Iceland Responsible Fisheries Foundation (IRFF)

Iceland Responsible Fisheries Certification Programme

CERTIFIED

Icelandic Tusk Commercial Fishery

4th Surveillance Assessment Report

Certification Body (CB):	**Global Trust Certification**
Assessment team:	Vito Romito, Lead Assessor Deirdre Hoare, Assessor Rasmus Hedeholm, Assessor Christos Maravelias, Assessor
Fishery client:	Samtök fyrirtækja í sjávarútvegi (SFS) (Fisheries Iceland), The National Association of Small Boat Owners, Iceland (NASBO)
Assessment Type:	Surveillance Assessment 4
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Foreword

The Iceland Responsible Fisheries (IRF) Certification Programme is based on articles and substantive criteria from the United Nations Food & Agriculture Organization (FAO) reference documents, FAO Code of Conduct for Responsible Fisheries (CCRF(1995)) as well as the FAO Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries (2005/2009).

A full description of the standard-setting arrangements, normative references and processes can be obtained from the Iceland Responsible Fisheries Foundation that owns and operates the brand of Iceland Responsible Fisheries including the certification programme. For more details visit https://www.responsiblefisheries.is/.

1 Contents

1.1 List of Figures

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2 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
ETP Endangered, Threatened and Protected species*
FAO United Nations Food and Agriculture Organization
F_{lim} 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

*Species recognised by Icelandic legislation and/or binding intemational agreements to which the Icelandic authorities are party. Binding intemational agreements as applicable in Icelandic jurisdiction.

3 Executive Summary

This 4th Iceland Responsible Fisheries (IRF) surveillance audit was conducted in mid-2024 by a team of four auditors, Deirdre Hoare, Vito Romito, Rasmus Hedeholm and Christos Maravelias whose experience, qualification and responsibilities has been detailed below in Section Error! Reference source not found.. The site visits for the current surveillance were held on site, in Iceland. Meetings with the Client, industry, management, science, and enforcement representatives were held on week commencing the 17th of June 2024 to gather information on the fisheries under assessment and to discuss progress relative to any open non-conformances, in addition to the desktop review part of the audit. This fishery audit was combined with the other 6 fisheries certified under the IRF program. Vito Romito acted as lead assessor until after the site visit when Deirdre Hoare took over the role as lead assessor.

The fishery under assessment failed to provide sufficient evidence to close non-conformance #1 and therefore does not remain in compliance with the IRF Standard Revision 2.0. Global Trust determines that the fishery is failing to meet the requirements of certification and shall provide the Client 28 days notification of its intention to withdraw the certificate in advance of the intended withdrawal. If after, the 28 day period, further evidence is not provided to resolve the failure of certification requirements, the fishery shall be considered to have failed certification requirements and the Certificate shall be withdrawn and any unreturned certificates shall be invalidated.

Following this surveillance audit, the Assessment Team recommends that the fishery not be awarded continuing certified against Icelandic RFM Certification Program Fisheries Standard Issue 1.2 and that the certificate be withdrawn.

The involvement of a Certification's Certification Committee is only required where one or more new non-conformances are raised during a Surveillance Audit. As no new non-conformances were raised during this Surveillance Audit, the involvement of a Global Trust's Certification Committee is not required; therefore, the above recommendation of the assessment team constitutes a Determination.

3.1 Assessment Team Details

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

3.2 Details of applicable IRF Documents

This assessment was conducted according to the relevant program documents outlined in Table 1 below.

Table 1. Relevant IRF program documents including applicable versions.

Document title	Version number, Issue Date	Usage
IRF Responsible Fisheries Management Standard Revision 2.0	Revision 2.0, June 2016	Standard
IRF Certification Requirements Revision 1.2	Version 1.2, October 2018	Process

4 Fishery Applicant Details

Table 2. Applicant details.

Applicant Contact Information		
Organisation/Company Name:		Samtök fyrirtækja í sjávarútvegi (SFS) (Fisheries Iceland)
Date:		November 2020
Address:	**Building:**	
	Street:	Borgartún 35
	City:	Reykjavík
	Country:	Iceland
	Postal Code:	
Phone:		(354) 591 0300
Web:		www.sfs.is
Contact person:		Heiðrún Lind Marteinsdóttir
Position:		CEO
E-mail Address		heidrun@sfs.is
Applicant Contact Information		
Organisation/Company Name:		The National Association of Small Boat Owners, Iceland (NASBO)
Date:		November 2020
Address:	**Building:**	
	Street:	Hverfisgötu 105
	City:	101 Reykjavik
	Country:	Iceland
	Postal Code:	IS-101
Phone:		(354) 552 7922
Web:		www.smabatar.is

Contact person:	Örn Pálsson
Position:	Managing Director
E-mail Address	orn@smabatar.is

5 Units of Certification

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

Table 3. Unit of Certification (UoC).

Species:	**Common name (ENG and ISL):**	Tusk/Cusk (Keila)
	Latin name:	*Brosme brosme*
Geographical Area(s)		Iceland 200-mile EEZ within FAO Fishing Area 27
Stock(s)		Tusk in ICES Division 5a (Iceland grounds)
Management System		Ministry of Industries and Innovation (Iceland)
Fishing gear(s)/method(s)		Demersal trawl; Long-line; Gill net; Danish Seine; Hook and line (Handline) by small vessels; Gears from other Icelandic fisheries legally landing tusk*
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.

6 Assessment Process

This Assessment constitutes a summary evaluation of the applicant fisheries' continuing conformance (or not) to the relevant IRF Fisheries Standard and Scheme Requirements.

Surveillance audits are required to consider all sections of the IRF Standard, although this may take the form of a summary of relevant and new information that demonstrates the level of conformity to the criteria.

IRF surveillance audits are required to include:

- Compliance and progress of the fishery, specific to agreed corrective action plans against non-conformances raised in the initial certification or subsequent surveillance reports.
  - Sufficient detail on progress and evidence of close out shall be presented in surveillance reports.
- Changes in the management regime and processes that may affect the outcome of certification.
- New information on the status of stocks from recent survey, assessment and other information of a scientific basis that may affect the outcome of certification.
- Continued compliance with the IRF Standard.

Where areas of new non-conformity arise, these shall be managed in accordance with the Certification Requirements for assigning non-conformances.

6.1 Surveillance Meetings

Table 4 below provides information about the on-site visit meetings held on June 18th – 27th, 2024 in Iceland for the combined audit of the Icelandic cod, haddock, saithe, Golden redfish, common ling, tusk and summer spawning herring commercial fisheries.

Table 4. Summary of assessment meetings that took place on June 18th – 27th 2024 in Iceland and remote.

Meeting Date and Location	Personnel	Areas of discussion/agenda points
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	Topics Discussed: • 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:* • *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. Reduction in catches for 2022/2023?

		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 19th 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	Please provide with any updates on: ▪ 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 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)** ▪ 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:* ▪ *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	**<u>Stock Assessment, Status and Advice</u>** ▪ 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? ▪ **<u>Ecosystem effects of the fisheries</u>** ▪ **Non-Conforming Areas and Corrective Actions (the deadline is 2024, 4th surveillance audit)** ▪ <u>This is the topic of Non Conformance 1</u>. 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 fishermen 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 26th June Location: Teams meeting	Institute of Natural History (IINH): Snorri Sigurðsson Sunna Björk Ragnarsdóttir GTC assessment Team: Vito Romito	▪ 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?

	Rasmus Hedeholm Christos Maravelias	▪ 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 27th	Client closing meeting: Hrefna Karlsdóttir, Senior Advisor at Fisheries Iceland. Sigrid Merino, CEO, IRFF. GTC assessment Team: Vito Romito Rasmus Hedeholm Christos Maravelias	▪ 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.
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 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 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)** ▪ <u>This is the topic of Non Conformance 1</u>. 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? ▪ <u>This is the topic of Non Conformance 2</u>. Spotted wolffish can now be released after capture as per new 2020 regulation. Are fishermen reporting released vs landed spotted wolffish as different entries in the logbooks? Any other information on the subject?

7 Summary Findings

7.1 Relevant changes to Legislation/Regulations and the Management Regime

Fisheries legislation

Iceland has an established Marine Policy and a structured management system[1] covering all commercial species, including cod[2]. There is a principal Act *(last amendment No 116/2006)*[3] and a number of supporting Acts and Regulations for the management of the fishery.[4] Article 1 in the principal act states the overall objective for Icelandic fisheries management: *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.*

Institutions

There are a number of inter-related government agencies within the system under the direction of the Ministry of Industries and Innovation which has ultimate responsibility. The Ministry of Food, Agriculture and Fisheries[5] in Iceland is the principal management organization responsible for Icelandic fisheries and has the ultimate responsibility for fisheries management. They act according to law issued by the parliament (Alþingi), and according to advice from the Marine and Freshwater Research Institute (MFRI). The executive body is the Fisheries Directorate (Fiskistofa)[6,] which is responsible for the implementation of Fishery Regulations on behalf of the Ministry. Key functions of the Directorate of Fisheries include implementation of regulations, collection and collation of fishery catch data, managing and policing the Icelandic ITQ system and supporting research, survey work and Coastguard surveillance activities. The Icelandic Coast Guard[7] is responsible for control at sea, both of catches and the quality of the vessels. It performs sea and air patrols and monitoring of fishing within the Icelandic zone. It also operates the Icelandic Maritime Traffic Service within its operations centre which has a key role in ensuring safety at sea, but can also take action if the behaviour of a fishing vessels is unusual. The Marine and Freshwater Research Institute (MFRI)[8] conducts a wide range of marine research and provides the Ministry with scientific advice. MFRI has wide international cooperation in all major fields of marine science, as indicated by its publication record[9].

A recent change in the legislation has facilitated surveillance of activities at sea, in order to facilitate enforcement of rules and regulations in fishing operations and handling of catches[10].

7.2 Stock status update

Stock identity

The tusk stock structure remains poorly studied and there is no new information. Hence, the tusk assessment unit as defined by ICES, covering ICES Division 5a (Iceland) and 14 (East Greenland) remains unchanged (ICES 2024). This is in line with the repeated recommendation by ICES in the most recent expert group, WGDEEP (ICES 2024b),

1 http://www.fiskistofa.is/english/fisheries-management/
2 https://www.government.is/topics/business-and-industry/fisheries-in-iceland/
and
https://www.government.is/topics/business-and-industry/fisheries-in-iceland/fisheries-management/
3 https://www.althingi.is/lagas/nuna/2006116.html
4 https://simplebooklet.com/stjrnfiskveia20212022lgogreglugerir
5 https://www.government.is/ministries/ministry-of-food-agriculture-and-fisheries/
6 http://www.fiskistofa.is/english
7 http://www.lhg.is/english
8 https://www.hafogvatn.is
9 https://www.hafogvatn.is/is/midlun/utgafa/ritaskra
10 https://www.althingi.is/altext/stjt/2022.085.html

where Greenland is considered a sink for the tusk population, but the need for stock structure studies remains evident. In relation to the Icelandic tusk fishery and population, it is the connection to East Greenland that warrants attention.

The assessment continues to include only data from Iceland and this "domestic stock" approach has not changed. There is some exchange of scientific data with Greenland and the WGDEEP group notes that the results from Greenland deep water survey are monitored and is a potential biomass index, but it is not currently included in the assessment.

There is no cooperation on management of the stock between Iceland and Greenland. Greenland continues to set a TAC for tusk in its own waters, independently of Iceland. Catches in Greenland remain above 500 t and has increased to 764 t, which is 20% of the total 2023 catch. This catch is not sampled or included in the assessment (ICES 2023) and this may well need to be considered in future assessment and management.

Assessment data

The assessment method was revised in 2022 (ICES 2022) but the input data to the assessment remain the same; total catches from 1980-present, spring trawl survey from 1985-present, autumn trawl survey from 2000-present and spring gillnet survey from 2002-present. These are disaggregated by age using age-length keys, mostly from the surveys, and the data and data collection are described in detail in the stock annex (ICES 2023).

The data collection has remained unchanged for years, and there are no changes this year (Figure 1). Biological samples from the catch are taken at sea by the fishermen or in the harbours by people from MFRI and/or inspectors from the Directorate of Fisheries. The samples are analysed by MFRI. The sampling from the main gear (longline) increased substantially in 2023 to the highest level in five years. The sampling adequately covers the fishery in Icelandic waters (MFRI 2024) but there is no sampling in East Greenland waters.

All Icelandic catches of tusk (as well as all other commercial fish) have to be landed in authorized ports and weighed by authorized weighers. These landings are reported to the Directorate and are the primary source of catch data.

