from the shore. In many areas						

special rules regarding fishing gear apply such as mandatory use of a sorting grid when fishing for shrimp to avoid

juveniles and small fish or bycatch grids when fishing for pelagic species in certain areas.

²⁹¹ In this context refer to 2009 FAO Guidelines for Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries, Article 31: Adverse impacts of the fishery on the ecosystem should be appropriately addressed. Much greater scientific uncertainty is to be expected in assessing possible adverse ecosystem impacts of fisheries than in assessing the state of target stocks. This issue can be addressed by taking a "risk assessment/risk management approach". For the purpose of development of ecolabelling schemes, the most probable adverse impacts should be considered, taking into account available scientific information, and traditional, fisher or community knowledge provided that its validity-can be objectively verified. Those impacts that are likely to have serious consequences should be addressed. This may take the form of an immediate management response or further analysis of the identified risk. ...

²⁹² https://www.cbd.int/doc/world/is/is-nr-04-en.pdf

²⁹³ https://www.hafogvatn.is/static/files/2022 2/ecosystemoverview icelandicwaters 2021.pdf



Finally, as previously discussed, it is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs; cold-water corals and hydrothermal vents), from significant adverse impact from bottom contacting gear. Known cold-water coral reefs and hydrothermal vents are protected through permanent closures.

Consistency of management of the fishery's ecosystem impacts with the precautionary approach.

The most probable adverse impacts of the Icelandic fisheries are considered and those impacts likely to have serious consequences are addressed. Consideration of the adverse impacts of the fishery on the ecosystem and resulting management actions are demonstrably consistent with the provisions outlined in the Iceland Responsible Fisheries Foundation Responsible Fisheries Management Standard, Revision 2.1.

References:	 2009 FAO Guidelines for Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries https://www.hafogvatn.is/static/files/2022 2/ecosystemoverview icelandicwaters 2021.pdf 		
Non-Conformance Number (if relevant) NA			



11. External Peer Review

11.1. Peer Reviewer A

11.1.1. General comments - Peer Reviewer A

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General Comments

The report is well written and structured and in general provides evidence for the conclusions taken. But I have three main concerns:

- 1) the pelagic fishery targets 5 stocks, 4 of which have exploitation above target, with the only one not being overexploited the stock under consideration here. What happens to the herring stock when the other stock continue to diminish or the other stocks targeted fisheries are closed? I suspect the herring catches will increase and in the most recent year a 10% TAC overshoot was already made. What mechanisms are there to make sure the herring is protected while the others have not?
- 2) the effort of at-sea monitoring is extremely low in the herring fishery and a recommendation should be made to increase as there is medium evidence for many of the clauses, while all the references to demersal fisheries and species are not applicable and should be deleted.
- 3) no species of dolphins except orcas are considered in any of the scoring. On the positive side, I do agree with the recommendation to increase the effort of at-sea monitoring in the herring fishery, as there is medium evidence for many of the clauses.

Assessment Team Response

Thank you for your comments.

- 1- The TAC overshoot could become an issue, but this is not something that has been observed over more than one year. The relationship between TAC and catch will be monitored as a key part of any audit and because this is a single year with an overshoot in an otherwise very well managed fishery, we do not think a non-conformance is warranted, especially as the harvest rate has been very low for a number of years. Should the overshoot persist we agree that a non-conformance may be relevant, but not currently.
- 2- This has been recommended and references to demersal fisheries have been removed where not appropriate.
- 3- White-beaked dolphin has been considered in the report.

11.1.2. Scoring element review – Peer Reviewer A

Peer Reviewer Comments

Background Section

There are instances that the text is repeated (e.g. description of the fishery in two different sections with the same figure, or description of fisheries directorate) and should be deleted. There are also references to the level reached of inspections on board by fishery, but in one section these activities are carried out by *observers*, while in another section these are made by *inspectors*. There should be only one nomenclature, and the correct one is inspectors. Finally, please change fishermen to fishers.

Assessment Team Response

Repeated sections have been removed.

Observers are from the MFRI and are only tasked with recording catch and bycatch.

In Iceland inspectors are from Fiskistofa and unlike observers have the authority to fine or charge the vessel with criminal charges.

Fishermen has been changed to fishers in the report.



11.1.2.1. Section 1 – Fisheries Management

11.1.2.1.	Section 1 – Fisheries Management	
#	Peer Reviewer Comments	Assessment Team Response
1.1	The Fisheries Management System	
1.1.1	I would like to see the HCR specific for the herring TAC. Further, a 10% TAC overshoot is a significant amount and the statement <i>This is within acceptable limits and can may be explained by quota transfers between years n</i> eeds further evidence. For example has the HCR been tested for a 10% implementation error?	The HCR has been inserted into the clause for clarification. We agree with the reviewer in that 10% overshoot is significant. However, the 10% overshoot was in one year and not indicative of a general trend. To better reflect this, we have deleted the mentioned sentence and instead argued that this is not a general trend but a single year discrepancy and that between-year quota transfers can explain some of this. Implementation was considered in the latest evaluation of the HCR in 2024 but it was actually set as "None" also highlighting that ICES generally considers compliance to be high.
1.1.2	This clause does not exist in the report	This clause is removed from the standard and therefore not relevant.
1.1.3		
1.1.4		
1.1.5		
1.1.6		
1.1	The Fisheries Management Plan	
1.1.7	Agree with minor non-conformance raised.	
1.1.8.1		
1.1.8.2		
1.1.8.3		
1.1.8.4		
1.1.9.1		
1.1.9.2		
1.1.9.3	also with some Ichtiophounus infection. How much? Reference to figure should be added	The level is provided as a probability, not absolute infection numbers. The text has been changed so this is now reflected both in the text and with reference to the relevant figure.
1.1.9.4		
1.1.10.1		
1.1.10.2		
1.1.10.3		



#	Peer Reviewer Comments	Assessment Team Response
1.1.10.4	The Ministry makes the ultimate decisions on management and has the authority to deviate from the advice but will only do so if there are strong reasons for that. What are the possible reasons? Has it happened in the past?	This has not happened in the last ten years, but the site visit did not inquire into this in years before that. No specific reasons were presented during the site visit. Therefore we have deleted this part of the sentence.
1.1.10.5		
1.1.10.6		
1.1.10.7		
1.2	Research and Assessment	
1.2.1		
1.2.2		
1.2.3		
1.2.4.1		
1.2.4.2		
1.2.4.3		
1.2.5	This clause does not exist in the report	This clause is removed from the standard and therefore not relevant.
1.2.6	Iceland is member of ICES, which is a key forum for scientific and management activities and cooperation. ICES is a scientific institution, it does not perform management activities. ICES provides scientific advice to management institutions. Please rephrase.	Agreed, and the "management" part of the sentence has been deleted.
1.2.7	NA	
1.3	The Precautionary Approach	
1.3.1.1		
1.3.1.2	The HCR evaluation was done without assessment bias as there is no retrospective pattern in the assessment. But has the HCR been tested with implementation error? Was it also tested to uncertainty in the Blim? Because it seems considerably low compared to the stock-recruitment relationship and the point of inflexion.	See response for clause 1.1.1 concerning implementation error. There is a lengthy discussion about Blim in the management strategy evaluation by ICES. Blim was first set 25 years ago. It has since been reevaluated by ICES several times, 2003, 2016, 2024 and every time the 200,000 t has been reiterated as a precautionary. The assessment team has therefore concluded that precautionary approach is implemented.
1.3.1.3	What relevant uncertainties are considered?	The evaluation of the harvest strategy includes stochasticity around the input data, and the SAM assessment model provides uncertainty estimates around model outputs and reference points are also estimated with uncertainty considerations. Different levels



#	Peer Reviewer Comments	Assessment Team Response
		of parasitic infections were also considered in the HCR evaluation as was assessment error. This has been added to the text.
1.3.1.4	If there is no remedial management measures specify when the stock is below Blim or if extraordinary measures occur, how can there be high evidence? There should be a major non-conformance.	The benchmark procedure and stock assessments both include Blim and Btrigger limit reference points and the HCR is constructed to ensure a reduced exploitation pattern should the biomass fall below the Btrigger reference point. The HCR have been evaluated by ICES and is considered precautionary. The management target harvest rate is 0.19 and the harvest rate that would lead to SSB <blim (with="" trigger)="" with="">95% probability is 0.25. This is well above the target harvest rate, and this is considered precautionary and sufficient evidence that the management approach will ensure a reduced effort should the biomass decline, and the Icelandic managers have the authority to reduce the fishing mortality should it be needed. This was also the conclusion at the previous assessment. Overall, this is a very well assessed fishery, that is well managed with well-established management strategies and HCRs, and this is by the assessment team considered as high evidence rating that should the stock decline managers will take the necessary decisions to ensure appropriate remedial action. No Non-conformance is issued.</blim>
1.3.1.5		
1.3.1.6		
1.3.2	Management Targets and Limits	
1.3.2.1	Harvesting rate and fishing mortality	
1.3.2.1.1		
1.3.2.1.2	If that should happen, the only sensible response would be to invoke a full revision of the herring management. The government has the authority to do so. This statement is not sufficient as having the authority to do so does not mean that a management action will be taken, and this is what is required in this clause	Agreed, this is not a useful argument. The sentence has been deleted. The assessment team concludes that the current system, targeting a specific harvest rate and having an HCR that ensures this, is sufficient – the limit reference point (HRlim=0.34) is so much higher than the target harvest rate (HRtarget=0.19) that with the current management regime, it is ensured that the limit harvest rate will not be reached as long as the current HCR is in place.
1.3.2.2	Stock biomass	
1.3.2.2.1	If the target harvest rate has been demonstrated to provide a long-term yield close to the maximum sustainable yield then there is an implicit management objective.	Agreed, and the text has been changed to reflect this.



#	Peer Reviewer Comments	Assessment Team Response
1.3.2.2.2	See comments above about Blim uncertainty considered?	This has been addressed above.
1.3.2.2.3		
1.3.2.2.4	Again, if there is no specific management action specified for a situation where SSB approaches Blim, then how can there be high evidence? There is a major non-conformance but this can be dealt with in 1.3.1.4	We have addressed this concern above, and because of the way the HCR is constructed and is applied in the harvest strategy we consider management to be appropriately designed and the harvest rate be adjusted such that there is a high probability that the stock will rebuild.
1.3.2.3	Stock biology and life-cycle (structure and resilience)	
1.3.2.3.1		
1.3.2.3.2		
1.3.2.3.3		
1.4	External Scientific Review	
1.4.1		
1.4.2		
1.5	Advice and Decisions on TAC	
1.5.1	The stock assessment and advice for the TAC in the coming year is provided annually by ICES. The advice provided by ICES is not for a TAC, but for maximum fishing opportunities. The TAC is the result of a political decision that can be equal or not to ICES advice. Please rephrase. Normally, the MFRI advice will be identical to the ICES advice, but it can deviate if there are reasons for that. What are the reasons for that deviation?	Agreed and rephrased.
1.5.2		
1.5.3		
1.5.4	This clause does not exist in the report	This clause is removed from the standard and therefore not relevant.
1.5.5	The Ministry has the authority to deviate from the advice but will only do so if there are strong reasons for that. What reasons are those?	There are no specific examples provided and therefore the sentence has been modified. The key message is, that the ministry has the authority to do so but that they have followed the HCR.
1.5.6	Gill net fishery is not applicable to herring	Agreed, the mesh size regulations are for the trawl and this is now corrected.
1.5.7		
1.5.8	The recent 10% TAC overshoot, and the risk of higher % in the future considering that the other target pelagic stocks are decreasing and becoming overfished has to be considered here. If the TAC overshoot is to be monitored, then a minor non-conformance should be issued.	This has been addressed above, and we agree that the TAC overshoot can become an issue, this is not something that has been observed over more than one year. The relationship between TAC and catch will be monitored as a key part of any audit and because



#	Peer Reviewer Comments	Assessment Team Response
		this is a single year with an overshoot in an otherwise very well
		managed fishery, we do not think a non-conformance is warranted,
		especially as the harvest rate has been very low for a number of
		years. Should the overshoot persist we agree that a non-
		conformance may be relevant, but not currently. We believe the
		current text reflects this and no change is made.
1.5.9		
1.5.10		