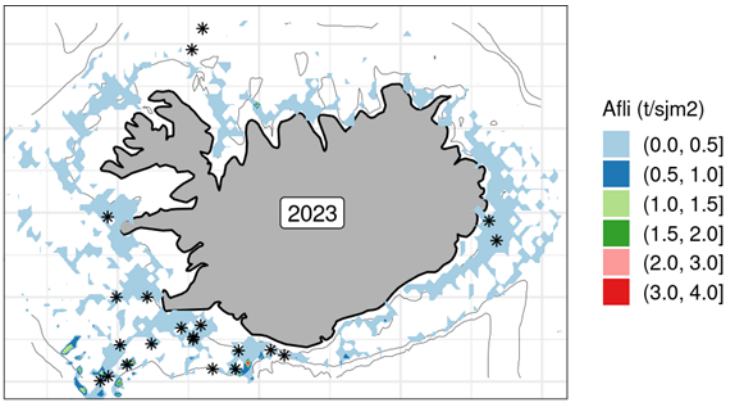


Figure 1. Sampling from and distribution of the tusk fishery in 2023. From MFRI (2024)

Discards

Discarding is prohibited in Iceland (https://www.althingi.is/lagas/nuna/1996057.html) and are considered negligible by ICES (ICES 2024) and MFRI (MFRI 2024b). There is no new information on discarding, but MFRI confirms that is not considered an issue in the tusk fishery. However, the observer coverage remains low and there is no independent verification of the bycatch levels.

Survey data

There are extensive Iceland groundfish surveys both in the spring and autumn covering the whole Icelandic EEZ (Figure 2). These surveys are more extensive than most surveys that are used around the world for routine

assessments (530 stations in the spring survey, 380 stations in the autumn survey). There are only minor changes from year to year, and 2023 was no exception. Additionally, there is a gillnet survey focusing more on the inshore areas. Figure 2 shows the general distribution of tusk by size around Iceland. There are also surveys in the East Greenland area where both the German and the Greenland deep-water survey are carried out annually, although the Greenland survey has not been conducted recently due to a shift in research vessel.

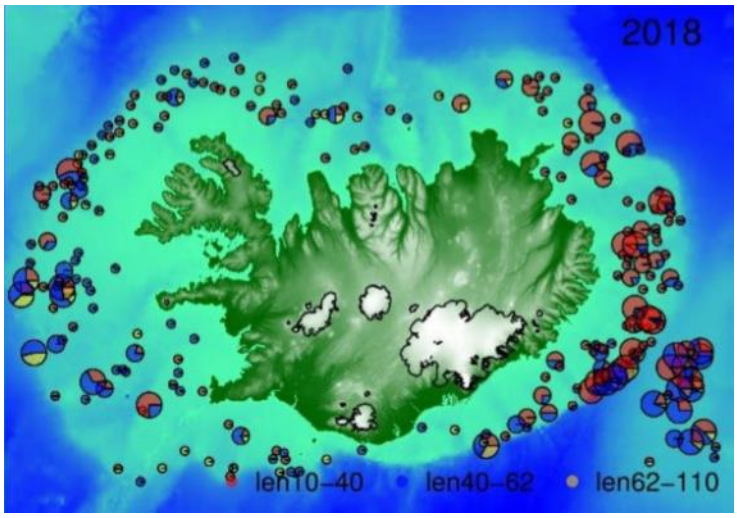


Figure 2. Tusk in 5.a spatial distribution divided by size. Size of pie is indicative of numbers of specimens caught at the tow-station

The Icelandic surveys have generally shown an increase both in large and smaller fish in the last 4-5 years and this trend is confirmed in the most recent year (Figure 3). This follows from a period of index decline. The German survey confirms the upward trend seen in Icelandic surveys and both MFRI and ICES follows the development in this, and the Greenland, survey (Figure 3). The relative distribution in the survey area (Iceland) has not changed and the biomass is primarily found in the deep waters south and west of Iceland (Figure 4).

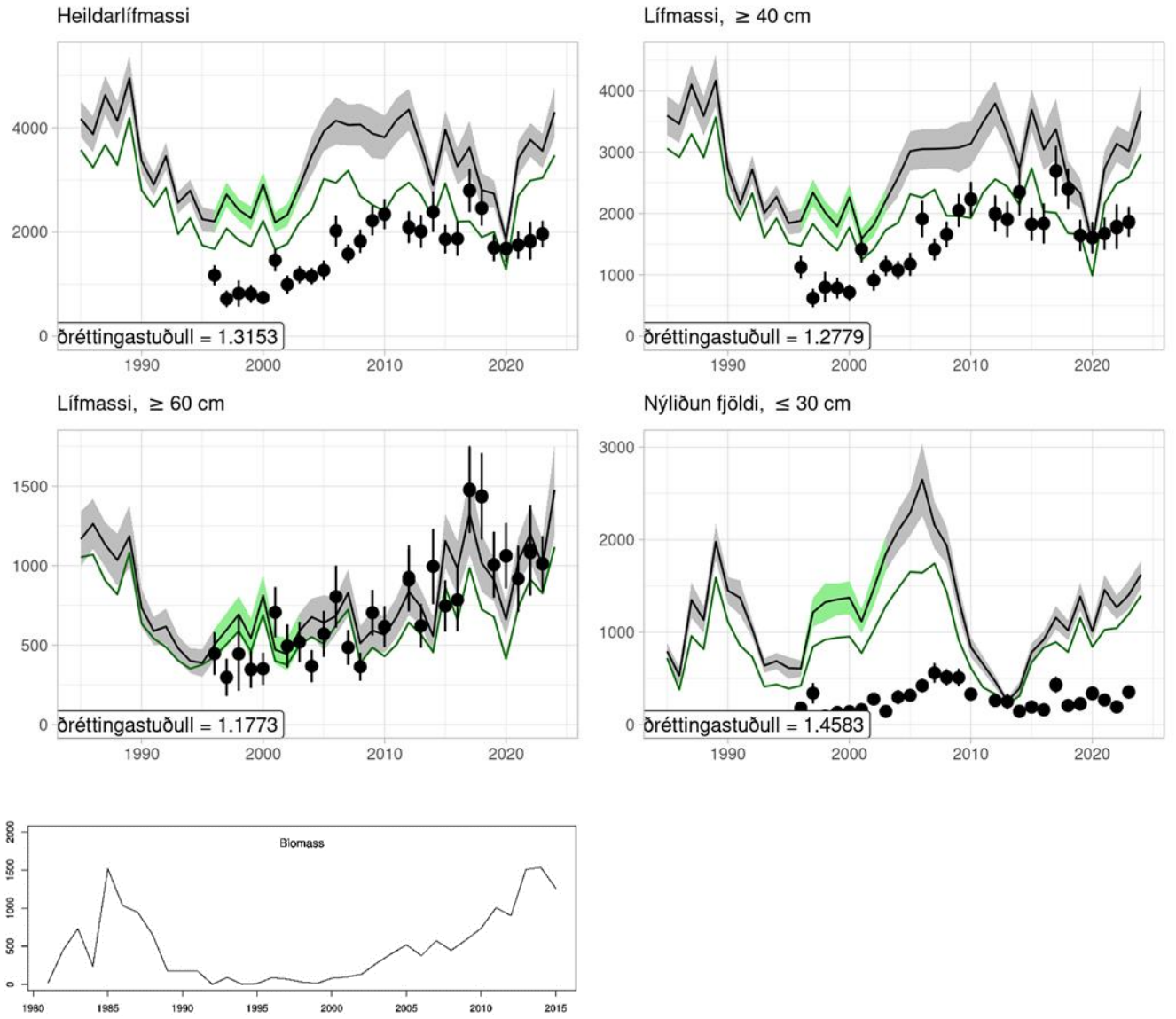


Figure 3. Upper left) Total biomass indices, Upper right) biomass indices larger than and including 40 cm. Middle left) biomass indices larger than and including 60 cm. Middle right) abundance indices smaller than and including 30 cm. The lines with shaded areas show the spring survey index from 1985 and the points with the vertical lines show the autumn survey from 1997. The shaded area and vertical lines indicate +/- standard error. The dark green line without a shaded area is the index excluding the Iceland-Faroe Ridge. Bottom left) Total tusk biomass index from the German survey in East Greenland. From MFRI (2024).

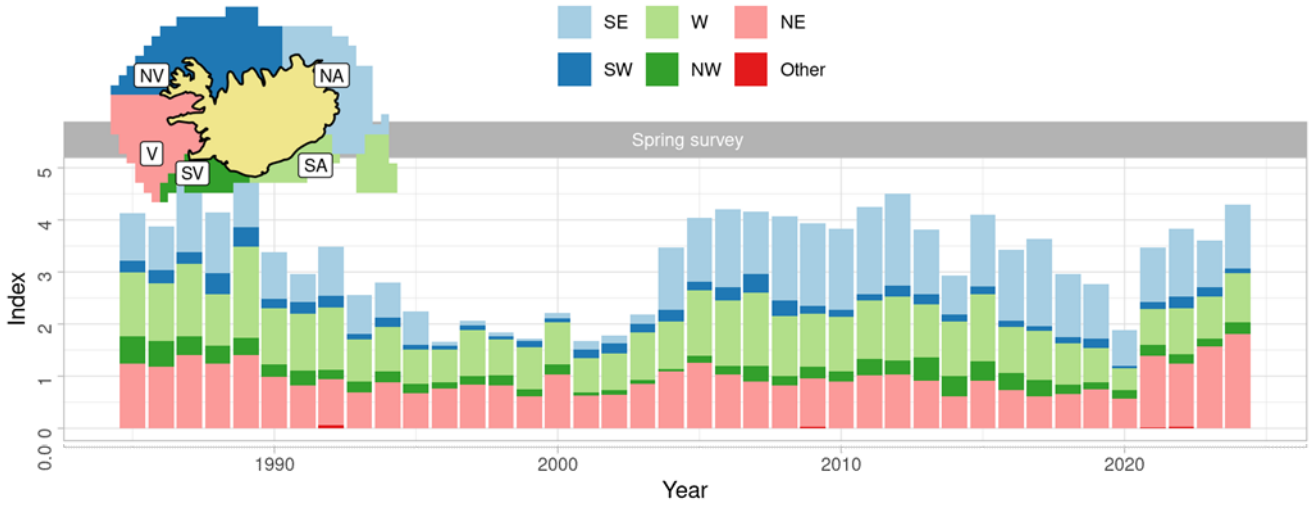


Figure 4 Estimated survey biomass in the spring survey by year from different parts of the continental shelf (upper figure). From MFRI (2024)

Stock assessment

Since the assessment model was changed from Gadget to SAM in 2022, there have been no changes in the assessment methodology. The SAM statistical catch-at-age model is described in detail in the benchmark report (ICES 2022) and in the tusk stock annex (ICES 2023).

The model performance well, and there is very little retrospective pattern and the Mohn's rho values are low for all the key diagnostics (0.02 for SSB, 0.03 for F, and 0.09 for recruitment) (Figure 5). There was a significant retrospective pattern for the recruitment in the previous assessment (MFRI 2023) but an additional year of data have improved this and there appears to be reliable estimates of recruitment. Although there are some blocks of consistent over- or underestimation this is not considered an issue for the credibility of the assessment.

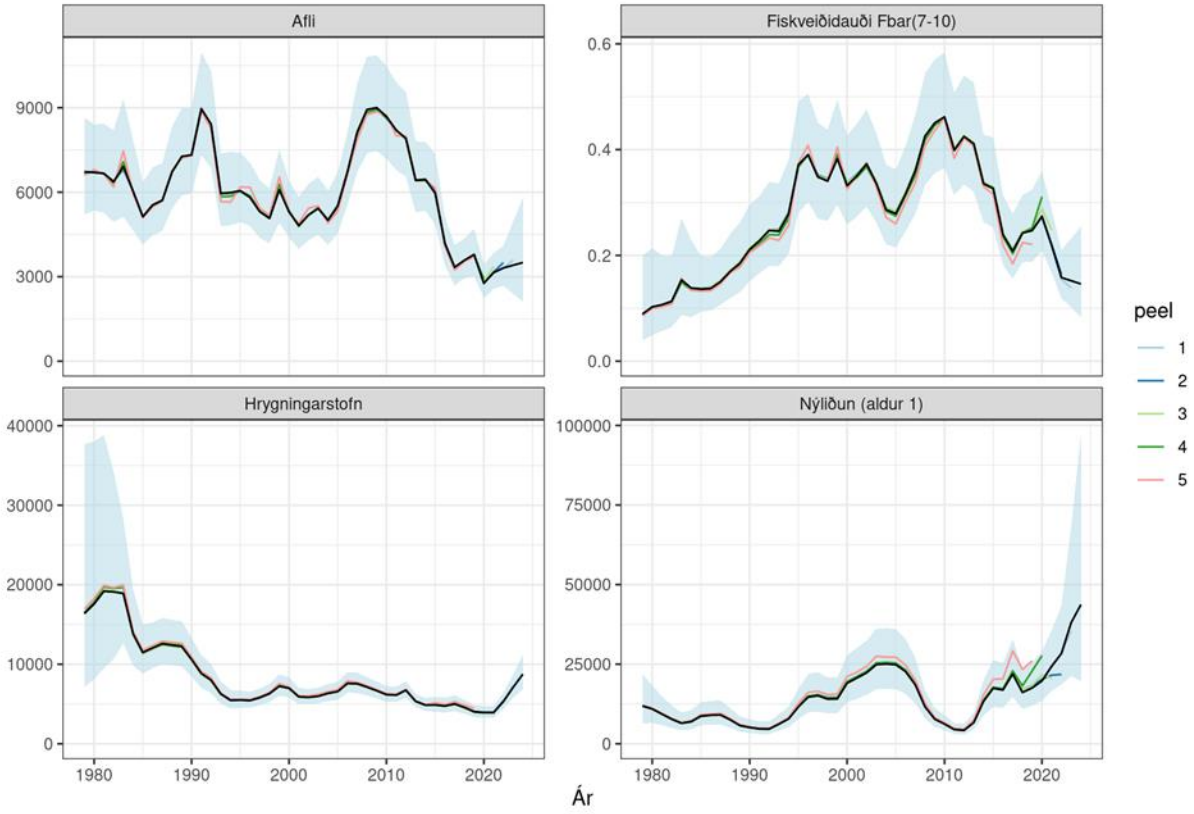


Figure 5. Retrospective plots illustrating stability in model estimates over a 5-year "peel" in data. Cathces (upper left), spawning stock biomass (lower left), fishing mortality F (upper right), and recruitment (age 1, lower right) are shown. From MFRI (2024).