11.1.2.2. Section 2 – Compliance and Monitoring

11.1.2.2.	Section 2 – Compliance and Monitoring	
#	Peer Reviewer Comments	Assessment Team Response
2.1	Implementation, Compliance, Monitoring, Surveillance and Control	
2.1.1		
2.1.2		
2.2	Concordance between actual Catch and allowable Catch	
2.2.1		
2.2.2		
2.2.3	Does not exist in the report.	This was removed as part of the standard revision but overall numbering was not revised.
2.2.4.1		
2.2.4.2		
2.2.4.3		
2.3	Monitoring and Control	
2.3.1	Vessel registration and catch quotas	
2.3.1.1		
2.3.1.2		
2.3.1.3		
2.3.1.4	No evidence and non-conformance tick was made.	Amended
2.3.2	Fishing vessel monitoring and control systems	
2.3.2.1	Evidence of 7 years ago, 2018 site visit. Have the systems evolved or are the same?	The MCS system remains basically the same. The ICG aims to apply advanced current-state-of-the-art technologies such as drones, aerial surveillance etc.
2.3.2.2		
2.3.2.3		
2.3.2.4	2029? The discussion provided for gillnets and longlines is not applicable to this fishery. What it should be included is a discussion regarding catch reporting from the herring fishery. As there is none this clause is considered to not be analysed. Unknow evidence rating and non-conformance.	Agreed that there is unknown evidence. There is no indication or proof of a non-conformance.
2.3.2.5		
2.3.2.6		
2.3.2.7	References to demersal fisheries and longline, and to demersal species are not relevant. Please add applicable justification to the herring fishery. For example, how is slippage monitored? How is high grading? Unknow evidence rating and non-conformance.	As described in page 39 section 5.7.1, there is always a risk of slippage of catch in pelagic fisheries purse seine and trawl fisheries (meaning that the catch is release from the net toward the end of the fishing operation but before being brought aboard the vessel). Slippage is generally prohibited by law in Iceland (although it is permissible from

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#	Peer Reviewer Comments	Assessment Team Response
		purse seines if the catch has a high proportion of juveniles). Small or poor-quality fish retained in the catch are processed for fish meal. Both the Directorate of Fisheries and MFRI consider that slippage is an exceptionally rare event in the herring fishery. Discarding is prohibited in Iceland. Normally, discards are considered to be insignificant in the fishery of ISS herring and surveillance by inspectors from the Directorate of Fisheries during each fishing season is considered adequate in verifying if a discard is ongoing. ICES considers the discarding to be negligible (ICES 2024). There are few exceptions in the past 35 years where discards were estimated to be significant, in years with large year classes entering the fishery caused high juvenile abundance in the catch (ICES 2024b). Iceland continues to develop drone technology, and this may in the future provide more independent data on discarding including high-grading (site visit information, section 5.4.2).
2.3.2.8		
2.3.2.9		
2.3.2.10		
2.3.2.11		
2.3.2.12		
2.3.2.13		
2.3.2.14		
2.3.2.15		
2.3.2.16	No evidence and non-conformance tick was made.	Amended
2.3.2.17	Again, reference to demersal fisheries and species is not applicable to the herring fishery.	Noted and corrected.
2.3.3	Catches are subtracted from relevant quotas	
2.3.3.1	Reference to cod again and not herring.	Amended
2.3.3.2		
2.3.3.3	Catches of undersized fish in some cases (e.g. cod <50 cm) count only as half their weight against quota; this is to discourage discards; the actual amounts are small. Is this applicable to herring?	Following the information found here: https://island.is/en/undersize-catch it is applicable only to certain demersal species.
2.3.3.4		
2.3.3.5		



#	Peer Reviewer Comments	Assessment Team Response
2.3.4	Rules are enforced	
2.3.4.1	There was 1 closure for herring and 11 fishing trips of midwater trawl and 9 trips for purse seine were inspected between 2022 and 2023. All the other information (table 25) and inspections at sea are not applicable. The level of inspections of the herring fishery is therefore low. Was there any pelagic fishing licence revoked? What infringements are related to the herring fishery? High evidence rating is not demonstrated.	During the 2024 audit, Fiskistofa confirmed (3th Oct 2024) that twelve fishing licences were revoked in 2023/2024. Most of them relating to discard, one for logbook violations, two weighing violations and two for wrongly reported catch. However no species-specific information was provided for the various types of infringements. Rules in Icelandic herring fishery are enforced, discards and slippage are considered negligible by authorities and the low level of inspections reflects the low degree of infractions in this specific fishery. This latter because, as the Icelandic authorities explained, their inspections are conducted using a risk-based framework ('business intelligence software') aimed at utilising resources to optimise compliance at any given moment. Number of inspections per gear/species/fishery is related to the risk associated with the specific fishery to conduct a violation.
2.3.5	Analysis is carried out	
2.3.5.1		
2.3.5.2		
2.3.5.3		



11.1.2.3. Section 3 – Ecosystem Considerations

3	1.1.2.3.	2.3. Section 3 – Ecosystem Considerations	
	#	Peer Reviewer Comments	Assessment Team Response
	3.1	Guiding Principle	
		 There are no references to dolphins (white-sided, white beaked). Pelagic trawls is other European areas are known to interact and catch dolphins. At least a description of possible species, interactions, discussion and evidence is needed. References to gillnet fisheries are not applicable. What is applicable is the level of misreporting or underreporting in the pelagic herring fishery and this information is not provided. Again 11 trips between 2022 and 2023 for midwater trawl and 9 trips for purse seine were inspected, and all the rest of the information provided is not applicable. 	Detailed have been added about dolphins have been added to the report. Specifically white-beaked dolphins that were found to interact with the fleet. Details on gillnets have been removed where they are not relevant.
	3.1.1	 Although all bycatch stocks are above Bpa all are also subject to overfishing, F>Fmsy. Again all bycatch stocks are exploited at a higher level that can sustain MSY. This has to be referred to and analysed in the context of the fishery. Note also that one species is missing (see general comments) Although evidence of the degree to which ISSH fisheries and marine mammals interact is sparse, available evidence would indicate that, in Icelandic waters, direct mortality of marine mammals as a result of interactions with pelagic fishing gears used in the fishery is likely to be low and unlikely to have detrimental effects at the population level. If the information is sparce how can one conclude that interactions with marine mammals is low? I would say that there is medium to low evidence and non-conformance should be raised. Habitat: New areas have been protected for all fishing except with gillnet, pelagic trawl and purse seine or for all fishing except with pelagic trawl and purse seine, these include sponge aggregations, sea-pen fields, hydropthermal vents (Figure 78). So there are no closures for the pelagic herring fishery correct? This needs to be stated clearly and the legend of figure 78 clarified as it seems there are closures for all gears. And if there are no closures for the herring fishery then the argumentation need to be reformulated. Ecosystem: On the basis of no evidence of an impact of the UoAs on either 	Bycatch reporting of marine mammals is improving. In midwater trawl, only common guillemots were reported by the inspectors, while no bycatch was reported in the logbooks. There were no interactions with purse seine reported. A related non-conformance has been raised on 3.2.1.2. There are closures for herring the text has been corrected.
		physical oceanographic processes or trophic interactions it is considered that the risk of this UoA adversely affecting the key elements underlying ecosystem. This last sentence misses a qualifier Clearly this rational and evidence needs some restructuring and analysis.	



#	Peer Reviewer Comments	Assessment Team Response
3.1.2	 Information about interactions between Icelandic fisheries and non-commercial by-catch species, seabirds and mammals is available. What is needed as evidence is information regarding the herring fishery. There have been no changes in the gear used in Icelandic waters. Fiskistofa and the Client group confirmed that longliners use night settings and lasers or sounds cannons to keep birds off the longlines, while trawlers use semi-pelagic trawl doors and rock hoppers to decrease drag on the seabed to save fuel and decrease gear habitat contact. Gillnetters are mainly restricted through area closures. Again descriptions of other gears are not applicable to the herring fishery. However it is stated that: Information is available on the legal specification of fishing gear in the Icelandic pelagic fishery. But no reference is made to what (reference to 3.2.1.1 should be made), while size select, it is the choice of gear deployment on schools that size select). What other measures there are? Norwegian Fisheries Agency's web service Norwegian??? The status of bycatch and associated species has been detailed in the previous clause. Spotted wolfish and all marine mammals status were not discussed. Remove gillnet fisheries references As stated above: Although evidence of the degree to which ISSH fisheries and marine mammals interact is sparse, available evidence would indicate that, in Icelandic waters, direct mortality of marine mammals as a result of interactions with pelagic fishing gears used in the fishery is likely to be low and unlikely to have detrimental effects at the population level. If the information is sparce how can one conclude that interactions with marine mammals is low? What about dolphins? There are not even mentioned. I would say that there is medium to low evidence and non-conformance should be raised. Clearly this rational and evidence needs some restructuring and analysis. 	The evidence shows that monitoring is taking place, non-commercial bycatch information has been described and coverage of the relevant gear by inspectors and observers while low does the place and no interactions with marine mammals and birds have been recorded. There have been non-conformances raised in other areas to highlight the non-reporting and low levels of observer coverage. Refence to 3.2.1.1 has been added. Selectivity measures relating to these gears have been added. This is a translation error and has been corrected. Spotted wolffish has not been caught by this fishery (Table 5) in the last 5 years, also no records of marine mammals have been recorded between 2020 and 2023. Gillnet references have been removed where inappropriate
3.2	Specific Criteria	
3.2.1	Information gathering and advice	
3.2.1.1	See comments in 3.1.1. and 3.1.2	As above
3.2.1.2	Agree with minor non-conformance raised. Please remove all information not pertaining to the herring fishery.	Information corrected.
3.2.2	By-catch and discards	



#	Peer Reviewer Comments	Assessment Team Response
3.2.2.1	Clause 3.2.2.1. Discarding, including discarding of catches from non-target commercial stocks, is prohibited is in section 3.2.3.	Section moved.
3.2.2.2	Please remove all information not pertaining to the herring fishery. Again 11 trips were sampled between 2022 and 2023 for midwater trawl, and 9 trips for purse seine. There is clearly a need to increase evidence. A non-conformance has already been raised in 3.2.1.2, and should be reference here.	Information has been corrected.
3.2.2.3		
3.2.2.4	However inspector/observer coverage is very low, 3% purse seine coverage from 9 trips. No reference to mid-water trawls	Information on mid-water trawls added.
3.2.2.5		
3.2.3	Habitat Considerations	
3.2.3.1		
3.2.3.2	Clause 3.2.2.1. Discarding, including discarding of catches from non-target commercial stocks, is prohibited should be moved to section 3.2.2.	Section moved.
3.2.3.3		
3.2.3.4		
3.2.4	Foodweb Considerations	
3.2.4.1	The issue that all 4 bycatch pelagic species are all being subject to overfishing should be referred to here. Not only as referred, the other stocks have similar levels of trophic connectivity notably capelin, blue whiting and mackerel, these stocks have F above Fmsy and most are decreasing rapidly and lower than MSY levels (near Bpa levels).	Details on the pelagic stocks associated with herring have been added to the rationale.
3.2.5	Precautionary Considerations	
3.2.5.1	The evidence provided describes and lists management measures, but the clause requires that Management plans shall be developed and implemented in a timely fashion for avoiding, minimizing or mitigating any ecosystem issues properly identified. No reference to management plan is made.	Management plan details have been added to the report.



11.1.3. Conclusion – Peer Reviewer A

Please provide an overall conclusion including:

• An indication of whether or not you believe the conclusion of the Assessment Team is appropriate conclusion based on the evidence presented in the assessment report.

The conclusion of the Assessment Team is in most cases appropriate based on the evidence presented in the assessment report. However many of the information provided does not refer to the herring fishery. In particular, I disagree that previous non-conformance should be closed to meet the revised CAP deliverable for year 5. The information provided does not refer to the herring fishery and as such is not applicable.

CAB response: Information that refers to other gear types is sometimes relevant to show the overall management of the fisheries by Iceland. However, where this is not appropriate it has been removed. The client fulfilled all the actions in the CAP, therefore the NC could be closed. However as the information is still improving a related NC was raised for 3.2.1.2.

Where non-conformances requiring corrective actions on behalf of the fishery have been raised, for each such non-conformance, please provide:

- An indication of whether or not you believe the non-conformances are appropriate.
- An indication of whether or not you believe the Corrective Action Plan is appropriate and likely to address the non-conformance within the specified timeframe.

Non-conformance 1 is appropriate and the CAP is also appropriate.

Non-conformance 2 is appropriate but the CAP is missing the 4th **year activities**. References to other fisheries should be deleted or stated very clearly this condition is part of another assessment. There is a reference missing.

CAB response: The text has been corrected to show the 4th year activities. References to other fisheries were amended.

11.2. Peer Reviewer B

11.2.1. General comments - Peer Reviewer B

Peer Reviewer Comments Assessment Team Response General Comments Thank you for your comments. I generally agree with the conclusions reached by the assessment Repetition has been addressed where possible team. The Iceland herring fishery is well managed and deserves to however ever as noted the standard formulation calls be recertified against the IRMF Standard. I think the report is for similar information in places. generally very well researched, and I have no substantive References have been checked and included where disagreement with anything that is being said. As a piece of text, missing. the report is perhaps not particularly readable, primarily since there is a lot of repetition in the scoring tables. This has probably got to do with how the Standard is formulated, but I also think the assessment team could have been more precise here and there and focused more specifically on the guideposts instead of repeating standard paragraphs on how the Icelandic fisheries management system or monitoring, control and surveillance (MCS) procedures work. A shortcoming of the report is that a number of references in the text, primarily in the background



section but also in the scoring tables, are missing in the reference list/bibliography.

11.2.2. Scoring element review – Peer Reviewer B

Peer Reviewer Comments Assessment Team Response Background Section Thank you for your comments. - General: As the report in general, the background section is well researched and covers all basic elements of Icelandic fisheries management. - Missing references: As mentioned above, a number of Missing references have been checked and included references in the text are missing in the list of where not in the footnotes. references/bibliography. I started to make note of missing references, but they were so many that I stopped (in parts of the report, there were more references that were not in the reference list than that were there) - I just have to urge the assessment team to go systematically through each reference in the entire report and ensure that they are listed in the reference list/bibliography. - p. 20: 'Ministry of Industry and Innovation' should be changed to 'Ministry of Food, Agriculture and Fisheries'. The correct name is Ministry of Industries and this has been corrected in the report. We refer the reviewer to the web page of the Government of Iceland: https://www.government.is/ where the existing Ministries are presented. The mission of the Ministry of Industries states: What we do fisheries, food and food safety. In addition, the Mi industrial affairs. And their organization is given below: - p. 80: Is the Directorate of Fisheries an 'independent' administrative body responsible to the Ministry, or would it be The offending word "independent" was deleted. more correct to say a management body subordinate to the Ministry? The difference is whether the Ministry has the power of instruction over the Directorate – I assume it has, but I'm not sure. - p. 80 and p. 82: This is an example of repetition: the exact same paragraph (at least the major part of it) is repeated on both these pages. I'm not saying that the assessment team must necessarily No change change this, but I just wanted to point at this issue which is quite annoying for the reader (if any).



- p. 87: Are fines and imprisonment not on the list of possible sanctions?

- p. 91: 'Ministry of Industry and Innovation' should be changed to 'Ministry of Food, Agriculture and Fisheries' (twice).

- p. 99, Table 16: This is confusing – according to the table, the fishery fails. But it is stated at the beginning of the report that the fishery should be re-certified, which also follows from the scoring.

As described in page 88, Table 11: "The main resources available to the Directorate of Fisheries for violations are reprimands and revocation of a fishing license. Alleged violations can also be prosecuted by the police and in some cases it is the only available remedy to respond to violations. Then the Directorate of Fisheries can in individual cases, deprive individuals of a fishing license to enforce law enforcement and rules. During the 2024 audit, Fiskistofa confirmed (3th Oct 2024) that twelve fishing licences were revoked in 2023/2024. Most of them relating to discard, one for logbook violations, two weighing violations and two for wrongly reported catch. The most recent violations detected by Fiskistofa are shown in Table 11 below. Two hundred and thirty (230) cases were registered with the Fisheries Control Division in the year 2023. In 2023, 40 cases were closed sanction decisions."

See above

Table 16 has been corrected.



11.2.2.1. Section 1 – Fisheries Management

# Peer Reviewe 1.1 The Fisheries 1.1.1 N/A 1.1.2 N/A		Assessment Team Response	
1.1.1 N/A	Management System		
· ·		The Fisheries Management System	
112 N/A			
1.1.2 IV/ A			
1.1.3 N/A			
1.1.4 N/A			
in the way of the team just This clause re related decision point, e.g. 'The portfolio by so question in the transparency transparency	nple of how general information about the management system stands what the guidepost really asks about, which gives the impression that cours out general information in the hope that at least something hits. quires that there is transparency in the fisheries management and in making. The evidence provided is quite general and not always to the e system is sufficiently flexible to allow a vessel to design its quota illing quotas that it does not need and buying those that it wants.' The is clause is not about the flexibility of quota arrangements, but about in decision making. The team should provide evidence that there is n decision making, meaning that decision-making processes are open I public to follow.	A valid point. Reading the text, the assessment team thinks that the "Summary Evidence" section does exactly what the reviewer points out, in that it highlights the key decision in the process and explains where these can be found online. The Evidence text has been changed and now focuses on what the key processes are and where they can be tracked.	
1.1.6 N/A			
1.1 The Fisheries	Management Plan		
1.1.7 N/A			
1.1.8.1 N/A			
1.1.8.2 N/A			
1.1.8.3 N/A			
1.1.8.4 N/A			
1.1.9.1 N/A			
1.1.9.2 N/A			
1.1.9.3 N/A			
1.1.9.4 N/A			
1.1.10.1 N/A			
1.1.10.2 N/A			
1.1.10.3 N/A			
1.1.10.4 N/A			
	s presented on consultations with the fishing industry beyond a brief here are regular formal and information communications between	Agreed, this was vague. More text has been added highlighting the different consultations processes.	



#	Peer Reviewer Comments	Assessment Team Response
	scientists, managers and industry, which is more or less just a repetition of the	
	guidepost. Evidence of specific consultation mechanisms must be provided.	
1.1.10.6	N/A	
1.1.10.7	N/A	
1.2	Research and Assessment	
1.2.1	N/A	
1.2.2	N/A	
1.2.3	N/A	
1.2.4.1	N/A	
1.2.4.2	N/A	
1.2.4.3	N/A	
1.2.5	N/A	
1.2.6	N/A	
1.2.7	N/A	
1.3	The Precautionary Approach	
1.3.1.1	N/A	
1.3.1.2	N/A	
1.3.1.3	N/A	
1.3.1.4	N/A	
1.3.1.5	N/A	
1.3.1.6	N/A	
1.3.2	Management Targets and Limits	
1.3.2.1	Harvesting rate and fishing mortality	
1.3.2.1.1	N/A	
1.3.2.1.2	N/A	
1.3.2.2	Stock biomass	
1.3.2.2.1	N/A	
1.3.2.2.2	N/A	
1.3.2.2.3	N/A	
1.3.2.2.4	N/A	
1.3.2.3	Stock biology and life-cycle (structure and resilience)	
1.3.2.3.1	N/A	
1.3.2.3.2	N/A	
1.3.2.3.3	N/A	
1.4	External Scientific Review	



#	Peer Reviewer Comments	Assessment Team Response
1.4.1	N/A	
1.4.2	N/A	
1.5	Advice and Decisions on TAC	
1.5.1	N/A	
1.5.2	N/A	
1.5.3	N/A	
1.5.4	N/A	
1.5.5	N/A	
1.5.6	N/A	
1.5.7	N/A	
1.5.8	N/A	
1.5.9	N/A	
1.5.10	N/A	



11.2.2.2. Section 2 – Compliance and Monitoring

11.2.2.2.	Section 2 – Compilance and Monitoring	
#	Peer Reviewer Comments	Assessment Team Response
2.1	Implementation, Compliance, Monitoring, Surveillance and Control	
2.1.1	N/A	
2.1.2	N/A	
2.2	Concordance between actual Catch and allowable Catch	
2.2.1	N/A	
2.2.2	N/A	
2.2.3	N/A	
2.2.4.1	N/A	
2.2.4.2	N/A	
2.2.4.3	N/A	
2.3	Monitoring and Control	
2.3.1	Vessel registration and catch quotas	
2.3.1.1	N/A	
2.3.1.2	N/A	
2.3.1.3	N/A	
2.3.1.4	N/A	
2.3.2	Fishing vessel monitoring and control systems	
2.3.2.1	N/A	
2.3.2.2	N/A	
2.3.2.3	N/A	
2.3.2.4	This is an example of lots of text being poured into a scoring table without precision (see general comment above). This clause is about catch amounts being estimated and continually recording in the logbook. Why is there then a long discussion of strategies for protection of birds (p. 323, from top of page)?	The reason is that this clause refers to catch amounts by species (i.e. including n mammals and seabirds) and fishing area being estimated and continually record fishing logbooks on-board of fishing vessels. This is part of the strategy for protect seabirds.
2.3.2.5	N/A	
2.3.2.6	N/A	
2.3.2.7	N/A	
2.3.2.8	N/A	
2.3.2.9	The team should be applauded for mentioning other compliance mechanisms than coercion. But could you please describe in more detail what you mean by 'the flexibility allowed for within the rules' and the system's ambition to 'increase flexibility'. As it stands, it sounds a bit as if the system is giving fishers a lot of leeway and does not really react to non-compliance, although I'm sure that's not what the	Noted. The details of the flexibility provisions have been given throughout the tex below texts, already in the report, clarify the framework of the flexibility an repercussions of non-compliance with the flexibility conditions. "Deviations where they occur can sometimes be rectified using the flexibility with
	team means. This is a very important point often overlooked, and it would improve	system (e.g. by using inter-annual, inter-vessel or inter-species transfers to cover ca





#	Peer Reviewer Comments	Assessment Team Response
		Finally, reference is provided for further information see Fiskistofa website, 'Flexib
		the catch system'.
		http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Sveigjanleiki_i_aflamarksk
2 2 2 40	N1/A	
2.3.2.10	N/A	
2.3.2.11	N/A	
2.3.2.12	N/A	
2.3.2.13	N/A	
2.3.2.14	N/A	
2.3.2.15	N/A	
2.3.2.16	N/A	
2.3.2.17	N/A	
2.3.3	Catches are subtracted from relevant quotas	
2.3.3.1	N/A	
2.3.3.2	N/A	
2.3.3.3	N/A	
2.3.3.4	N/A	
2.3.3.5	N/A	
2.3.4	Rules are enforced	
	Another example of too much information being provided, giving the impression	
	that the team just pours out general information in the hope that at least something	
2.3.4.1	hits. Why is a table of short-term closures in Iceland 2018-2023 presented under a	The offending table has been removed
	clause that says 'Rules are enforced.' Making a closure in a fishery is the	
	establishment of a regulation, not an act of enforcement. The rest of the evidence	
	is relevant, however.	
2.3.5	Analysis is carried out	
2.3.5.1	N/A	
2.3.5.2	N/A	
2.3.5.3	N/A	



11.2.2.3. Section 3 – Ecosystem Considerations

#	Peer Reviewer Comments	Assessment Team Response
3.1	Guiding Principle	
3.1.1	N/A	
3.1.2	N/A	
3.2	Specific Criteria	
3.2.1	Information gathering and advice	
3.2.1.1	N/A	
3.2.1.2	N/A	
3.2.2	By-catch and discards	
3.2.2.1	N/A	
3.2.2.2	N/A	
3.2.2.3	N/A	
3.2.2.4	N/A	
3.2.2.5	N/A	
3.2.3	Habitat Considerations	
3.2.3.1	N/A	
3.2.3.2	N/A	
3.2.3.3	Why are (only) pelagic gears discussed here?	
3.2.3.4	N/A	
3.2.4	Foodweb Considerations	
3.2.4.1	N/A	
3.2.5	Precautionary Considerations	
3.2.5.1	N/A	



11.2.3. Conclusion – Peer Reviewer B

Overall:

• The conclusion of the assessment team is appropriate conclusion based on the evidence presented in the assessment report.

Non-conformance

Non-conformance 1:

- The non-conformance is appropriate.
- The Corrective Action Plan is appropriate and likely to address the non-conformance within the specified timeframe.