Assessment results

The main results from the assessment are shown in Figure 6(MFRI 2024b). The stock declined gradually from 2008 to 2022 and dropped below the MSY $B_{trigger}$ value, while remaining just above the lower limit value (B_{lim}). However, the recruitment has developed positively for the past decade and the fishing mortality has coincidently declined (Figure 6). This has now led to an increase in the spawning stock biomass that has over the last two years increased to a level not seen since 1990. The fishing mortality rate is now well below the management target and the stock is not overfished or experiencing overfishing. This positive development is also reflected in the advice that has increased 15% for the 2024/2025 fishing season.

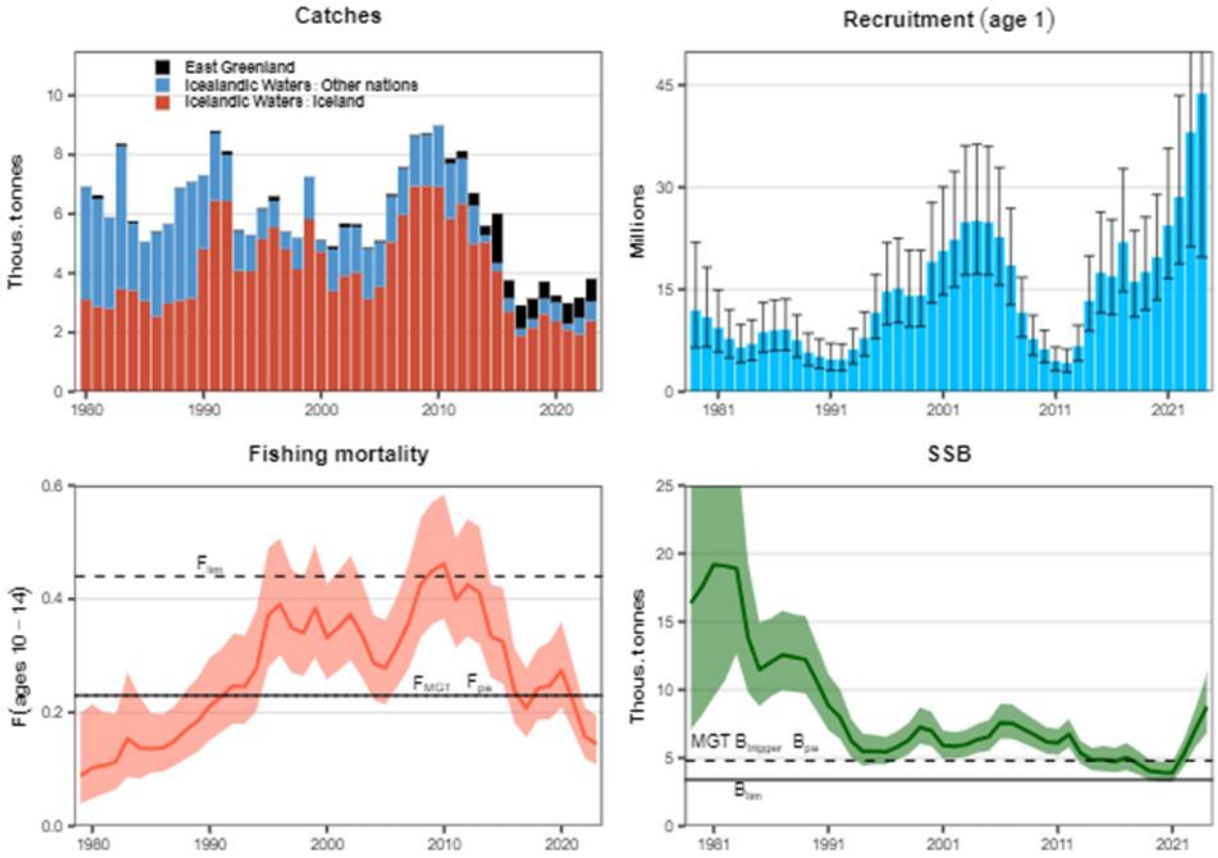


Figure 6. Tusk in Subarea 14 and Division 5.a. Summary of the stock assessment in Division 5.a. Top left: Total catches. Top right: Recruitment, the final-year recruitment estimate is included. Lower left: Trends in fishing mortality (F). Lower right: Trends in spawning-stock biomass (SSB). (ICES, 2024)

Harvest control rule and reference points

There were new reference points and a revised harvest control rule following the recent ICES benchmark (ICES 2022). ICES evaluated the harvest rule as precautionary and the Icelandic authorities adopted the rule for the previous fishing season. There have been no changes in the most recent fishing season. The reference points as applied by ICES are:

Framework	Reference point	Value	Technical basis
MSY approach	MSY $B_{trigger}$	4 800	B_{pa}
	F_{MSY}	0.23	F_{pa}
Precautionary approach	B_{lim}	3 400	$B_{pa} \times e^{-1.645 * \sigma B}$, using the default $\sigma_B = 0.2$
	B_{pa}	4 800	B_{loss} (SSB in 2016)
	F_{lim}	0.44	Fishing mortality that in stochastic equilibrium will result in median SSB at B_{lim}
	F_{pa}	0.23	Maximum F at which the probability of SSB falling below B_{lim} is < 5%
Management plan	MGT $B_{trigger}$	4 800	From the management plan
	F_{mgt}	0.23	From the management plan

The management plan incorporates these and sets a TAC in accordance with maximum sustainable levels. The harvest control rule as applied by ICES is:

The Icelandic Ministry of Food, Agriculture, and Fisheries management plan for Icelandic tusk has been evaluated by ICES (ICES, 2022). It is considered precautionary and conforms to ICES MSY approach. According to the management plan, $F_{Y/Y+1}$, which is the advice fishing mortality that is applied from 1 September year *Y* to 31 August year *Y+1*, is calculated from the harvest control rule (HCR) as:

$$F_{Y/Y+1} = min\left(\frac{SSB_Y}{MGT\ B_{trigger}}, 1\right) * F_{mgt}$$

To calculate the catch in the last four months of the year *Y* (September to December), the following F is used in the year *Y*:

$$F_{\mathrm{Y}} = \frac{2}{3} * F_{\mathrm{SQ}} + \frac{1}{3} * F_{\mathrm{mgt}}$$

In year *Y+1*, $F_{Y/Y+1}$ is used.

Finally, the catch advice for the year *Y/Y+1* is calculated using the following formula:

$$C_{Y/Y+1} = \frac{1}{3} * \mathrm{C}[F_{\mathrm{Y}}] + \frac{2}{3} * C[F_{\mathrm{Y/Y+1}}]$$

where the catch is calculated using the Baranov catch equation with the corresponding biomass, natural mortality, and fishing mortality values in each year.

This harvest control rule combined with strong mechanisms for implementation and enforcement, are regarded as sufficient to protect against overfishing. In addition, there are supportive measures (area closures, gear restrictions, discard ban, strict landings control and control at sea) that contribute to keeping exploitation at the target level.

7.3 Landings update

Tusk catches were between roughly 4,000 and 8,000 t between 1950 and 2005, with some higher peaks. From 2016 the catches stabilized at a lower level of approximately 3,500 t. Of the total catch in 2023 (3,810 t), 20% was caught in East Greenland waters and 80% in Icelandic waters (Figure 7) and this relative distribution has been stable over the past decade.

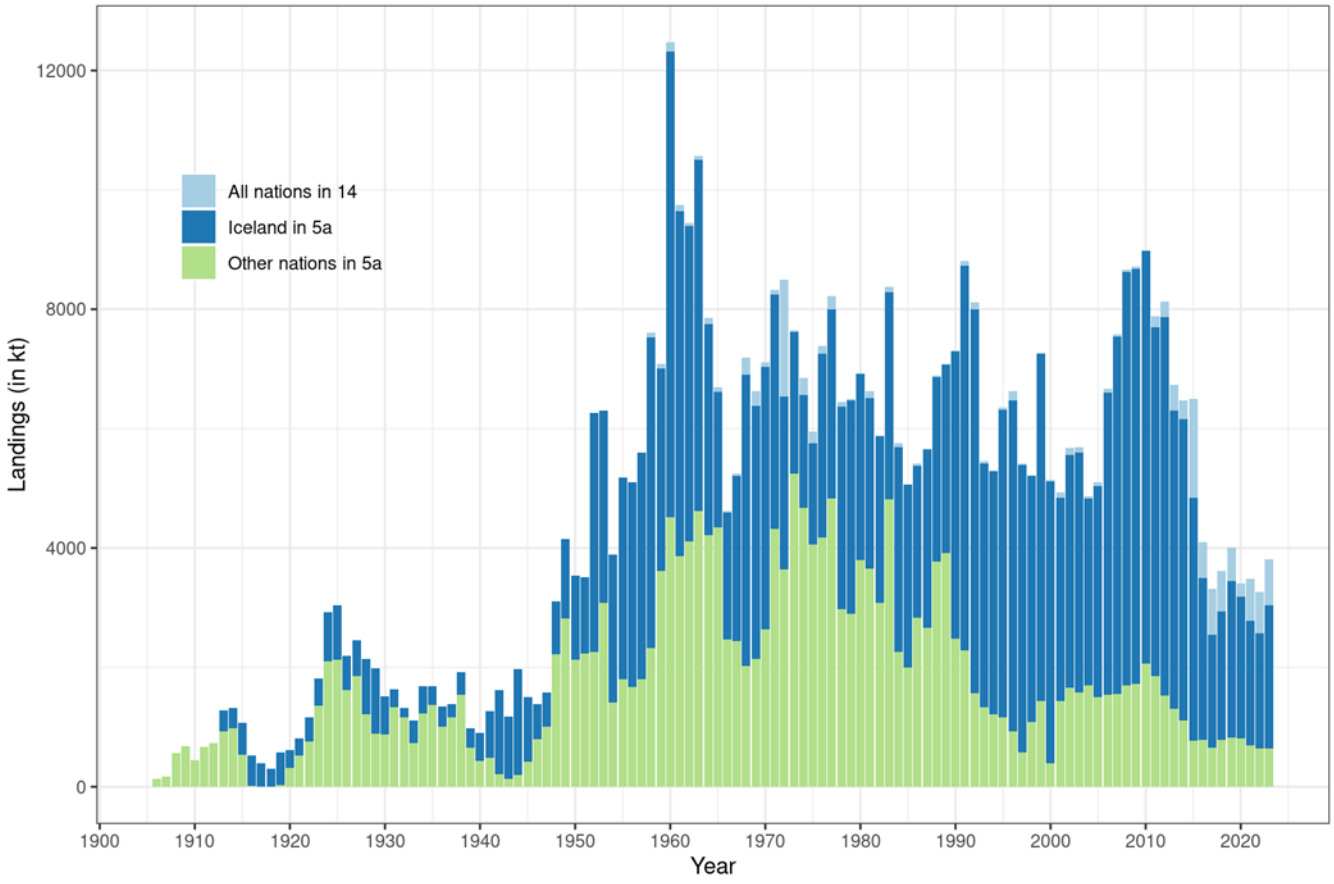


Figure 7. Tusk landings since 1905. From MFRI (2024)

The fishery in Iceland continues to be mainly on the southeast, southwestern and western part of the Icelandic shelf, and is dominated by the longline fishery (96%) (ICES 2024b). The Norwegian and Faroese vessel continue to take approximately 20% of the catches in Icelandic waters, agreed through bilateral agreements. The catches in East Greenland were distributed over most of East Greenland, with catches being small in each area (Figure 8).