12. Non-conformances and Corrective Actions

During the previous full assessment audit²⁹⁴ of this fishery in 2019 (of the first certification cycle), all clauses but one was found to be in full conformance. In this respect, one minor non-conformance was identified against clause 2.3.2.4 of the IRFM Standard (V2), relating to the appropriate recording of marine mammal and seabird bycatch data in fishing logbooks. Progress against the NC for the 4th Surveillance is specified below and is now closed.

i. Progress against non-conformances open at 4th surveillance of previous assessment cycle

Non-conformance 1 (of 1)				
Clause.	2.3.2.4. Catch amounts by species and fishing area shall be estimated and continually recorded in fishing logbooks on-board the fishing vessels			
Non- conformance level.	Minor Non-conformance			
Non-conformance.	Although required by legislation, there is evidence of extensive non-reporting/under-reporting of seabirds and marine mammals bycatch such that the Assessment Team cannot be confident that catch amounts by species and fishing area (of marine mammals and seabirds) are estimated and continually recorded in fishing logbooks.			
Rationale.	The recording of marine mammals and seabirds by number and species is required by Icelandic regulation ²⁹⁵ . Despite the implementation of new mandatory logbook reporting procedures for seabird and marine mammal bycatch, available evidence suggests that far fewer incidences of seabird and marine mammal bycatch are reported via the electronic logbook system than would be expected given the levels reported by onboard observers. This suggests significant levels of underreporting and/or non-reporting of seabird and marine mammal bycatch. Examples of available evidence to support this conclusion include the findings of Pallson <i>et al.</i> 2015 ²⁹⁶ and the March 2018 MFRI report titled. "Bycatch of Seabirds and Marine Mammals in lumpsucker gillnets 2014-2017".			

 $[\]frac{294}{\text{https://www.responsiblefisheries.is/media/1/form-11.2-iceher-initial-assessment-final-report-and-determination.pdf}$

https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/18967

²⁹⁶ https://www.hafogvatn.is/static/research/files/fjolrit-178.pdf



IRFM Programme, Standard Revision 2.1
Herring Full Assessment Report
(2024)

	The Client submitted the following CAP in February 2019
Action Flan	Tium (e, tr.) within 25 days.
Action Plan	Plan (CAP) within 28 days.
Corrective	In accordance with rules of the IRF Programme, the Client is required to submit a Corrective Action
	addition there is insufficient evidence to show that compliance in the fisheries under assessment here is better.
	the lumpsucker fishery, this fishery is still part of the management system under review and in
	While much of the evidence related to non-compliance with reporting requirements may relate to
	Furthermore according to a 2017 presentation to NAMMCO's Working group on bycatch of marine mammals; "logbooks have unfortunately proven unreliable" and "bycatch of birds and marine mammals is 18x higher when observer is present vs logbook records".
	still much lower than observed in the trips by inspectors. Overall, the marine mammal and seabird bycatch rate during inspector trips was around four times higher than reported by the fleet in 2017 ²⁹⁷ .
	The MFRI 2018 report found that although reported bycatch in E-logbooks by the fleet has increased (suggesting better compliance with reporting requirements) the overall bycatch rates are
	Pallson <i>et al.</i> 2015 highlighted the fact that their bycatch estimates were based on limited data that needed to be increased and improved with a functioning reporting system for the fishery and better follow up.

 $^{{}^{297}\,\}underline{\text{https.//www.hafogvatn.is/static/files/skjol/techreport-bycatch-of-birds-and-marine-mammals-lumpsucker-en-final-draft.pdf}$

IRFM Programme, Standard Revision 2.1 Herring Full Assessment Report (2024)



To whom it may concern

Atvinnuvega-og nýsköpunarráðuneytið

Ministry of Industries and Innovation

Skúlagötu 4 101 Reykjavík Iceland tel.:+(354) 545 9700 postur@anr.is anr.is

Reykjavík February 15, 2019 Reference: ANR18030330/11.02.09

The Icelandic fisheries management system is based on responsible conservation and sustainable use of living marine resources and an integral part of the system is to manage ecosystem effects of fishing, including bycatches of commercial and non-commercial species. All management decisions are taken based on the best available science.

Effective control and enforcement is a pivotal element of a responsible fisheries management system. The Directorate of Fisheries monitors fisheries to ensure that rules are being followed. Real-time status of landings is delivered to a live database through a synchronized weight control system at all landing ports. The Directorate also carries out surveillance and inspections of the fishing operations, landing of catches and processing plants in close collaboration with the Icelandic Coast Guard, the Food and Veterinary Authority as well as accredited municipal harbor officials responsible for proper recording of the weight of the landed catch.

Icelandic law explicitly prohibits discards of commercial species, i.e. bycatches of unwanted species or undersized fish. There are certain flexibility options and incentives for compliance incorporated into the system, to make it function well in practice.

Incidental catch of non-commercial species such as seabirds and marine mammals is

monitored by mandatory recordings in electronic logbooks. These measures are meant to maintain the delicate balance between effective harvesting and good environmental health to support sustainable fisheries.

The Marine and Freshwater Institute in Iceland issues reports on incidental bycatches of non-commercial species. One issue that is currently being addressed as a result of the recommendations of these reports is the need for further measures to encourage the reporting of these catches in logbooks to prevent the transition from paper-logbooks to electronic reporting from resulting in lower levels of reporting. According to the reports from the MFRI, bycatch of marine mammals and seabirds are most frequent in gillnet fisheries.

The Minister of Fisheries recently received a response to his request to the Committee for consultation on responsible management of living marine resources regarding addressing



non-commercial bycatches. On the basis of the conclusions of this committee, work has commenced to improve data recording, data availability and reliability and explore certain management measures to reduce bycatch of these species.

The committee comprises individuals from main stakeholder organizations in the fishing industry as well as the Marine and Freshwater Research Institute and the Ministry of Fisheries.

The Ministry will be working with the MFRI, the Directorate and the fishing industry in the next months with the aim of acquiring accurate and more detailed information on frequency of non-commercial bycatches, by fishing-gear, area and time. This information is essential for the MFRI as basis for recommendation on management actions to address any significant adverse impacts of fisheries on these species in question and the ecosystem health in general. These actions could include time and area closures and fishing gear amendments.

On behalf of the Minister of Fisheries and Agriculture

Brynhildur Benediktsdóttir

Further to the corrective action letter provided, the client also clarified that the Committee has recommended the following to the Ministry of Industries and Innovation.

- 2) Improvement of information collection and monitoring activities to gather reliable seabird and marine mammal bycatch information from vessel e-logbooks (and directly addressing the non-conformance) through technology development (e.g. mobile app in development by the Directorate), a species identification training program for fishers and observers, and a general improvement in the quality of bycatch data (i.e. narrower confidence limits) and depth of information recorded (e.g. catch information on area, time, depth etc.) to help design mitigation measures that will result in appropriate industry acceptance and buy in;
- 3) Measures to reduce bycatch (e.g. potential spatial/temporal closures at sensitive times such as around seal pupping or bird breeding season); and
- 4) US Marine Mammal Protection Act importing requirements collectively dealt with through improvements in the previous two points (i.e. information gathering and management measures).



IRFM Programme, Standard Revision 2.1 Herring Full Assessment Report (2024)

	Accordingly, the Ministry is now considering further action with a view to determine what					
	arrangements are realistically achievable and by when, potentially resulting in the following					
	corrective action timelines.					
	Year 1. Ongo	ing work to further refine the	e actions identified above in terms of specific	deliverables		
	with their acc	companying timeline;				
	Year 2. Initiat	te deliverable x, y, z identifie	d in Year 1;			
	Year 3. Fully i	implement and report on pro	ogress;			
	Year 4. Conti	nued implementation and re	porting.			
Assessment	The Assessm	ent Team has accepted the	Corrective Action Plan provided by the C	lient for the		
Team CAP	fishery under	r assessment.				
response						
Year 1	The Client Gr	oup submitted the following	g corrective action evidence in October 201	9		
progress (Re-			1/Ms			
assessment			¥ 2 1			
2019-2020)			(Grand married)			
		To whom it may concern	Atvinnuvega- og nýskópunarráðuneytið			
			Ministry of Industries and Innovation			
			Skúlagötu 4 101 Reykjavík Iceland tel.: «(354) 545 9700 postur@anr.is			
			anr.is			
			D. II. d. O. I. 25 2010			
			Reykjavík October 25, 2019 Reference: ANR19020189/15.09.00			
		Subject: Bycatches of non-commercia	l species in fisheries			
			ation, Department of Fisheries and Aquaculture has tch of seabirds and marine mammals in fishing			
		operations. The workplan includes m	easures aimed at increasing the reliability of recording of ogbooks by location, gear and species.			
			s have electronic logbooks, but most smaller vessels still			
		have paper logbooks. The Directorate "logbook-app" to take over from the	of Fisheries has been working on an electronic paper logbooks which will greatly facilitate recording of			
		non-commercial bycatch onboard sm	all vessel. The app was planned to be ready for use in yed until 2020. A trial version of the app has been			
		6-16-16-16-16-16-16-16-16-16-16-16-16-16	CPI I CONTRACTOR AND ADMINISTRA			
			epartment of Fisheries and Aquaculture to work I at improving data collection and reviewing possible			
			ycatch of seabirds and marine mammals. The task-force ders, The Directorate of Fisheries and The Marine and			
		A general information campaign aime accurate recording of non-commercia	ed towards all the Icelandic fleet to encourage more Il bycatch will be run in 2020.			
		-				
		On hohe If of the	a Minister of Industry and Commerce			
		On behalf of the	e Minister of Industry and Commerce			
		(1	John Com			
			Jóhann Guðmundsson			
		Director General, I	Department of Fisheries and Aquaculture			
			5			



Following the letter supplied by the Ministry on October 25th 2019 to update on progress towards closure of Minor Non Conformance #1, the Client Group spoke in a conference call with the audit team lead and clarified the following information.

The Task Force group has just been set up and it is different and independent from the Committee for Consultation on Responsible Management of Living Marine Resources, reformed in its most current form (and remit) in Nov. 2018. The head of the Task Force is a high-level official in Iceland, the former Permanent Secretary for Fisheries.

The appointed Chair of the Committee for Consultation on Responsible Management of Living Marine Resources brings industry and management stakeholders together to gather information, explore options and seek consensus on what can be done and agreed in a practical sense, thus assisting in the official decision-making process. The Task Force is set to continue to collaborate directly with various stakeholders and to explore multiple options and solutions.

The Chairs of the Committee and the newly formed Task Force have been in contact to report on recent issues, developments and general updates and to discuss future options. The Client Group communicated that there is a proposed regulation on the table aiming to prohibit all deliberate killing of seals in Iceland (with only minor exception subject to strict conditions and requiring permit from the Directorate of Fisheries) which, if adopted, would contribute to a reduction in overall mortality and assist seal populations growth.

Furthermore, an important first step has been recognised as the need to improve social recognition and acceptance of the issues across the gillnet fisheries (for lumpfish and cod), currently considered at high risk.

The Client Group further communicated, on behalf of the head of the Task Force, that the small vessels bycatch recording App should be ready for the end of the year, prior to trial by a select group of fishers. However, the full recording of seabird and marine mammal bycatch in the App may extend beyond the next (2020) fishing season. Meetings have been scheduled in late 2019 to further discuss the App with the Directorate.

Another action that is under consideration is the use of picture cards for gillnet fishers to enable better identification of seals and seabirds and to investigate if additional forms to record bycatch are required in the small fleet.

The Task Force is also planning to conduct meetings with small boat owners to reiterate the need to improve data collection. The Directorate is also considering holding educational meetings around Iceland prior to the start of the next season to increase awareness of the issue and the need for improved catch recording.

Assessment Team Determination on Year-1 Corrective Evidence

The Assessment Team has determined that the information supplied is sufficient to meet the original CAP deliverable for year 1. The non-conformance remains open and on track towards appropriate closure.

The first surveillance activities will review evidence that the corrective actions highlighted above have been carried out.



Year 2 progress (1st Surveillance, early 2021) During the early 2021 remote audit, Fiskistofa confirmed that starting in September 2020 smaller Icelandic vessels (including gillnetters that are responsible for most of the recognised bycatch of marine mammals and seabirds) are now required to log their catches in an app (essentially a elogbook) which contains information on catch and bycatch, including that of marine mammals and seabirds. This follows regulation 298/2020²⁹⁸. The App also called Afladagbókina or catch diary²⁹⁹ automatically records the location of the boat during fishing and the captains then records the catch, its condition and by-catch, in a very simple way. The app replaces paper logbooks in the small boat sector, with an electronic catch recording system. It is expected that this app will make the recording of bycatch easier for the fleet.

Additionally, the MFRI has provided the latest (available) reported bycatch from the fishing fleet by gear. They report that (as somewhat expected) logbook records were generally much lower than the estimated bycatch. As an example, the total bycatch of reported harbour porpoises in the gillnet fishery over the 4 years was 171 porpoises while the total observed by inspectors and in the MFRI cod gillnet survey (3.7% of total effort) was 119 porpoises (yearly).

Bycatch of marine mammals and seabirds by gear type in 2016-2019 as reported by the fishing fleet. Source MFRI, January 2021.

Cod and Greenland halibut gillnets					
Species	2016	2017	2018	2019	Total
Harbour porpoise	52	45	48	26	171
White beaked dolphin	1	0	0	1	2
Harbour seal	11	12	7	8	38
Grey seal	4	1	1	1	7
Harp seal	2	0	0	0	2
Ringed seal	0	0	0	1	1
Humpback whale	1	0	0	0	1
Northern bottlenose whale	0	0	1	0	1
Risso's dolphin	0	0	7	0	7
Total marine mammals	71	58	64	37	230
Common guillemot	32	40	35	38	145
Northern fulmar	0	2	0	0	2

²⁹⁸ https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887

²⁹⁹ http.//www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla

³⁰⁰ https://www.mbl.is/200milur/frettir/2020/08/31/oll aflaskraning rafraen fra og med morgundeginum/



Brünnich's guillemot		0	0	0	3	3
Black guillemot		0	2	0	26	28
Cormorants		0	1	2	4	7
Total seabirds		32	45	37	71	185
Demersal longline						
Species		2016	2017	2018	2019	Total
Northern fulmar		61	303	539	195	1098
Northern gannet		0	27	3	0	30
Seagull species		25	8	3	0	36
Total seabirds		86	338	545	195	1164
Demersal otter trawl		L				
Species	2016	2017	2018	2019	Тс	otal
Harbour seal	0	0	3	1	4	
Unidentified dolphin	0	0	1	0	1	
Total marine mammals	0	0	4	1	5	
Northern gannet	0	0	0	3	3	
Total seabirds	0	0	0	3	3	

All in all, it is expected that the new App will facilitate more precise data collection from the (small boat) fleet. Further progress will be measured at each subsequent surveillance.

Assessment Team Determination on Year-2 Corrective Evidence

The Assessment Team has determined that the information supplied is sufficient to meet the original CAP deliverable for year 2. The non-conformance remains open and on track towards appropriate closure.

The 2nd surveillance activities will review evidence that the corrective actions highlighted above have been carried out.

Year 3 progress (2nd Surveillance, late 2021)

As of November 2021, the App continues to be used in the small vessel sector and catch and bycatch data is being collected by Fiskistofa and the MFRI for management purposes. MFRI staff reported that data from the App is in the process of being made available to the MFRI through MFRI/Firskistofa IT staff collaboration, although timelines for completion are unclear as of November 2021. Fiskistofa has also reported as part of this 2nd surveillance audit that since the beginning of the App's implementation it has been mandatory to register all catch and bycatch according to regulation 298/2020 and the data is being received by the authorities. Their inspectors



	have been busy training fishers and captains at the quaysides during landing, and their helpline was quite busy in the beginning of the coastal fleet season. Also, one physical meeting was held in Akranes with coastal fishers. A tutorial video on the use of the App was also published on the Fiskistofa website https://www.fiskistofa.is/ymsaruppl/tilkynningar/afladagbokarapp-myndband and on the Fiskistofa Facebook site ³⁰¹ . Furthermore, a traceability component to the App has been implemented in April 2021 which is been used to further help with the detection of discrepancies in catch records and to allow better traceability across the supply chain. This traceability component is currently subject to further development.
Assessment Team Determination on Year-3 Corrective Evidence	The Assessment Team has determined that the information supplied is sufficient to meet the original CAP deliverable for year 3. The non-conformance remains open and on track towards appropriate closure. The 3 rd surveillance activities will review evidence of continuous implementation of the App in the small vessel sector.
Year 4 progress (3 rd Surveillance, late 2022)	2022 Updates. The App is no longer operated/managed by Fiskistofa. The companies Aflarinn, Trackwell and Fontos are now operating the small vessels App. Fiskistofa noted during the October 2022 on site meeting that this data is being sent to the MFRI. However, the MFRI stated that although work is ongoing to getting access to that data stream, staff in charge of bycatch analysis (e.g. Dr Guðjón Már Sigurðsson) do not yet have access to the data from the App. All in all, since implementation of the App it is not clear if bycatch information a) is being collected in the fleet and b) received by the relevant science authorities in charge of data analysis.
Assessment Team Determination on Year-4 Corrective Evidence	Status in late 2022. Progress is deemed to be behind schedule and a revised corrective action has been requested from the Client.
Corrective Action Plan	As detailed in the section above a revised Corrective Action Plan was requested by the Assessment Team to close the identified issue/s (and resulting non-conformance progress behind target) within a reasonable timeline. The client requested an extension to rectify this based on Covid 19 delays in the past two years, which the IRF Scheme Owner approved. Accordingly, GTC granted until the Client Review stage of the upcoming Re-Assessment period for the Client to close the non-conformance/s at hand. The extension allowed one extra year from the originally planned closure timeline (supposed to be end at the 4 th surveillance audit in late 2023, now one year later in late 2024).
	Revised corrective action plan (CAP) provided on the 14 th February 2023 by the Client Group

³⁰¹ https://www.facebook.com/Fiskistofa-1151844504903713/videos/304666984614930/

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Icelandic Commercial Fishery

IRF Client Action Plan

Reference is made to IRF. Icelandic Cod Commercial Fishery. 2^{nd} Surveillance Assessment Report by Global Trust, where it is stated that two minor non-conformances are still open.

NC #1: Clause 2.3.2.4 (applies to all 7 fisheries). Although required by legislation, there is evidence of extensive non-reporting/under-reporting of seabirds and marine mammals bycatch such that the Assessment Team cannot be confident that catch amounts by species and fishing area (of marine mammals and seabirds) are estimated and continually recorded in fishing logbooks.

ACTION

By the 4^{th} surveillance audit (expected October 2023), the client has:

- a) Produced and distributed material to all members of Fisheries Iceland on the regulation and the obligation of reporting of seabirds and marine mammals bycatch. This will reach skippers using all types of gears.
- b) Follow-up with a meeting especially with skippers using nets and lines.

Part of this is a cooperation with the Directorate of Fisheries which will start work on improving registration in logbooks, see letter from the CEO of the Directorate of Fisheries.

By the final auditable stage (expected October 2024), Marine and Freshwater Research Institute in Iceland will publish a report on bycatch of seabirds and marine mammals, see letter from the CEO of the MFRI.

NC #2: Clause 3.1.1. (applies to cod, haddock and saithe fishery). There is insufficient evidence that adverse impacts of the (cod, haddock and saithe) fisheries on the following ecosystem components: 1)



Spotted wolffish, and; 2) Common loon are being considered and appropriately assessed and effectively addressed, consistent with the precautionary approach.

1) Spotted wolffish:

The client can confirm that Trackwell has updated the electronic logbooks and from now on instead of released spotted wolffish being registered in "comment" in logbooks, which is both unpractical for the skipper to register and makes it difficult for MRI to collect the data on released spotted wolffish from the logbookdatabase, there is now in the new and updated version of the logbook, a form for released species in which the skipper can register species and quantity as he does with catch. This logbook is now being installed in vessels.

ACTION

By the 4th surveillance audit (expected October 2023), the client has:

- Follow up the updated logbook by urging vessel owners to install the new and updated version.
- b) Contacted and set up a meeting with the industry to inform on the importance of releasing live spotted wolffish.
- 2) Common loon

By the 4^{th} surveillance audit (expected October 2023), the client has:

- a) Produced and distributed material to all members of Fisheries Iceland on the regulation and the obligation of reporting of seabirds and marine mammals bycatch. This will reach skippers using all types of gears.
- b) Follow-up with a meeting especially with skippers using nets and lines.

Part of this is a cooperation with the Directorate of Fisheries which will start work on improving registration in logbooks, see letter from the CEO of the Directorate of Fisheries.

By the final auditable stage (expected October 2024), Marine and Freshwater Research Institute in Iceland will publish a report on bycatch of seabirds and marine mammals, see letter from the CEO of the MFRI.

Reykjavík, February 16th 2023

On behalf of Fisheries Iceland,

Hrefna Karlsdóttir

2

Letters of support from MFRI and Fiskistofa



MARINE & FRESHWATER
RESEARCH INSTITUTE

To whom it may concern

Date: 15.02.2023 Ref:V2023-02-0106

The Directorate of Fisheries in Iceland received a grant from the Ministry of Food, Agriculture and Fisheries in February 2023 to strengthen monitoring of discards in Icelandic Waters and improving reporting in log-books.

The Marine and Freshwater Research Institute (MFRI) in Iceland is depending on reliable log-books and MFRI has had full access to these data for decades, for scientific purposes. MFRI is cooperating with the Directorate in the above mentioned project where the task of the institute is to evaluate if the level of reporting is sufficient for bycatch species, including seabirds and marine mammals.

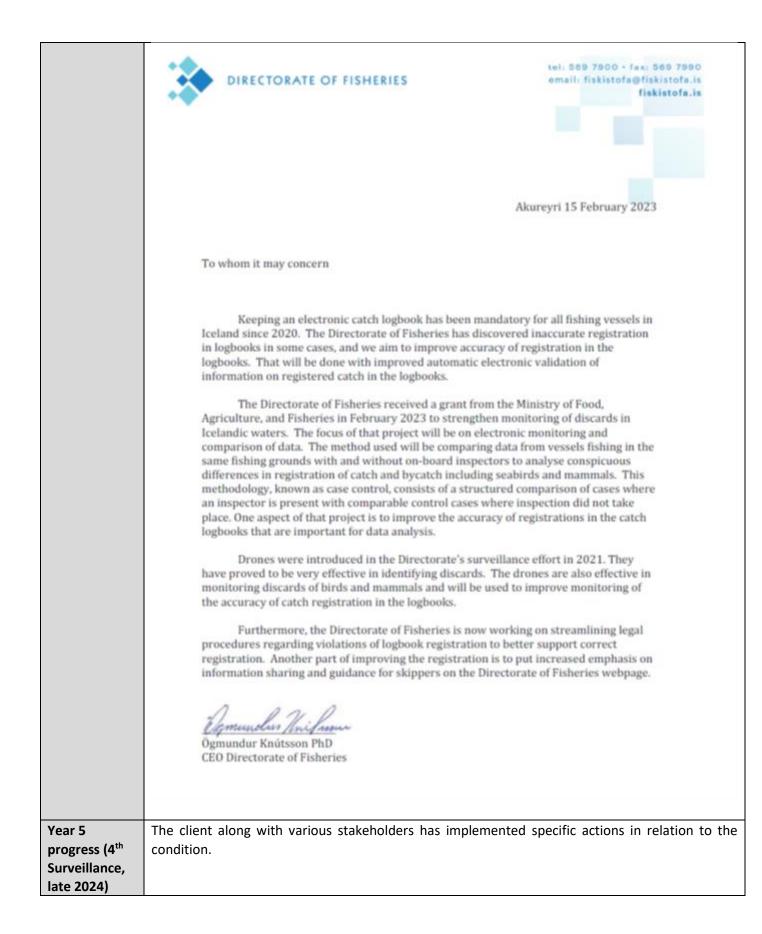
It is expected that the outcome of the project will be published in October 2024.

On behalf of the Marine and Freshwater Research Institute,

Porsteinn Sigurosson Rammada og rangalanstolmus måls og vatna Director Rammada og rangalanstolmus måls og vatna Rammada og rangalanstolmus mysteriure

Marine and Freshwater Research Institute | Fornubúðir 5 | 220 Hafnarfjörður | Iceland Tel: +354 575 2000 | hafogvatn@hafogvatn.is







CAP action plan part (a) Produced and distributed material to all members of Fisheries Iceland on the regulation and the obligation of reporting of seabirds and marine mammal bycatch. This will reach skippers using all type of gear.