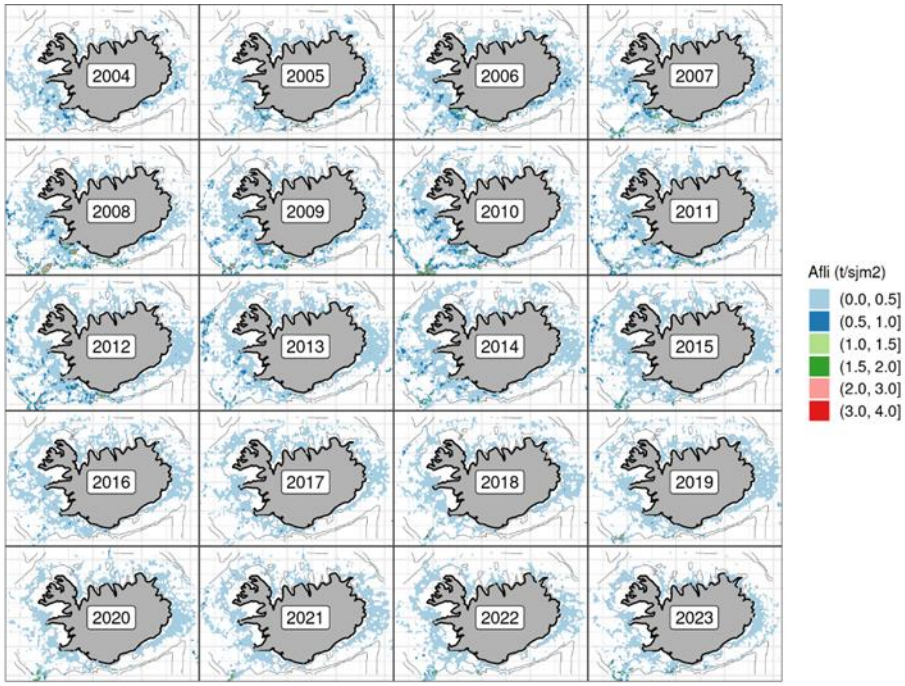


Figure 8. Geographical distribution (tonnes) of the Icelandic longline fishery since 2004, as reported in logbooks by the Icelandic fleet.

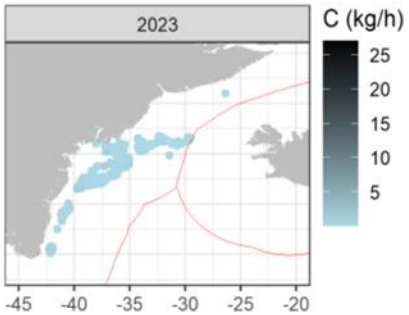


Figure 9. Geographical distribution (tonnes) of the tusk fishery in East Greenland in 2023. From Christiansen and Nogueira (2024)

The combined TAC in Iceland and Greenland exceeds the advised quota. Iceland sets the TAC equal to the ICES advice for the Icelandic fleet (disregarding any foreign country vessels), while Greenland autonomously set a TAC of 1,500 t annually. The realized catch is typically close to the advice as the quotas are not exhausted in either Iceland or Greenland (Table 5).

In Iceland there is a quota transfer system that allows for quota for one species to be transferred to other species. This is done for tusk in recent years (Figure 10), and this explains part of the realized catch being close to the advice, supplemented by between-year flexibility in the Icelandic quota system. The Greenland TAC is not fully utilized for other reasons, predominantly that the fishery targets other species. There are no management initiatives or bilateral agreement that restricts catches to the advised TAC, but circumstances have kept the catches at the advised level nonetheless.

Table 5. Overview of advice, TAC and catch in the tusk advisory area. From ICES (2024b)

Year	ICES advice	Catch corresponding to advice	Icelandic TAC Division 5.a*	Greenland TAC for Subarea 14**	ICES catches Division 5.a*	ICES total catches **
2018/2019	Management plan	≤ 3 776	3 100	1 500	3 232	4 037
2019/2020	Management plan	≤ 3 856	3 856	1 500	3 241	3 536
2020/2021***	No ICES advice		2 289	1 500	2 949	3 480
2021/2022	Management plan	≤ 2 172	2 172	1 500	2 421	3 258
2022/2023	Management plan	≤ 4 464	4 464	1 500	3 059	3 810
2023/2024	Management plan	≤ 5 139	5 139	1 500		
2024/2025	Management plan	≤ 5 914				

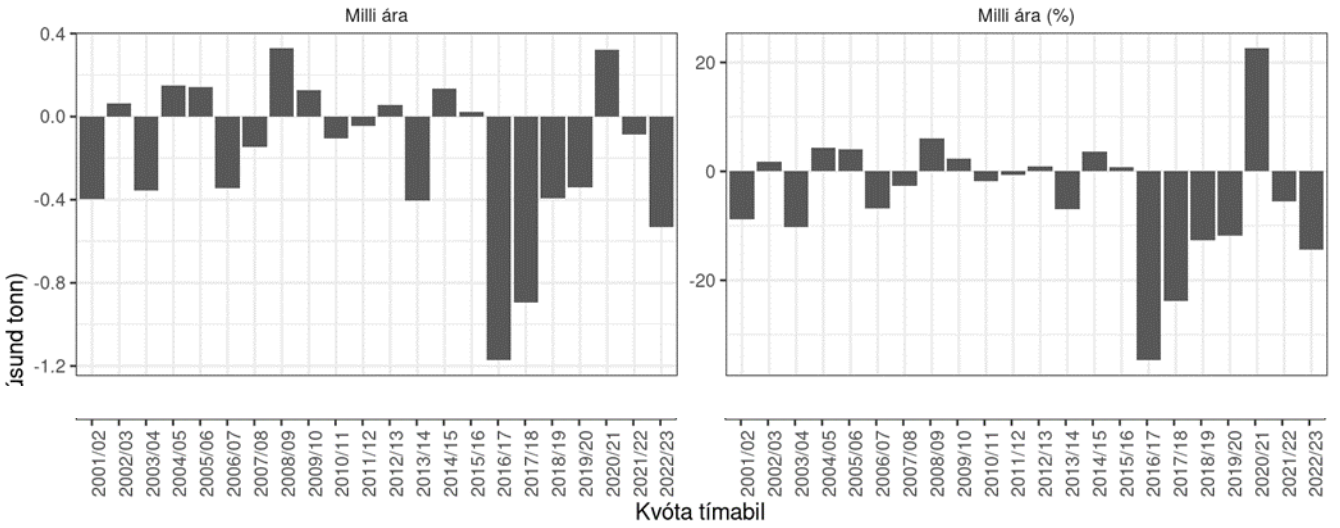


Figure 10. Net transfer of quota to and from tusk in the Icelandic ITQ system by fishing year. Positive values indicate a transfer of other species to tusk, but negative values indicate a transfer of tusk quota to other species. Between species to the left and by % to the right.

7.4 Bycatch, habitat and ecosystem update

7.4.1.1 Bycatch and associated species

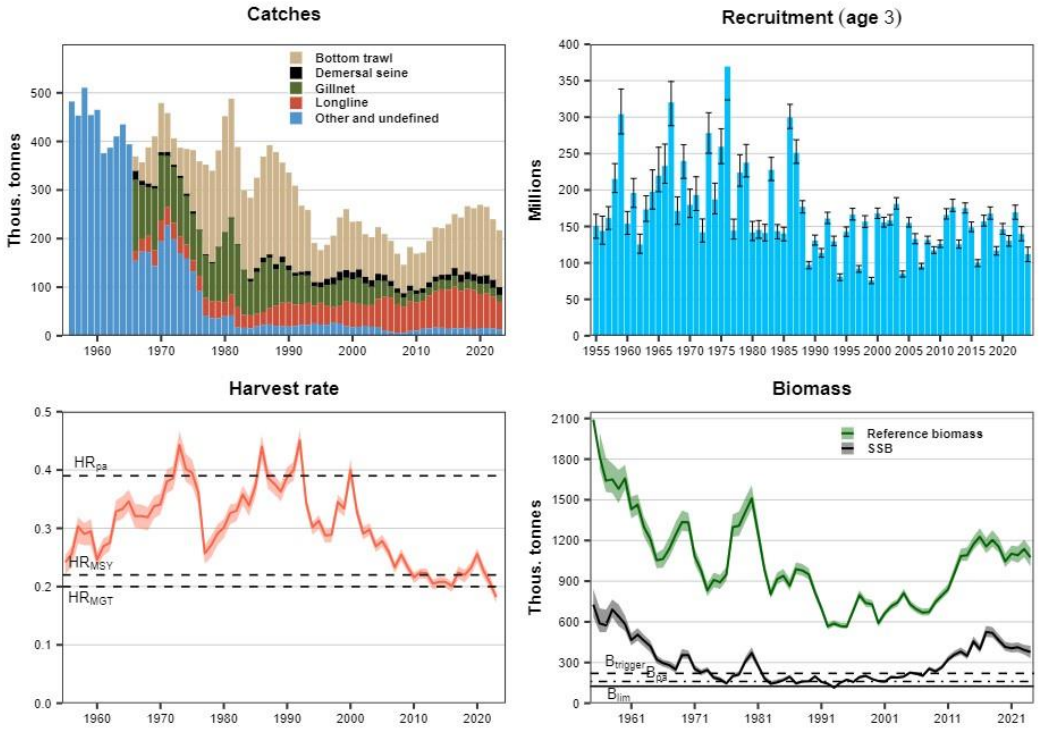
7.4.1.1.1 Associated species catch and bycatch to the fishery

The Icelandic groundfish fishery is multispecies in nature with vessels simultaneously targeting numerous species. With regards to catches, most commercially fished species in Iceland are now part of the ITQ system. Discarding is prohibited and comparison between observer measured catch compositions and self-reporting by fishers ensures that a high level of compliance with the ban on discarding is maintained. The species listed below are those that were identified during the 2019-2020 re-assessment[11]. A status update on each of these species is provided below but in summary the cod fishery appears not to have any significant negative effects on any of the listed species but one, spotted wolffish, which is the subject of an open non-conformance and related corrective action.

Status of bycatch and associated species in the tusk target and non-target fisheries as identified during the re-assessment from historic average catches for each relevant gear type. All data and information are derived from the MFRI Advice page[12] for each individual species.

ÞORSKUR – *COD* (*Gadus morhua)*[13]

Fishing pressure is below HRMGT, HRMSY, and HRpa; spawning stock size is above MSY Btrigger, Bpa, and Blim.



[11] https://www.responsiblefisheries.is/media/1/irf-cod-re-assessment-report-final-03feb2020.pdf
[12] https://www.hafogvatn.is/en/harvesting-advice
[13] https://www.hafogvatn.is/static/extras/images/01-cod_advice_en.html

Figure 11 Catch by gear type, recruitment, harvest rate, reference stock biomass (B4+) and spawning stock biomass (SSB). Shaded areas and error bars show 95% confidence intervals.

ÝSA – HADDOCK (*Melanogrammus aeglefinus*)[14]

The spawning-stock biomass (SSB) has decreased since 2008 but stabilized above MSY Btrigger in recent years. MFRI and ICES assesses that fishing pressure is above HR_{MSY} and HR_{pa} and below HR_{lim}; spawning stock size is above MSY $B_{trigger}$, B_{pa} and B_{lim}.

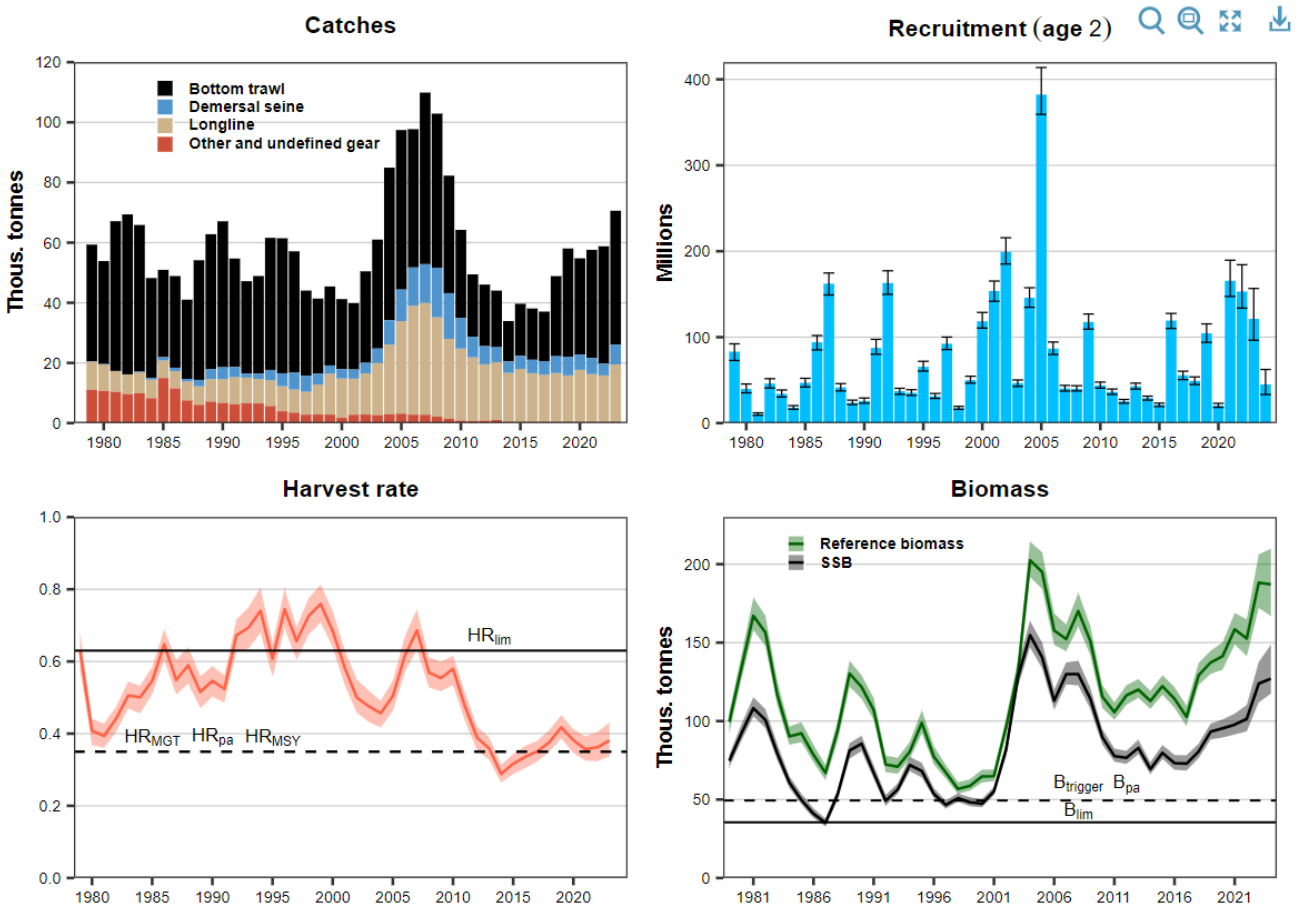
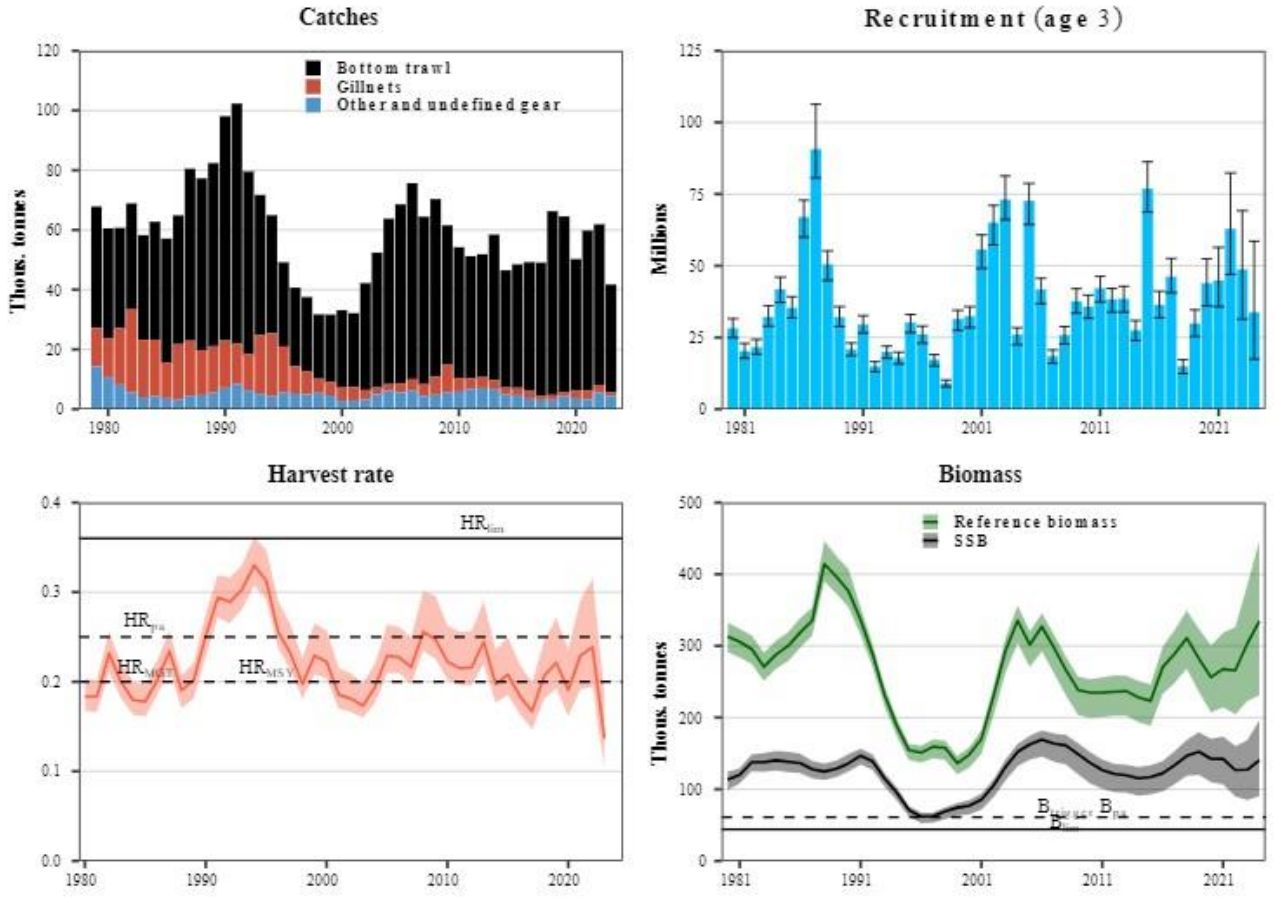


Figure 12. Icelandic haddock harvest rate and biomass.

UFSI – SAITHE (*Pollachius virens*)[15]

[14] https://www.hafogvatn.is/static/extras/images/02-had_advice_en.html

[15] https://www.hafogvatn.is/static/extras/images/03-sai_advice_en.html



Fishing pressure is below HR_{MGT}, HR_{MSY}, HR_{pa}, and HR_{lim}. Spawning stock size is above MSY $B_{trigger}$, B_{pa}, and B_{lim}.

Figure 13. Icelandic saithe the harvest rate and biomass.

GULLKARFI – GOLDEN REDFISH (*Sebastes norvegicus*)[16]

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

[16] https://www.hafogvatn.is/static/extras/images/05-redfish_advice_en.html

Fishing pressure is below F_{MSY}, F_{pa} and F_{lim}; spawning-stock size is above MSY $B_{trigger}$, B_{pa}, and B_{lim}.

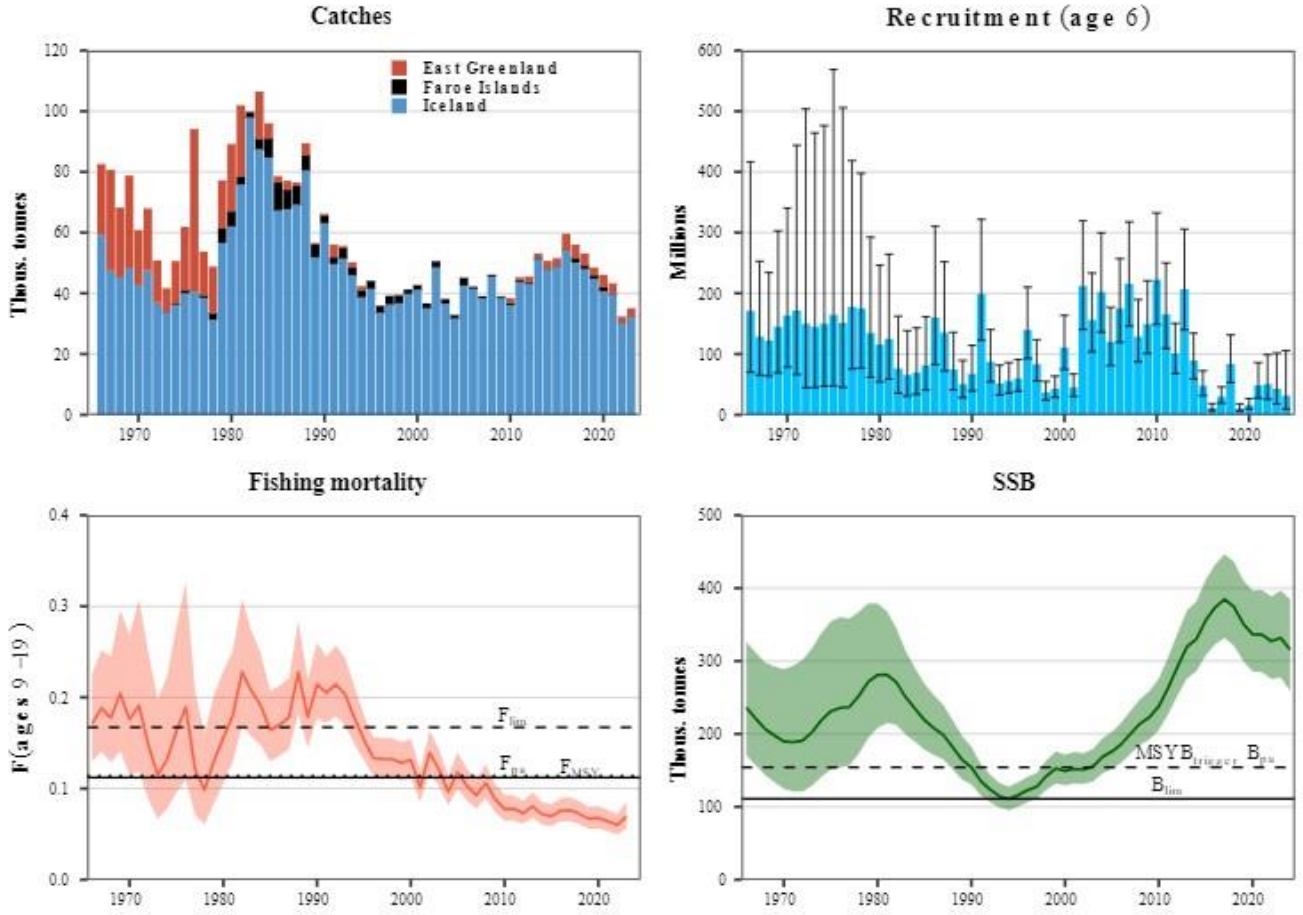


Figure 14. Icelandic golden redfish harvest rate and biomass.

DJÚPKARFI – DEMERSAL BEAKED REDFISH (*Sebastes mentella*)[17]

Fishing pressure is above F_{MSY}, F_{pa} and F_{lim}, and spawning-stock size is below MSY $B_{trigger}$, B_{pa}, and B_{lim}.

[17] https://www.hafogvatn.is/static/extras/images/61-slope_mentella_advice_en.html

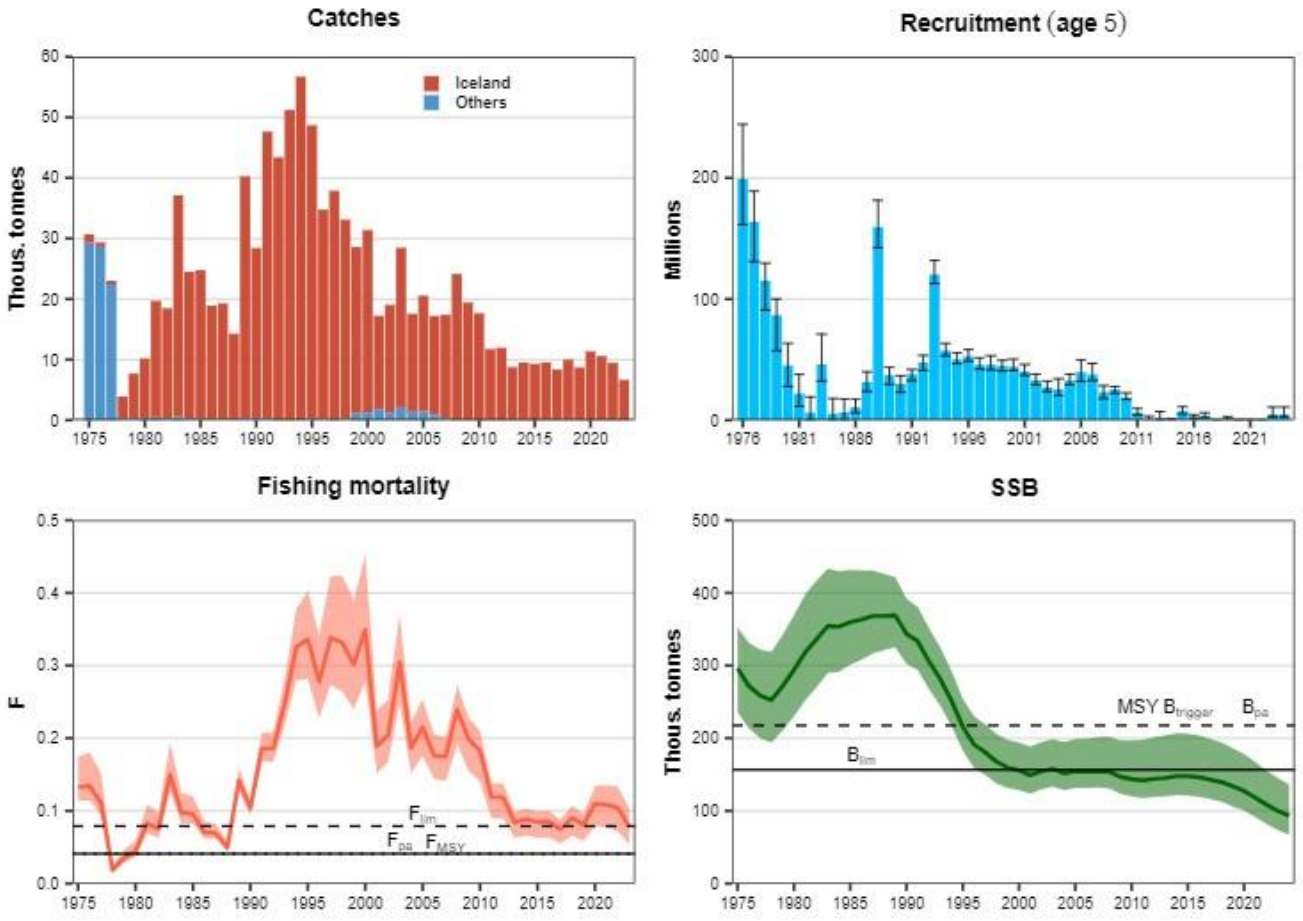


Figure 15. Demersal beaked redfish. Catches, recruitment (age 3), fishing mortality, and spawning stock biomass (SSB). Shaded areas and error bars show 95% confidence intervals.