Actions undertaken:

- A communication via phone call was implemented with every single gillnet fishery vessel owner. Discussions have been made to review the necessity of logging any single bird and equally important to deliver the zero reports (as the lack of handing in zero reports maybe is mistaken as negligence).
- Fisheries Iceland (SFS) sent monthly emails at the beginning of the year, to all gillnet fishery vessel owners to remind them to log each bird.
- DoF, Fisheries Iceland and MFRI are working on information leaflet which will be distributed to fishers.
- DoF has held training sessions with inspectors which are to engage with fishers with education on importance of accurate bycatch logging in relation to stock assessment and certifications.

CAP action part (b) Follow-up with a meeting especially with skippers using nets and lines.

Actions undertaken:

• A dedicated visit was made to the largest longliner fishery vessel. Meeting with the CEO and managers took place, who have reiterated the message to their captains to mind logging of any single bird which may interact with the line. The zero logging was also flagged.

The electronic logbooks already have been configured to include bycatch of birds. A summary will be added to the fisheries' main dashboard to quickly show trends in the future.

• Managers of the fishing companies agreed to monitor more closely and submit zero reports, as improvements are always the objective.

Further, a meeting with the Ministry was held which resulted in a review of the regulation in order to identify if there are gaps in the long running strategies of protecting or preserving birds, and if the strategies are being followed and implemented. The meeting was held at the MFRI offices with the participation of representatives of the Ministry, MFRI, Directorate of Fisheries, Fisheries Iceland and ISF. Following the meeting the actions taken and are in implementation are.

- DoF provided the Ministry with proposals from best practise guidance methods which could decrease bycatch of bird in longline and gillnet fisheries.
- MFRI has compiled a fact sheet regarding the conditions with updated information.
- Ministry has outlined the facts on a memo for the Minister.

The assessment team concludes that special attention was given specifically to the gillnet and longline fisheries. Consultations with relevant stakeholders in order to collect the available data on bird bycatch, understanding the population of relevant bird bycatch and determining the nature and the existence of the problem were implemented.

Based on the above, the assessment team considers that the client has consulted with industry and all stakeholders on a proposed strategy. Furthermore, the client has started to implement measures in cooperation with the industry and various stakeholders.

CAP action: Directorate of Fisheries work on improving logbook registrations.





As detailed in the CAP letters the Directorate received funding for a project on electronic monitoring and comparison of data. The method used compared data from vessels fishing in the same fishing grounds with and without on-board inspectors to analyse conspicuous difference in registration of catch and by-catch including seabirds and mammals. The results of this project were reported by the MFRI who analysed the dat (details below).

CAP action: MFRI report on bycatch of seabirds and marine mammals.

In October 2024 the MRI sent data with records of survey/inspection (2020-2023) vs logbook bycatch for marine mammals and seabirds. They also sent a summary report in lieu of the full report which will be available in June 2025 (see Appendix 2 in section 16).

Although the report only captures one year of data in logbook records (2023) and does not estimate the proportion or scale of reporting/underreporting across Icelandic fleets/gear types, it does meet the action plan criteria of a report being available. From this report the assessment team considers that underreporting is still likely, especially for cod gillnets where general logbook underreporting appears to be still significant, especially so for harbour porpoise (0.9 observer catch rate vs 0.009 reported bycatch rate) and common guillemot (2.027 reported catch rate vs 0.000 reported bycatch rate). Although some minor improvements in logbook recording may have occurred since 2019, logbook data has been provided for one year only (2023) and it is hard to draw any solid and defensible conclusions e.g. adoption/behavioural trends from it.

Further the assessment team questioned whether catch amounts by species (i.e. marine mammals and seabirds) and fishing area are estimated and continually recorded in fishing logbooks on-board of fishing vessels. It was concluded that available information does not support the determination that these catches are fully recorded in logbooks, or for that matter recorded in the majority of instances when they may occur. In addition, enforcement information received to date did not provide any convincing evidence that the Coast Guard can or does record any potential violation of these requirements to record marine mammal and seabird bycatch data in fishing logbooks. The observer coverage, currently averaging 1.5-2%, is considered quite low. The assessment team consider such a degree of coverage most likely unable to capture common bycatch rates or even less bycatch rates or rarer/sensitive/TEP species. The MRAG study on observer rates³⁰² states that in order to confidently extrapolate more common bycatch rates to the whole fishery, coverage should be a minimum 20% of the total fishing effort (Babcock and Pikitch 2003; Wolfaardt 2015; Black et al. 2008). To achieve a similar level of accuracy, rare species (bycatch less than 0.1% of catch) would require more than 50% observer coverage (Babcock and Pikitch 2003; Debski, Pierre and Knowles. 2016).

The MFRI concluded that the results presented here show considerable improvements in most fisheries, and the estimates or rates are quite similar in both data sources in many cases. 'In an earlier comparison between two data sources, based on data from 2009-2019 the differences in bycatch rates between logbooks and onboard inspector data in Icelandic net fisheries were

³⁰² MRAG, 2021. Review of optimal levels of observer coverage in fishery monitoring Marine Stewardship Council GB2966 Final Report https://www.msc.org/docs/default-source/default-document-library/stakeholders/fsr-consultant-reports/msc-fisheries-standard-review---consultancy-report--observer-coverage-review-(may-2021).pdf?sfvrsn=27ba6f0e 4



	staggering, with the rates from inspectors being hundreds or thousands percent higher, and suggested that very little part of the fleet was reporting bycatch in logbooks at that time, particularly in the cod gillnets (Basran and Sigurdsson 2021). The results from both the lumpsucker and the longline fishery, and to lesser extent the demersal trawl fishery, show more species in the logbooks, which suggests that onboard monitoring levels are not high enough to catch bycatch events of rarer species. The logbook data from those two fisheries therefore compliment the data from onboard inspections by elucidating rarer events. Bycatch rates in cod gillnets based on logbooks are still quite a bit lower than the rates based on onboard observations by inspectors or during the MFRI survey, and fewer species are reported in the logbooks. While reporting has improved considerably compared to the study mentioned above (Basran and Sigurdsson 2021), there is perhaps more room for improvement in that fishery than in others where the estimates/rates are more similar.' MRFI letter October 2024 (see Appendix 2 in Setion16).
Assessment Team Determination on Year-5 Corrective Evidence	The Assessment Team has determined that the information supplied is sufficient to meet the revised CAP deliverable for year 5. The non-conformance is now closed.

ii. Non-conformances raised at this re-assessment

Non-conforman	ce 1 (of 2)
Clause.	1.1.7 Fishing for the "stock under consideration" shall be managed by the competent authorities in accordance with a documented and publicly available Fisheries Management Plan. ³⁰³
Non-	Minor Non-conformance
conformance	
level.	
Non-	Although the different elements that are normally enclosed in a management plan are
conformance.	available in legislative text, public statements etc. there are no publicly available
	management plans for any of the species. Species specific management plan must be
	made publicly available.
Rationale.	There are not publicly available fully descriptive management plans for any of the stocks.
	There are some general long-term objectives that specifies that. "The management
	strategy for Icelandic fish stocks, in general, is to maintain the exploitation rate at the level
	which is consistent with the Precautionary Approach and that generates maximum
	sustainable yield (MSY) in the long term″ ³⁰⁴ .

³⁰³ FAO Code of Conduct, art. 7 .3.3.

³⁰⁴ https://www.government.is/news/article/2018/05/15/Haddock/



All species are also part of the general fisheries management in Iceland, and rules and regulations that applies across species. These elements, as outlined in previous clauses (Clause 1.1.1 - 1.1.3) include.

- A legal basis for relevant management measures.
- Organized distribution of authority and responsibility between institutions.
- Support for regular stock assessments, including monitoring of catches, demersal surveys, sampling of biological data and assessments in an international framework.
- Organized advice following assessments according to agreed harvest control rules.
- Quotas in an ITQ system
- Technical regulations of fishing gear, area, and season.
- Control and enforcement of regulations.

The overall management objective as stated in the general fisheries act is to have. "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 utilisation" ³⁰⁵.

To meet this objective, there are technical regulations concerning closed areas³⁰⁶ and gear restrictions³⁰⁷ that considers ecosystem aspects of the fisheries and harvest control rules³⁰⁸ which has been evaluated by ICES as precautionary³⁰⁹. The overall management objectives and species-specific harvest control rules are available for all species^{Error! Bookmark not defined.} F or golden redfish, which is managed together with Greenland more details are given in a shared management plan³¹⁰. The stocks are all surveyed annually, and the advice is prepared and presented by experts and peer-reviewed in ICES.

Discarding prohibited by law in Iceland for all species and commercial species can only be landed in designated ports³¹¹, where they are weighed and reported by authorized personnel. No fish can be landed without being accounted against a quota. The quota status is strictly monitored and enforced by the Directorate of Fisheries. There are several arrangements in place to reduce the incentive for discarding, including control at sea by the Coast Guard, observers, drones, temporal and area closures, and an obligation/opportunity to land undersized fish for a reduced price. Hence, there is a suite of tools to ensure that all catch is registered and that is registered correctly.

Taken together, these elements can be regarded as fisheries management plans for each of the stocks and these elements are in place, embedded in management, documented and publicly available and the species are considered well managed. However, the elements should be described in publicly available management plans for each species as it was previously the case, and therefore there is a Minor Non-conformance for all species

https://www.althingi.is/lagas/nuna/2006116.html

³⁰⁶ https://atlas.lmi.is/mapview/?application=haf

³⁰⁷ https://island.is/reglugerdir/nr/0543-2002

³⁰⁸ https://www.government.is/news/article/2018/05/15/Haddock/

³⁰⁹ https://ices-library.figshare.com/articles/report/Workshop

³¹⁰ https://naalakkersuisut.gl/-/media/departementer/fiskeri_fangs

https://www.althingi.is/lagas/nuna/1996057.html



	in relation to this clause. The Non-conformance applies for cod, haddock, saithe, golden redfish, ling, and tusk.				
Corrective Action Plan	In accordance with rules of the IRFF Programme, the Client is required to submit a Corrective Action Plan (CAP) within 28 days. This CAP must both address the non-conformances and close them out within a defined period. The CAB submitted the following CAP in May 2025				
	1 Non- conformance number				
	NC #1				
	2 Clause(s)				
	Clause 1.1.7 Fishing for the "stock under consideration" shall be managed by the competent authorities in accordance with a documented and publicly available Fisheries Management Plan.				
	3 Non-conformance level.				
	Minor Non-conformance (Cod, haddock, saithe, ling, tusk and herring).				
	4 Non-conformance				
	Although the different elements that are normally enclosed in a management plan are available in legislative text, public statements etc. there are no publicly available management plans for any of the species. Species specific management plan must be made publicly available.				
	5 Milestone(s)				
	At the End of Year 1 (First surveillance audit): The client will provide evidence that there are management plans for all species. At the End of Year 2 (Second surveillance audit): The client will provide evidence, that the management plans are publicly available.				
	6 Summary of action plan				
	Fisheries Iceland will meet with the Ministry of Industry (former Ministry of Food, Agriculture and Fisheries) and ask for the management plans for these species to be made publicly available on the Ministry's website in English. In 2018 this information was available on the website of the Ministry of Food, Agriculture and Fisheries in 2018 but seems to have been lost. See old website: https://www.government.is/news/article/?newsid=cf30e5ad-584f-11e8-9429-005056bc4d74 Fisheries Iceland expects updated management plans to publicly available and updated on the Ministry's website and the non-conformance to be closed by the next surveillance audit.				
	Milestone Action Roles & Outputs responsibilities				



Year 1 (First Surveillance)		Ministry of Industry is responsible of making management plans.	Management plans.
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Non-conforman	nce 2 (of 2)
Clause.	3.2.1.2 Information shall be available on the potential effect of fishing on endangered, threatened, and protected species ³¹² , as appropriate and relevant in the context of the unit of certification.
Non- conformance level.	Minor
Non- conformance.	Appropriate levels of information are not available on the potential effect of the fishery on TEP species. Available evidence suggests that far fewer incidences of seabird and marine mammal bycatch are reported via the electronic logbook system than would be expected given the levels reported by onboard inspectors.
Rationale.	Evidence. Various sources of information (MFRI observer reports, the Directorate of Fisheries landings database, and logbook records from the client fleet) all indicate that the impact on TEP species in the UoA areas from gears used in the Icelandic herring fisheries is low. The MFRI provided further bycatch estimates for marine mammals and seabirds in 2024 for years 2022 -2023. Observed bycatch by onboard inspectors and in surveys in 2022 was reported in the 2023 ICES Working Group on Bycatch (WGBYC) report (ICES 2023). The 2023 ICES WGBYC report stated that in the Iceland Sea Ecoregion in 2022, 113 days at sea were monitored in nets and 327 days in bottom trawls, with a monitoring coverage of 3.47%. All monitoring was performed by at-sea observers. During the site visit the following observer coverage was confirmed by Fiskistofa staff. • 3% purse seine coverage from 9 trips • 2.2% midwater trawl coverage from 11 inspected trips The status of TEP species in the area is kept under review by scientists from Iceland and from other nations (for instance in their cooperation in ICES and NAMMCO working groups). A comprehensive list of TEP species listed under OSPAR and under the INH Red List, as relevant

³¹² Species recognised by Icelandic legislation and/or binding international agreements to which the Icelandic authorities are party. Binding international agreements as applicable in Icelandic jurisdiction.