GRÁLÚÐA – GREENLAND HALIBUT *(Reinhardtius hippoglossoides)*[18]

MFRI and ICES advise that when the MSY approach is applied, catches in the 2024/2025 fishing year in the East Greenland/ Iceland/Faroe Islands area should be no more than 17 980 tonnes. Fishing pressure is above F_{MSY} and below F_{pa} and F_{lim}; spawning stock size is below MSY $B_{trigger}$ and B_{pa} but above B_{lim}.

[18] https://www.hafogvatn.is/static/extras/images/22-ghl_advice_en.html

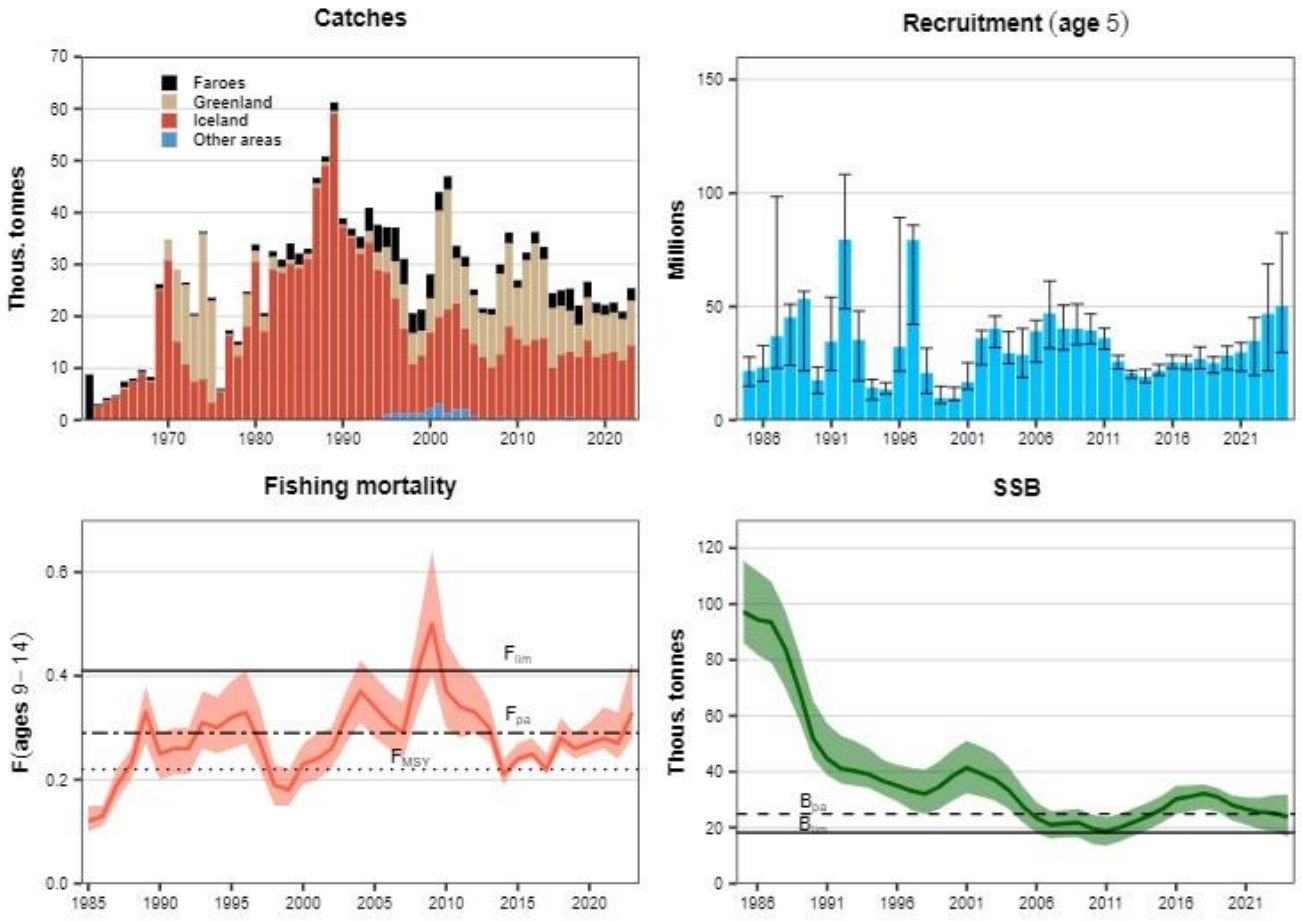


Figure 16. Greenland halibut harvest rate and biomass.

LANGA – LING (*Molva molva*)[19]

MFRI and ICES advise that when the Icelandic management plan is applied, catches in the fishing year 2024/2025 should be no more than 6 479 tonnes. Fishing pressure is above F_{MGT} but below F_{lim}, and F_{pa}. Spawning-stock size is above MGT $B_{trigger}$, B_{pa}, and B_{lim}.

[19] https://www.hafogvatn.is/static/extras/images/06-ling_advice_en.html

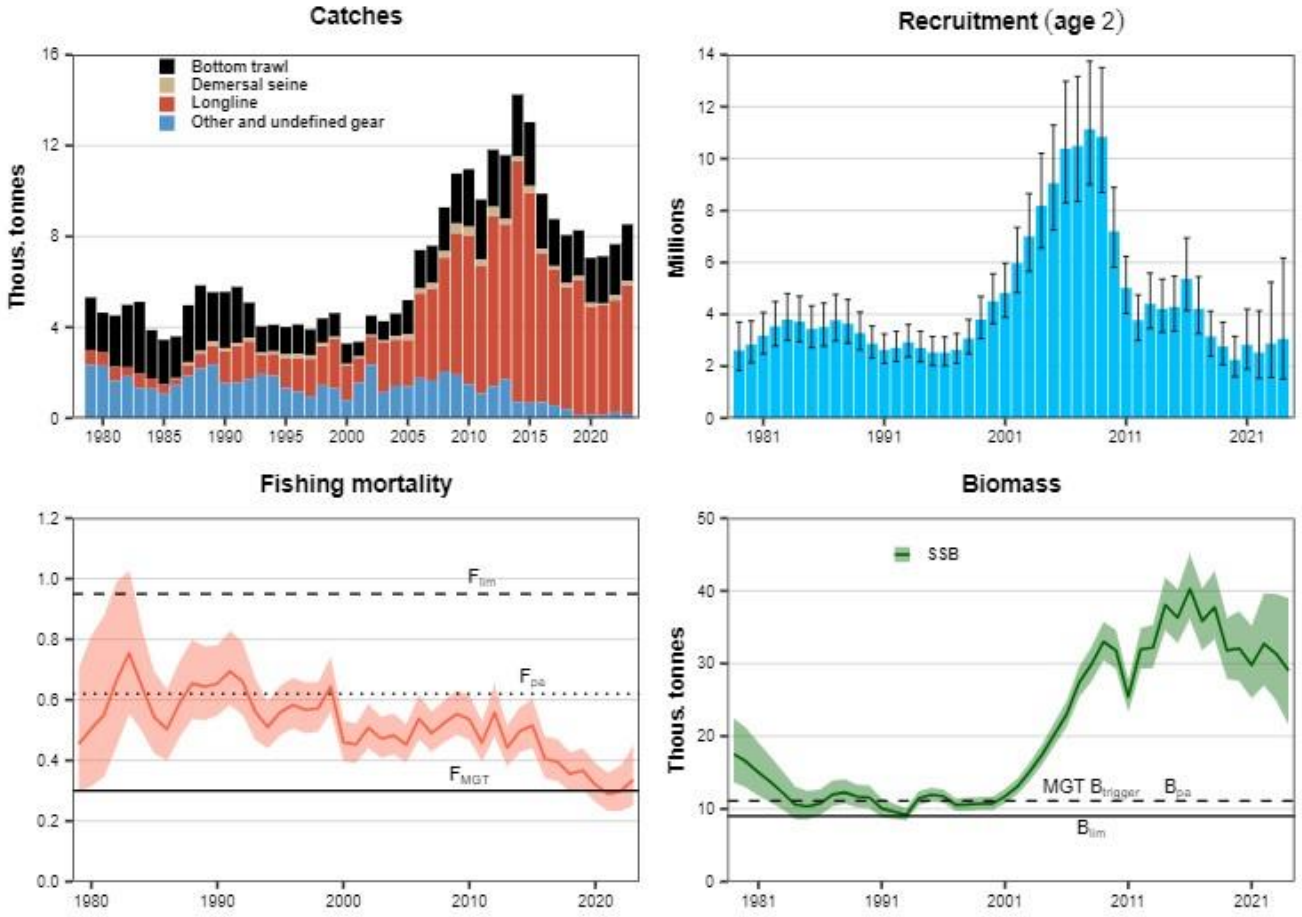


Figure 17. Ling harvest rate and biomass.

STEINBÍTUR–ATLANTIC WOLFFISH (*Anarhichas lupus*)[20]

MFRI and ICES advise that when the Icelandic management plan is applied, catches in the fishing year 2024/2025 should be no more than 9378 tonnes. In addition, the MFRI recommends a continued closure of the spawning area west of Iceland during the spawning and incubation season in autumn and winter. Fishing pressure is at F_{msy} and F_{pa}, and below F_{lim}. Spawning-stock is above MGT $B_{trigger}$, B_{pa} and B_{lim}.

[20] https://www.hafogvatn.is/static/extras/images/09-atlanticwolffish_advice_en.html

atlanticwolffish_advice_en.html#:~:text=MFRI%20and%20ICES,autumn%20and%20winter.

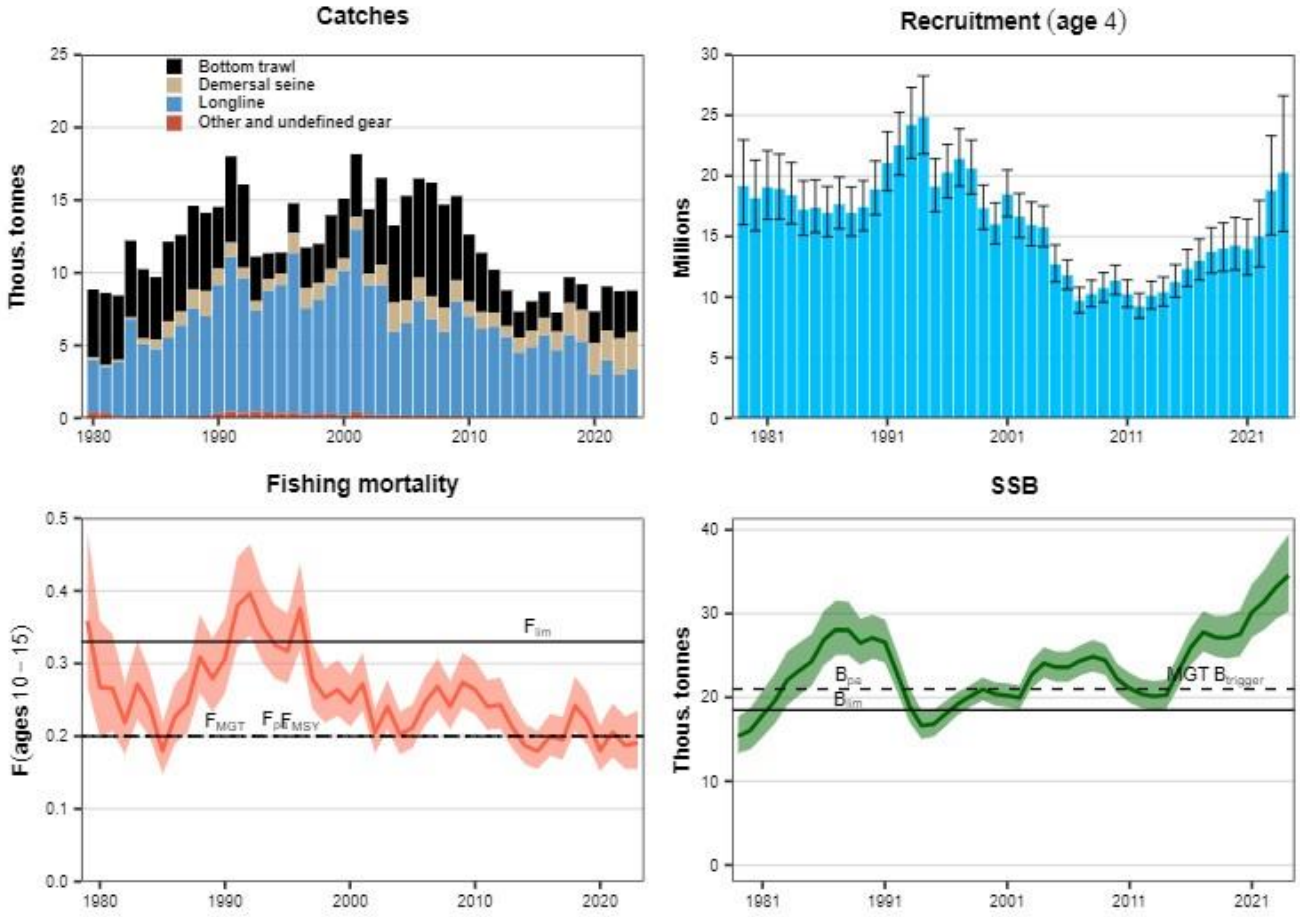


Figure 18. Atlantic wolffish harvest rate and biomass.

HLÝRI – SPOTTED WOLFFISH (*Anarhichas minor*)[21]

As the stock is depleted and Icelandic catches were consistently above recommended TAC (see Table 6).

[21] https://www.hafogvatn.is/static/extras/images/16-spottedwolffish1388170.pdf

Table 6. Spotted wolffish. Recommended TAC, national TAC, and catches (tonnes).

Fiskveiðiár *Fishing year*	Tillaga *Recommended TAC*	Aflamark *National TAC*	Afli *Catches*
2012/2013	900	-	2041
2013/2014	900	-	2241
2014/2015	900	-	1637
2015/2016	900	-	1886
2016/2017	1128	-	1548
2017/2018	1080	-	1528
2018/2019	1001	1001	1375
2019/2020	375	375	1280
2020/2021	314	314	1272
2021/2022	377	377	895
2022/2023	334	334	
2023/2024	296		
2024/2025	296		

Table 7. Spotted wolffish catch TAC and releases from Fiskistofa 2024.

Spotted wolffish	**Catches**	**TAC**	**Released**
2021/2022	932	321	3.304
2022/2023	668	285	14.905
2023/2024	747	252	18.288

Information on life-history parameters is available and length data are sufficient and thus, the advice is based on the new rfb-rule for ICES category 3 data-limited stocks and is valid for each of the fishing years 2023/2024 and 2024/2025. The advice for each of the fishing years 2023/2024 and 2024/2025 is lower than the advice for 2022/2023 because the biomass index below Itrigger, and a new method has been applied.

Stock size is below Itrigger, and fishing pressure is above FMSY proxy.

The stock is at a critical stage as the biomass and juvenile indices have decreased year on year and are now at historical low levels. The stock is considered to be below any candidate biomass reference points. Therefore, the advised catch levels are expected to decline in the proceeding years, or potentially a landing ban of spotted wolffish could be advised if the level of fishing mortality is not reduced to values sufficient to reverse the downward trend. As spotted wolffish are mainly caught as bycatch, catches have been above recommendations, and biomass indices are now at historically low levels, fishermen are now allowed (since 2021) to release spotted wolffish caught beyond set TAC, due to its high post capture survival.

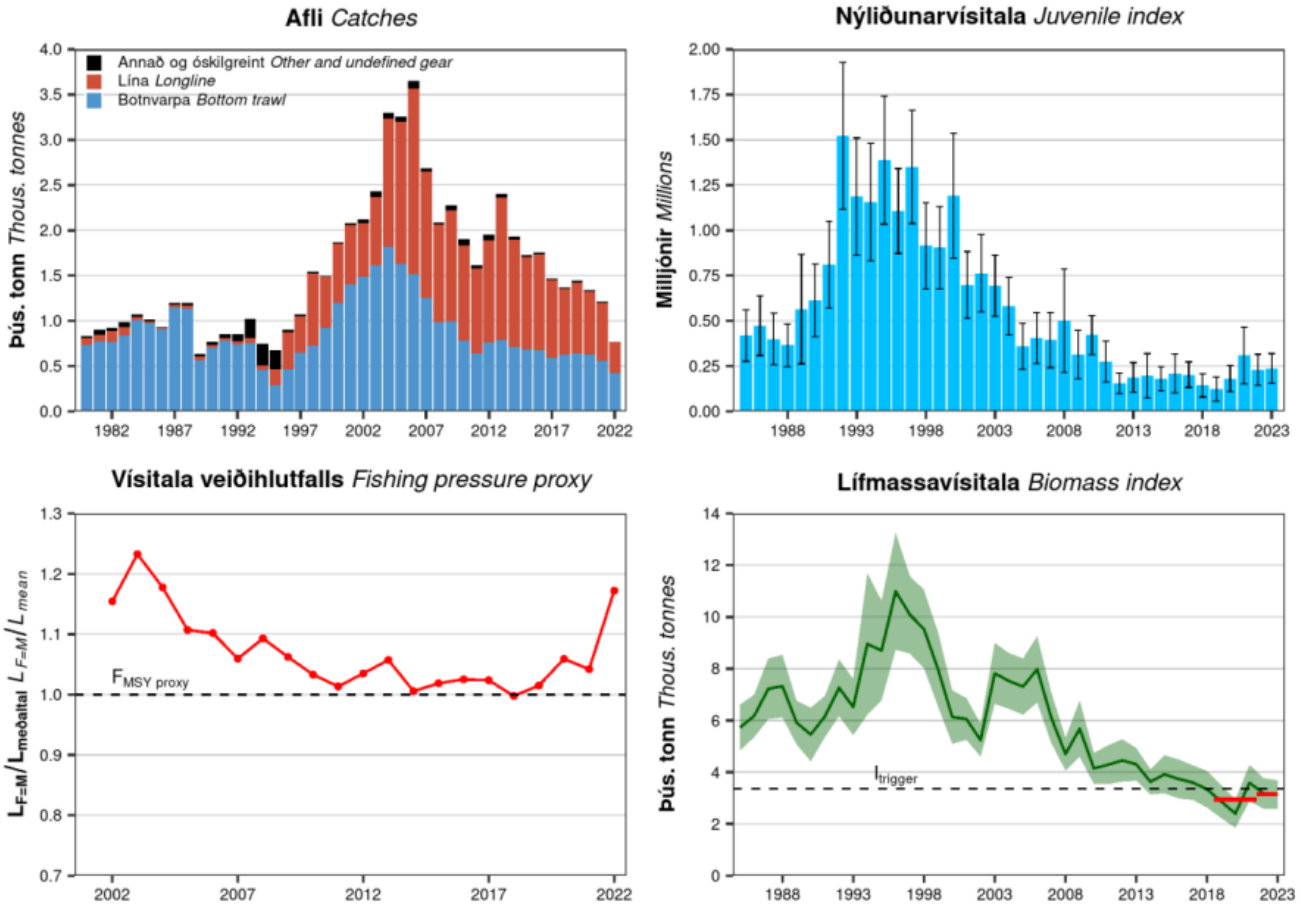


Figure 19. Spotted wolffish catches, juveniles index, harvest rate and biomass.

Additional management measures have been implemented for this stock in 2020. The MFRI believes that there is a strong need to protect the stock. Studies in Canada show that wolffish is generally fairly robust and can survive capture by trawls. For example, Grant and Hiscock (2014)[22] showed a 92-100% post capture survival for spotted wolffish following net entrainment in commercial bottom otter trawl tows up to 2.5 h, haul back through a thermocline (range, 5.8 °C), and exposure to 5–13 °C air temperatures for up to 2 h. In last autumn survey the MFRI investigated this, and preliminary results suggest that spotted wolffish can survive up to two hours in fishing ramp and conveyor belts after catch. In autumn survey in 2020 the MFRI investigated this, and preliminary results suggest that spotted wolffish can survive up to two hours in fishing ramp and conveyor belts after catch. Last year MFRI also did research on survival of released spotted wolffish after catch in longline. Preliminary results suggested that the survival rate was high.

As a result of this, the MFRI gave a landings advice for the 2020/21 season and suggested that fishers would be allowed to discard spotted wolffish as per Regulation 1256/2020[23] which now allows fishers (starting December

[22] Grant, S.M., and Hiscock, W. 2014. Post-capture survival of Atlantic Wolfish (Anarhichas lupus) captured by bottom otter trawl: Can live release programs contribute to the recovery of species at risk? Fish. Res. 151: 169-176. https://www.sciencedirect.com/science/article/abs/pii/S0165783613002816

[23] Reglugerð um (2.) breytingu á reglugerð nr. 468/2013, um nýtingu afla og aukaafurða.

2020) to discard viable (living) spotted wolffish, as opposed to landing it dead, taking advantage of the high post capture survival of this fish. The regulation continues in the 2021/2022 fishing season[24]. As per article 1 of this regulation, if spotted wolffish is released, the type and estimated quantity in kilograms released shall be recorded in an electronic catch logbook or the smart device program. Hence the amount caught and landed and the amount caught and released is now supposed to be recorded.

The logbook system is now set up with space to recorded both landed and released spotted wolffish however the assessment team received information on the weight of released spotted wolffish in November 2024 from Fiskistofa (Table 7). Presently, the figures reported on the Fiskistofa website represent landed values excluding releases. The total landed catch for the 2021/22 season logged on the Fiskistofa website as of December 2022 was 931 t., close to three times the allowed TAC[25]. According to the release data from Fiskistofa 0.5% of overquota spotted wolffish was released. In 2022/2023 the TAC was 285t with a total catch of 668t with 3.89 of overquota fish released and in July 2023/2024 the TAC was 252t with a total catch of 674t and 3.69% of overquota fish released.

GULLLAX – GREATER SILVER SMELT (*Argentina silus*)[26]

MFRI and ICES advise that when the MSY approach is applied, catches in the 2024/2025 fishing year in the Icelandic and East Greenland area should be no more than 12 273 tonnes. Fishing pressure on the stock is below F_{MSY} and spawning-stock size is above MSY $B_{trigger}$, B_{pa}, and B_{lim}.

[24] https://www.hafogvatn.is/static/extras/images/16-spottedwolffish1388170.pdf
[25] https://gamli.fiskistofa.is/veidar/aflaupplysingar/afliallartegundir/
[26] https://www.hafogvatn.is/static/extras/images/19-gss_advice_en.html

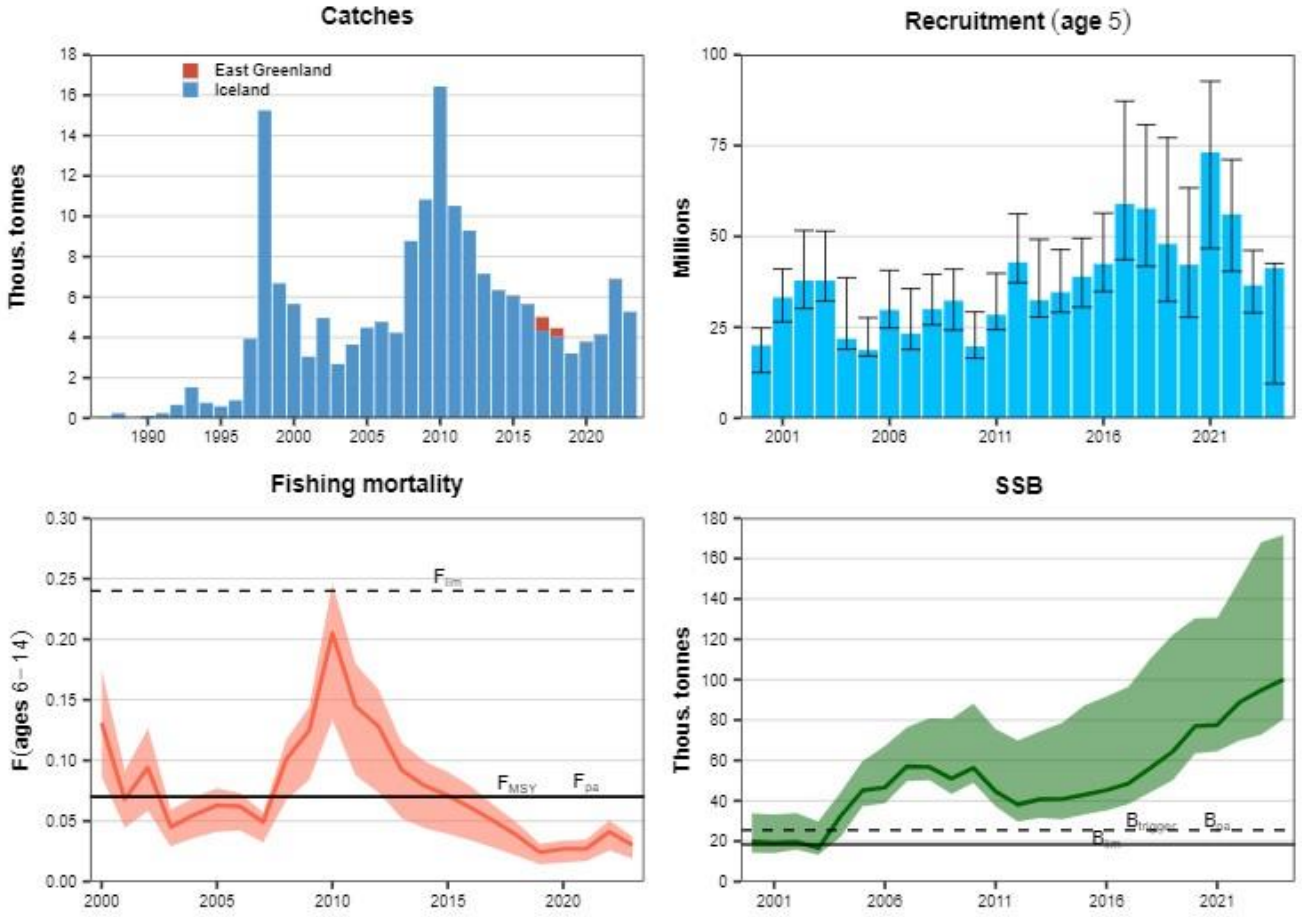


Figure 20. Greater silver smelt harvest rate and biomass.