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and interacting with the fishery under assessment (including marine mammals and seabirds), has been assessed in <u>Clause 3.1.1</u>. Please refer to it for further information.

By-catch of seabirds in the fisheries under assessment are considered extremely low. Although several bird species are recorded as incidental catch in Icelandic fishing gears, this recorded catch has been confined to gillnets, demersal trawls, and long-lines (Pálsson *et al.*, 2015; ICES WGBYC, 2023). As reported in section 5.7.1 records of bycaught birds range from 1-5 per year apart from the Common Guillemot (*Uria aalge,* ISL. Langvía). In midwater trawl, only common guillemots were reported by the inspectors, while no bycatch was reported in the logbooks and no bird bycatch was reported for purse seine.

Observed bycatch of mammals by onboard inspectors/observers has been reported annually in reports by the ICES Working Group on Bycatch (WGBYC). No estimates are available based on those numbers, as they are extremely low. In the last report of the Working Group on Bycatch of Protected Species (WGBYC) in 2023, in the Iceland Sea ecoregion in 2022, 520 days at sea were observed from a total of 14,983 fishing days (3.47% coverage). Harbour porpoise was the largest proportion of cetacean bycatches in 2021, 2022 and 2023 (36, 30 and 45 respectively) (MFRI data 2024).

The MRFI provided the assessment team with data from logbooks provided by the Directorate of Fisheries for the year 2023 (Error! Reference source not found.). Earlier years w ere not available, due to the transition from paper logbooks to logbook apps and electronic logbook forms. Although, Bastran and Sigurðsson (2021) reported an improvement in reporting, significant underreporting is still likely, especially for cod gillnets where general logbook underreporting appears to be still significant, especially so for harbour porpoise (0.9 observer catch rate vs 0.009 reported bycatch rate) and common guillemot (2.027 reported catch rate vs 0.000 reported bycatch rate). Although some minor improvements in logbook recording may have occurred since 2019, logbook data has been provided for one year only (2023) and it is hard to draw any solid and defensible conclusions e.g. adoption/behavioural trends from it. Therefore, it cannot be said that information is available on the potential effect of fishing on endangered, threatened, and protected species, as appropriate and relevant in the context of the unit of certification and a non-conformance is raised.

Corrective Action Plan

In accordance with rules of the IRFF Programme, the Client is required to submit a Corrective Action Plan (CAP) within 28 days. This CAP must both address the non-conformances and close them out within a defined period.

Please note that, 28 days is the period for receiving a response that addresses any non-conformance(s) and it is understood that implementation of actions associated with the corrective actions may be on-going for an extended period.

1 Non- conformance number

NC #2

2 Clause(s)



Clause 3.2.1.2 Information shall be available on the potential effect of fishing on endangered, threatened, and protected species, as appropriate and relevant in the context of the unit of certification.

3 Non-conformance level.

Minor non-conformance

4 Non-conformance

Appropriate levels of information are not available on the potential effect of the fishery on ETP species. Available evidence suggests that far fewer incidences of seabird and marine mammal bycatch are reported via the electronic logbook system than would be expected given the levels reported by onboard inspectors.

5 Milestone(s)

At the End of Year 1 (First surveillance audit, March 2026):

There shall be evidence of the Client's plan to encourage and enable fishing vessels to record all seabird or marine mammal bycatch in electronic logbook systems.

At the End of Year 2 (Second surveillance audit, March 2027):

There shall be evidence of implementation of the Client's plan to encourage and enable fishing vessels to record all seabird or marine mammal bycatch in electronic logbook systems.

At the End of Year 3 (Third surveillance audit, March 2028):

There shall be evidence of implementation of the Client's plan to encourage and enable fishing vessels to record all seabird or marine mammal bycatch in electronic logbook systems. There shall be evidence of improvement in bycatch reporting rates in the Client fleet.

At the End of Year 4 (Fourth surveillance audit, March 2029):

There shall be sufficient quantitative information, from logbooks, observers or other sources such that the rate and trends in bycatch of ETP species can be evaluated. There shall be sufficient data on populations that impacts of the fishery can be evaluated.

6 Summary of action plan

Fisheries Iceland will produce and distribute material to its members on the regulation and the obligation of reporting seabirds and marine mammal bycatch. This will reach skippers using all gear types. The client will ask for the cooperation of the Directorate of Fisheries to distribute information as well as not all vessel owners are members of Fisheries Iceland Follow-up meetings if needed.

The client will ask MFRI for an updated report on trends in bycatch of ETP species and evaluation of the impacts of fishery on ETP species.

Milestone	Action	Roles & responsibilities	Outputs
At the End of Year	Client will produce	Members of Fisheries	Material sent out.
1 (First	and distribute	Iceland.	
surveillance audit,	material to its	MFRI.	
March 2026)	members on the	Directorate of	
	obligation of	Fisheries.	
	recording seabirds		



	and marine			l
	mammals bycatch			1
	in logbooks.			1
	Client will ask the			1
	Directorate to			1
	assist in reaching			1
	those vessel			1
	owners that are			1
	not members of			1
	Fisheries Iceland.			1
	Client will meet			
	with the MFRI and			
	Directorate and			
				1
	inform on the plan			
	on improving			
	recording in			1
	logbooks and ask			l
	MFRI and			l
	Directorate to			1
	follow this closely.			l
	Client will ask MFRI			l
	and the			1
	Directorate for			l
	statistics on			l
	logbook recording			1
	at the end of year			
	1.			
	Depending on			
	results, client will			
	reach out to			
	specific vessel			
	groups if needed			
	and urge them to			
	record in logbooks.			
At the End of Year	Client will send out	Members of Fisheries	Material sent out.	
		Iceland.	iviateriai serit out.	
2 (Second	•	iceidiiu.		
surveillance audit,	recording in			
March 2027)	logbooks.			
	Get information			
	from MFRI and			
	Directorate on			



	logbook data for possible result. Early results will be made available from reported data with preliminary estimates of bycatch		Second Year Preliminary report.
At the End of Ye 3 (The surveillance aud March 2028)	rd reminder of	Members of Fisheries Iceland. MFRI.	Material sent out. Paper from MFRI.
At the End of Ye 4 (Four surveillance aud March 2029)	ar Client will ask MRFI th to update the	MRFI	Report from MRFI with estimates of ETP bycatch.



13. Recommendation and Determination

13.1.1. Assessment Team Recommendation

The assessment team recommends that the management system of the applicant fisheries, the Icelandic Summer Spawning Herring commercial fisheries under state management by Icelandic Ministry of Food, Agriculture and Fisheries, fished directly by purse seine nets and pelagic trawls and indirectly by gears from other Icelandic fisheries legally landing herring, be granted certification.

13.1.2. Certification Committee Determination

NSF/Global Trust's internal Certification Committee has determined that the management system of the applicant fisheries, Icelandic Summer Spawning Herring commercial fisheries under state management by the Icelandic Ministry of Industries and Innovation, fished directly by purse seine nets and pelagic trawls and indirectly by gears from other Icelandic fisheries legally landing herring, be granted certification.

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15. Appendix 1. Assessment Team Bios

Based on the technical expertise required to carry out the above fishery assessment, GTC selected the Assessment team members for the fishery as follows.

Deirdre Hoare, Lead Assessor

Deirdre Hoare is a fisheries scientist with over 15 years of experience in a wide range of projects associated with fisheries stock assessment and ecosystem impacts of fisheries. She is an ISO19011 Certified Lead Auditor and MSC FCR v.2.0 and FCP v.2.1 approved Fisheries Team Leader for NSF. Deirdre has a BSc and MSc in Marine Zoology from University College Galway. Until recently Deirdre worked as an independent MSC Principle 2 expert on many different fisheries in Europe, Greenland, North America and Asia. Principle 2 focuses on the effects of the fishery on associated species of fish and interactions with seabirds, marine mammals, and the benthic ecology. Prior to this, she held the position of Fishery Science Manager at MarinTrust, working on reduction fishery sustainability. Before this, she worked North-western Waters Advisory Council as an Executive Assistant. This involved working on multidisciplinary and multilingual teams to consult with stakeholders, gather evidence, and produce substantial reports and proposals for the European Commission. As a Fisheries Assessment Analyst and a Scientific and Technical Officer for the Marine Institute in Ireland, she was involved in fisheries research and stock assessment for ICES working groups. As well as having worked as a researcher, she completed many trips on commercial fishing vessels as a scientific observer in the NAFO area, Northwest Atlantic, and Irish Coast.

Vito Romito, Assessor

Vito has 10 years of expertise in fisheries certification and is an ISO14001 Certified Lead Auditor and MSC FCR v.2.0 and FCP v.2.1 approved Fisheries Team Leader for NSF with extensive experience in ecosystems effects of fisheries. Vito received a BSc (Honours) in Ecology and a MSc in Tropical Coastal Management from Newcastle University (U.K.), in between which he worked for a year in Tanzania, carrying out comparative biodiversity assessments of pristine and dynamited coral reef ecosystems around the Mafia Island Marine Park. For five years he worked at Global Trust Certification/ later SAI Global as Lead Assessor for all the fishery assessments in Alaska, Iceland and Louisiana. Vito has also carried out several IFFO forage fisheries assessments in Chile, Peru, Europe and other various pre-assessments in Atlantic and Pacific Canada. To date, Vito has headed and conducted dozens of assessments involving 40+ different species including salmonid, groundfish, pelagic, flatfish, crustacean and cephalopod species in Europe, North and South America, and SE Asia. For three years, as a senior fisheries consultant and then manager with RS Standards Ltd., he was involved in the development and testing of a Data Deficient Fisheries framework and v.2.0 fisheries standard for the





ASMI Alaska RFM Scheme, and IFFO RS Improver/FIP projects related to South East Asia multispecies bottom trawl fisheries. Vito re-joined the SAI Global Fisheries Team in 2018 and has since been involved in MSC and RFM fisheries assessments in Canada, New England, Iceland, Alaska and Louisiana, the Baltic Sea, Ireland and Italy.

Rasmus Hedeholm

Dr. Ramus Hedeholm is an independent fisheries consultant with 15 years of experience specializing in stock assessment, research, and management consultancy in both small and large-scale fisheries. For a decade, he served as a senior scientist at the Greenland Institute of Natural Resources in Nuuk, Greenland. In this capacity, he provided expert advice to government policymakers on fisheries matters, which required close collaboration with various stakeholders, including fisheries managers, scientists, legislators, and NGOs. RH has been a primary stock assessor for a decade, worked actively in the International Council for the Exploration of the Sea (ICES) as an expert group member, expert group chairman and an Advisory Committee (ACOM) member. RH also served as a NAFO observer for the past five years.

RHs has a Ph.D. in marine ecology and his scientific background in fish biology has had particular emphasis on demersal fish, small pelagics, sharks, and bycatch. Research highlights include integrating genetics and stock dynamics, ecological interactions, investigating key aspects of long-lived elasmobranch life history traits, and studying bycatch and methods for its mitigation. RH has more than 40 peer-reviewed publications.

RH has completed all relevant MSC training modules necessary for conducting MSC assessments and has been a member of the MSC Technical Advisory Board (TAB). RH has expertise in demersal and pelagic species fish such as gadoids, redfish, flatfish, small pelagics, lumpfish etc.

Christos Maravelias

Dr. Christos Maravelias is a Professor of Ichthyology in the University of Thessaly (UTH) and former Director of Research in the Institute of Marine Biological Resources (IMBR) of the Hellenic Centre for Marine Research (HCMR). Previously (2016-2020) he worked as a Senior Policy Officer in the DG MARE of the European Commission in Brussels responsible for the implementation of EU Common Fisheries Policy, fisheries management and conservation policy in the Mediterranean and Black Sea. DG MARE Coordinator of the EU Enlargement/European Neighbourhood Policy work. Lecturer in the UTH, Greece from 2000-2005. He has 30 years of high-level hands-on experience with international scientific collaborations through numerous European projects, scientific working groups, data collection/analysis, stock assessment, evaluation and impact assessment of alternative management strategies in Mediterranean fisheries. He has published more than 100 publications in ISI scientific journals. Member of the Editorial Board of ICES Journal of Marine Science, PLOS One and enlisted on the 2023 Stanford University World's Top 2% Most-cited Scientists.

He has been the Fisheries Expert of the 7th Framework Programme of the European Commission (EC) in the Directorate General for Research and Technological Development (DG RTD) in Brussels. Since 2000 has been acting as an independent Expert Consultant for the European Commission, DG MARE for progress monitoring of approved FP5 and FP6 research programs in the fields of Fisheries Management + Interactions / environment as well as Policy Oriented Research. Dr. Maravelias holds a Ph.D degree in Fisheries Biology from the University of Aberdeen, Scotland (United Kingdom), with his Ph.D thesis entitled: "North Sea herring (Clupea harengus, L.) distribution in relation to environment: analysis of acoustic survey data (1992-95)." He also holds a M.Sc degree in Fisheries Biology and Management from the University of Wales, Bangor (United Kingdom) and a B.Sc degree in Biology from the Aristotle University of Thessaloniki (Greece).





16. Appendix 2. MFRI Letter October 2024



Comparison between bycatch reported in logbooks and bycatch observations from surveys or onboard inspectors in Icelandic fisheries

Guðjón Már Sigurðsson, Marine and Freshwater Research Institute

Introduction

The objective of this summary was to compare bycatch of marine mammals and seabirds submitted in electronic logbooks and as reported by onboard inspectors from the Directorate of Fisheries or on surveys conducted by the Marine and Freshwater Research Institute (MFRI). This summary was made by request from certification bodies that are conducting a review of various Icelandic fisheries. This report is a stop gap measure, as this information will be included in a formal advice and technical report on bycatch in Icelandic waters from June 2025 and onwards.

Materials and methods

Data from logbooks were provided by the Directorate of Fisheries for the year 2023. Earlier years were not available, due to the transition from paper logbooks to logbook apps and electronic logbook forms. Data from onboard inspectors were provided by the Directorate of Fisheries for the last 5 years, or from 2020-2023. Additionally, data from three MFRI surveys were also used to calculate bycatch rates. These three surveys are a spring survey for demersal fish with a benthic trawl in March, inshore gillnet survey for spawning cod in April, and fall survey for demersal fish with a benthic trawl in October. As raised bycatch estimates are available for the lumpsucker fishery, these were compared to reported bycatch in logbooks in that fishery. In other fisheries, the bycatch per fishing trip/landing in both observed trips and logbooks were contrasted.

Results

When compared to the annual bycatch estimates in the lumpsucker fishery, reported marine mammal bycatch in the logbooks are in some cases quite similar or within the confidence intervals of the estimated total annual bycatch (Table 1). The main difference is for harbour seals, where estimated bycatch is considerably higher than reported bycatch in logbooks (~500 vs ~160 seals). Some rarer species such as vagrant seals and dolphins are also only reported in the logbooks, but not by the inspectors.

For seabirds, most of the reported bycatch in logbooks is considerably lower than the estimated bycatch, with few exceptions. The main difference is in the reported bycatch of cormorants, which is higher than estimated bycatch, and like for the mammals, some of the rarer bird species are only reported in the logbooks (Table 1).

Table 1. Estimated bycatch based on onboard inspections in 2020-2023 compared to reported bycatch in fishing logbooks in 2023 in the gillnet fishery for lumpsucker.

Species	Estimated annual bycatch based on data from inspectors 2020- 2023 (95% CI)	Reported bycatch in logbooks 2023
Harbour porpoise	108 (41-175)	117
Harbour seal	501 (296-716)	157
Grey seal	159 (27-291)	47



Harp seal	0	16
Ring seal	0	20
Bearded seal	0	1
Seal, not identified to species	0	60
White-beaked dolphin	0	3
Common dolphin	0	2
Total, marine mammals	768 (364-1182)	423
Common guillemot	890 (392-1388)	302
Brünnich's guillemot	54 (16-92)	8
Blackguillemot	1485 (698-2272)	635
Cormorants	333 (120-546)	424
Eider	2245 (1280-3210)	953
Puffin	10 (1-20)	17
Long tailed duck	50 (5-90)	6
Black legged kittiwake	10 (1-20)	1
Razorbill	28 (3-52)	8
Northern gannet	10 (1-20)	2
Common toon	11 (1-22)	5
Red throated loon	0	3
Fulmar	41 (14-66)	5
Alcids, not identified to species	0	36
Birds, not identified to species	0	18
Total seabirds	5167 (2894-7440)	2423

In other fishing gears the difference varies with gears and species (Table 2).

In midwater trawl, only common guillemots were reported by the inspectors, while no bycatch was reported in the logbooks. In demersal trawl, grey seal and medium sized whale were reported in logbooks, while no bycatch was observed by the inspectors or in surveys (Table 2).

Cod gillnets differ a bit from other gears, with more species being observed by inspectors and in surveys than are reported in the logbooks. As an example, humpback whales, white-beaked dolphins, and two seal species were observed by the inspectors or in the survey but not in the logbooks and similarly several bird species were only observed by the inspectors/surveys. Observed bycatch rates were also higher in the inspector/survey dataset than in logbooks, in particular for harbour porpoise and common guillemot. In Greenland halibut gillnets, one grey seal was reported in logbooks while none were observed by inspectors.

In longlines, only seabirds were reported bycaught in both data sources. While the bycatch rate of the most common species observed (fulmars) was quite similar (0.19 vs 0.13), more species



were reported in the logbooks than by the inspectors. This includes several species of gulls, gannets, skuas, and alcids. One common dolphin was reported bycaught on handlines in the logbooks and is likely a mistake as the species is rare in Icelandic waters, and it would be very difficult to catch a dolphin using that fishing gear.

Table 2. Bycatch in other fishing gears as reported by onboard inspectors between 2020 and 2023, and by the fishing fleet in 2023. The numbers are standardized by the number of landings (inspected and total).

Species	Fishing gear	Observed bycatch rate	Reported bycatch rate
Op		(n/observed landings)	in logbooks (n/total
		(landings)
Common guillemot	Midwater trawl	0.021 (2/96)	0.000 (0/2855)
Grey seal	Demersal trawl	0.000 (0/165)	0.00002 (1/44566)
Unidentified medium	Demersal trawl	0.000 (0/165)	0.00002 (1/44566)
sized whale		,	
Harbour porpoise	Cod gillnets	0.893 (134/150)	0.009 (30/32549)
Humpback whale	Cod gillnets	0.013 (2/150)	0.000 (0/3254)
White-beaked dolphin	Cod gillnets	0.013 (2/150)	0.000 (0/3254)
Harbour seal	Cod gillnets	0.047 (7/150)	0.002 (5/3254)
Ringed seal	Cod gillnets	0.007 (1/150)	0.000 (0/3254)
Harp seal	Cod gillnets	0.020 (3/150)	0.000 (0/3254)
Alcids, not identified to	Cod gillnets	0.000 (0/150)	0.005 (16/3254)
species			
Common guillemot	Cod gillnets	2.027 (304/150)	0.000 (0/3254)
Fulmar	Cod gillnets	0.053 (8/150)	0.000 (0/3254)
Razorbill	Cod gillnets	0.027 (4/150)	0.000 (0/3254)
Northern gannet	Cod gillnets	0.007 (1/150)	0.000 (0/3254)
Common loon	Cod gillnets	0.007 (1/150)	0.000 (0/3254
Eider	Cod gillnets	0.007 (1/150)	0.000 (0/3254)
Long tailed duck	Cod gillnets	0.007 (1/150)	0.000 (0/3254)
Grey seal	Greenland halibut	0.000 (0/150)	0.001 (1/860)
	gillnets		
Fulmar	Longline	0.194 (7/36)	0.128 (1000/7796)
Northern gannet	Longline	0.000 (0/36)	0.004 (31/7796)
Great black-backed	Longline	0.000 (0/36)	0.004 (32/7796)
gull			
Glaucous gull	Longline	0.000 (0/36)	0.0004 (3/7796)
Black legged kittiwake	Longline	0.000 (0/36)	0.0004 (3/7796)
European herring gull	Longline	0.000 (0/36)	0.0012 (9/7796)
Great skua	Longline	0.000 (0/36)	0.0003 (2/7796)
Lesser black-backed	Longline	0.000 (0/36)	0.0024 (19/7796)
gull			
Black guillemot	Longline	0.000 (0/36)	0.0001 (1/7796)
Alcids, not identified to	Longline	0.000 (0/36)	0.0004 (3/7796)
species			
Seagulls, not identified	Longline	0.000 (0/36)	0.0003 (2/7796)
to species			
Common dolphin	Handline	0.000 (0/6)	0.001 (1/18296)

Discussion

In an earlier comparison between two data sources, based on data from 2009-2019 the differences in bycatch rates between logbooks and onboard inspector data in Icelandic net





fisheries were staggering, with the rates from inspectors being hundreds or thousands percent higher, and suggested that very little part of the fleet was reporting bycatch in logbooks at that time, particularly in the cod gillnets (Basran and Sigurdsson 2021). The results presented here show considerable improvements in most fisheries, and the estimates or rates are quite similar in both data sources in many cases.

The results from both the lumpsucker and the longline fishery, and to lesser extent the demersal trawl fishery, show more species in the logbooks, which suggests that onboard monitoring levels are not high enough to catch bycatch events of rarer species. The logbook data from those two fisheries therefore compliment the data from onboard inspections by elucidating rarer events.

Bycatch rates in cod gillnets based on logbooks are still quite a bit lower than the rates based on onboard observations by inspectors or during the MFRI survey, and fewer species are reported in the logbooks. While reporting has improved considerably compared to the study mentioned here above (Basran and Sigurdsson 2021), there is perhaps more room for improvement in that fishery than in others where the estimates/rates are more similar.

References

Basran CJ and Sigurðsson GM (2021) Using Case Studies to Investigate Cetacean

Bycatch/Interaction Under-Reporting in Countries With Reporting Legislation. Front. Mar. Sci.
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17. Appendix 3. Fiskistofa letter 2024



To whom it may concern

tel: 569 7900 • fax: 569 7990 email: fiskistofa@fiskistofa.is fiskistofa.is

Akureyri, July 3, 2024 Tilv. 2024-06-26-0915/3.5.2 Sjávarspendýr

Subject: Marine mammals and bird's registrations

In Regulation 307/2023 on digital registration and submission of catch information, Article 3 states that captains must record information as accurately as possible. The regulation lists 10 items that must be recorded, including:

Item 7: Seabirds by number and species

Item 8: Marine mammals by number and type

Fiskistofa considers violations of items 7 and 8 to be serious infringements. If an inspector becomes aware of such violations, deviation reports are registered and sent for legal processing.

In this light, inspectors of Fiskistofa ensure that the registration in the catch logbook is as accurate as possible when conducting sea inspections during fishing trips, staying on board for the entire fishing trip. Special inspections are regularly conducted; for example, during the 2023 lumpfish season, 5% of fishing trips were inspected to ensure correct entries in the catch logbook. Fiskistofa also uses PBI reports from catch registers to monitor the registration of marine mammals and birds.

Fiskistofa has confirmed the purchase of a longer-range drone, with training already in progress. We expect that surveillance with these drones will begin in the fall. Drone monitoring will be a part of the overall monitoring of bycatch registration for birds and marine mammals. Over the past year, special emphasis has been placed on inspectors checking for the presence of birds or marine mammals in fishing gear during drone surveillance.

This, in a nutshell, outlines the control measures Fiskistofa carries out regarding the bycatch of birds and marine mammals.

On behalf of The Directorate of Fisheries, Iceland Elín Björg Ragnarsdóttir - General manager

Elin Bj. Ragnarsd.