7.4.1.1.2 Endangered, Threatened and Protected (ETP) and vulnerable species interactions

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[27]. The 2023 ICES WGBYC report[93] 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:

- 114 fishing trips on lumpfish = 4.6% coverage of trips
- 283 days at sea for bottom trawlers = 1.1% coverage
- 6 trips demersal longline (0.2% coverage) large vessels, 5 trips (0.3% coverage) small vessels
- 27 trip for cod gillnets = 1.4% coverage
- 3% purse seine coverage from 9 trips
- Whaling 100% coverage

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

- 0.3 Danish seine coverage
- 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).

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 (MRFI, 2024).

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		
		Red-throated diver	*Gavia stellata*	1		
		European shags	*Phalacrocorax aristotelis*	1		
		Brünnich's guillemot	*Uria lomvia*	1		
	Elasmobranchii	Black dogfish	*Centroscyllium fabricii*		1	58
		Blue skate	*Dipturus batis*		17	20

		Velvet belly	*Etmopterus spinax*		9	15
	Holocephali	Rabbit fish	*Chimaera monstrosa*		390	508
	Mammals	Harbour seal	*Phoca vitulina*	7		1
		Arctic ringed seal	*Pusa hispida*			1
		Harbour porpoise	*Phocoena phocoena*	36	31	45
		Grey seal	*Halichoerus grypus*	2		2
		Harp seal	*Pagophilus groenlandicus*	2		
		White-beaked dolphins	*Lagenorhynchus albirostris)*	2		
	Teleostei	Greater eelpout	*Lycodes esmarkii*		1	
		Pollack	*Pollachius pollachius*		9	12
OTB	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
		Velvet belly	*Etmopterus spinax*		855	783
		Mouse catshark	*Galeus murinus*		124	118
		Deep-water ray	*Rajella bathyphila*		1	
		Round ray	*Rajella fyllae*		1631	94
		Sailray	*Rajella lintea*		15	5
		Greenland shark	*Somniosus microcephalus*		1	1
	Holocephali	Rabbit fish	*Chimaera monstrosa*		1424	1512
		Large-eyed rabbitfish	*Hydrolagus mirabilis*		5	
		Straightnose rabbitfish	*Rhinochimaera atlantica*		53	50
	Teleostei	Northern wolffish	*Anarhichas denticulatus*		144	136
		Blackbelly rosefish	*Helicolenus dactylopterus*		3126	8082
		Greater eelpout	*Lycodes esmarkii*		633	738
Seines	Elasmobranchii	Blue skate	*Dipturus batis*		1	

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 (n/observed landings)	Reported bycatch rate 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 sized whale	Demersal trawl	0.000 (0/165)	0.00002 (1/44566)
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 species	Cod gillnets	0.000 (0/150)	0.005 (16/3254)
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 gull	Longline	0.000 (0/36)	0.0024 (19/7796)
Black guillemot	Longline	0.000 (0/36)	0.0001 (1/7796)
Alcids, not identified to species	Longline	0.000 (0/36)	0.0004 (3/7796)
Seagulls, not identified to species	Longline	0.000 (0/36)	0.0003 (2/7796)
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 ETP 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).

Common loon

In October 2024, the MFRI reported that 1 further common loons (*Gavia immer*) has been recorded as bycatch in the fisheries under assessment (i.e. cod, haddock, Golden redfish, ling, common ling, tusk, ISS herring).

In cod gillnets 1 was recorded in the observer data (1 individual out of 150 landings) whereas there was no record in the logbooks out of 3,254 landings. Before this, 2 birds were encountered in 2021 in the lumpsucker fishery. In the 1st surveillance, the audit team determined that because the incidental catch was based on a single event, rather than multiple, there is some basis to hypothesize that gillnet impacts may be only occasional. Furthermore, the assessment from the Iceland Institute of Natural History (INH) Red List Classification states that the population of common loon in Iceland (currently estimated at 279 pairs) is presumed to be somewhat larger, as there are about 500 known nesting sites and the nesting is densest in Mýrar, the heaths up from Dalarna, in Húnavatnssýsla and Borgarfjörður, on Skaga, Norður-Slétta, near Mývatn and in Veiðivötn. During the site visit the IINH mentioned that a survey of the Common Loon population is due planned for 2025, but indications are that the population is expanding (IINH pers. Comm.). Anecdotal evidence of an increase in the population was also mentioned by the MFRI. At this stage, significant risk from fishing appears to be relatively limited due to the lack of positive records. The WGBYC 2021 report mentions one catch of *Gavia immer* in 2019 and one in 2020, respectively, by lumpfish nets by onboard observers. Three individuals were recorded as bycatch in the Iceland Sea in 2021, apparently all caught in lumpfish nets (ICES WGBYC 2022). No records of Common Loon as bycatch were found in the ICES WGBYC 2023 report. 1 record in the cod gillnets observed during 2020-2023. The positive comments from the experts in Iceland (MRFI and IINH), and the probability of larger than estimated population[28] together with the low levels of catch over the past 5 years lead the assessment team to agree that the fishery is unlikely to be negatively affecting the population.

Harbour Porpoises (*Phocoena phocoena*)

Harbour porpoises are classified as Least Concern in the IUCN Red List[29] (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)[30]. The 2019 Report of the NAMMCO Scientific Committee Working Group on Harbour Porpoise (19-22 March 2019)[31] 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 2009–2013[32] 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.[33]

In 2022 the same group provided the following update[34]:"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

[28] https://www.ni.is/is/biota/animalia/chordata/aves/ciconiiformes/himbrimi-gavia-immer

[29] 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.

[30] https://www.ni.is/node/27406

[31] 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

[32] 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

[33] 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

[34] 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

usable for harbour porpoise in Iceland, the group agreed that the 2023 abundance estimate be the one used in the future Icelandic assessment.
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 behavioral 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)[35]. 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.

[35] https://nass.nammco.org/2024/

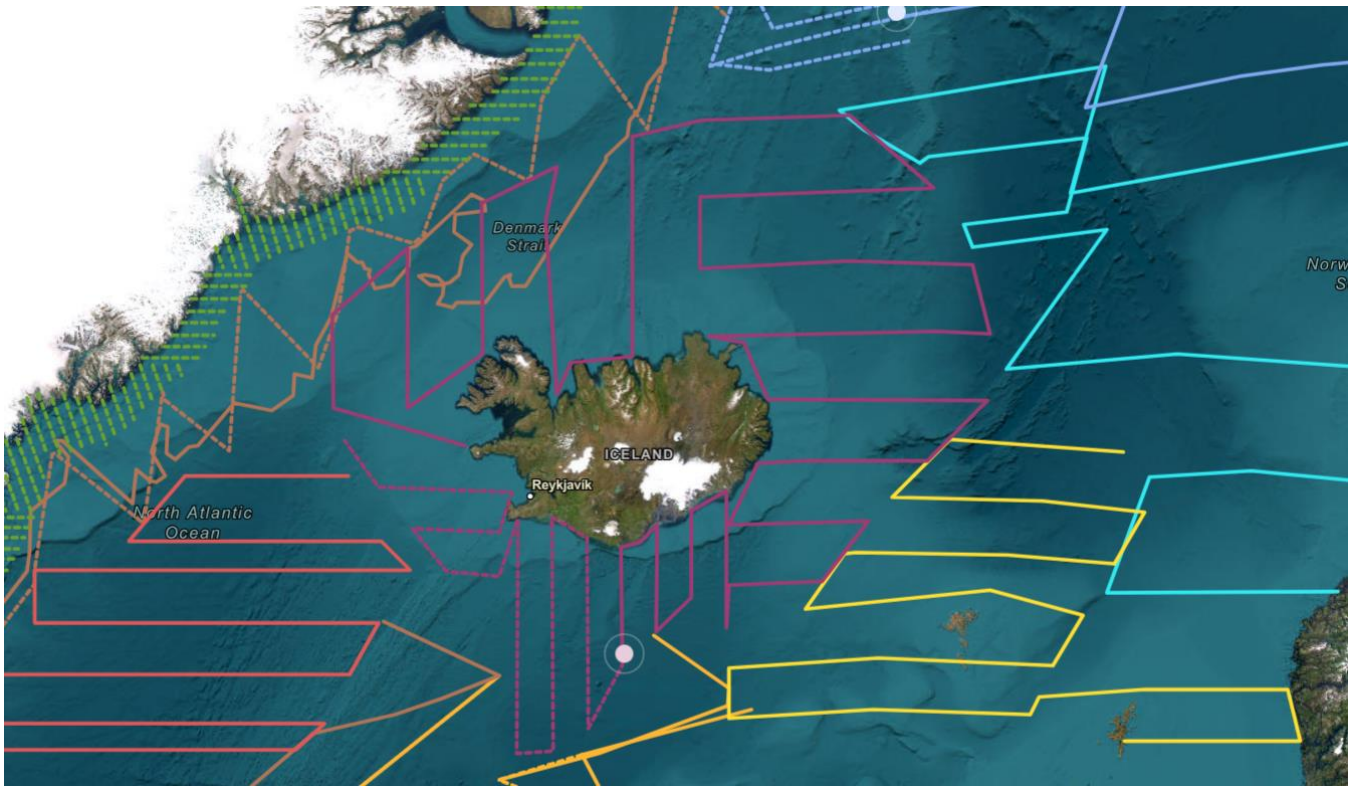


Figure 21. NASS-North Atlantic Sightings Survey 2024. (Source https://nass.nammco.org/2024/)

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 seals[36] 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). Negative effects from the cod gillnet fisheries (and associated fisheries that land fish in those nets) are considered to be very limited.

Other marine mammals

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

[36] https://www.hafogvatn.is/static/extras/images/radgjof-landselur20201286028.pdf

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)

Elasmobranchs

Leafscale gulper shark

No catch of leafscale gulper shark has been reported for the last 5 years. Deepwater autumn survey trends show increasing trend (see Figure 22).

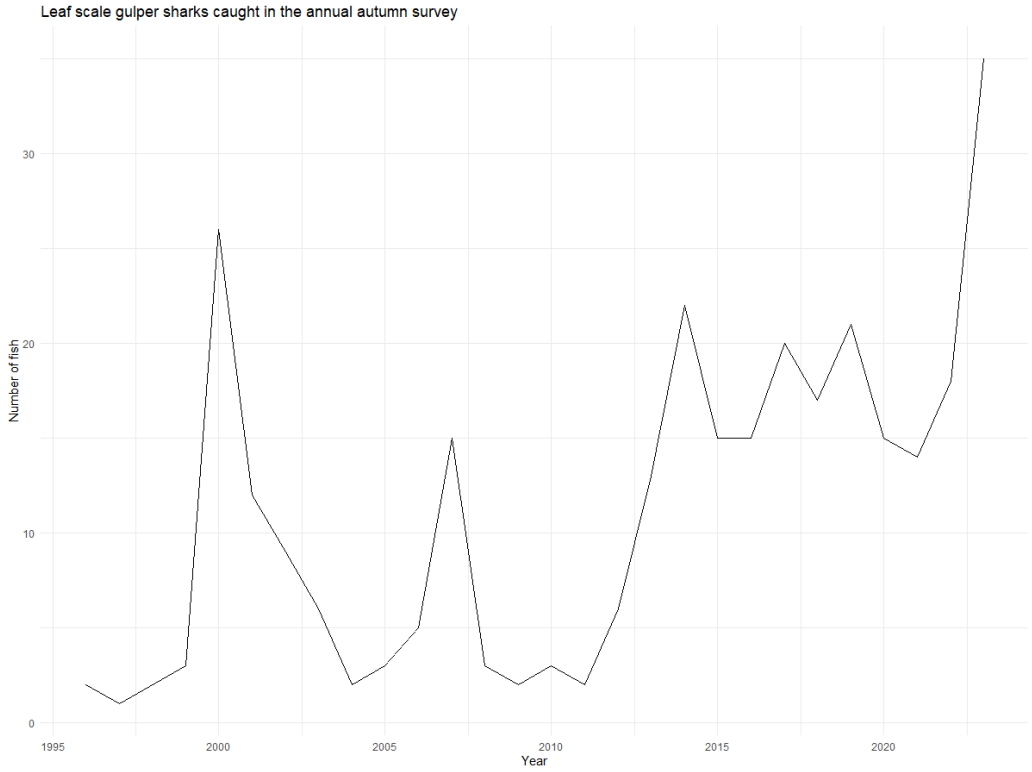


Figure 22. Leaf scale gulper sharks caught in the annual autumn survey 2023.

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 23). The mean biomass in annual spring survey is estimated around 600 tonnes.

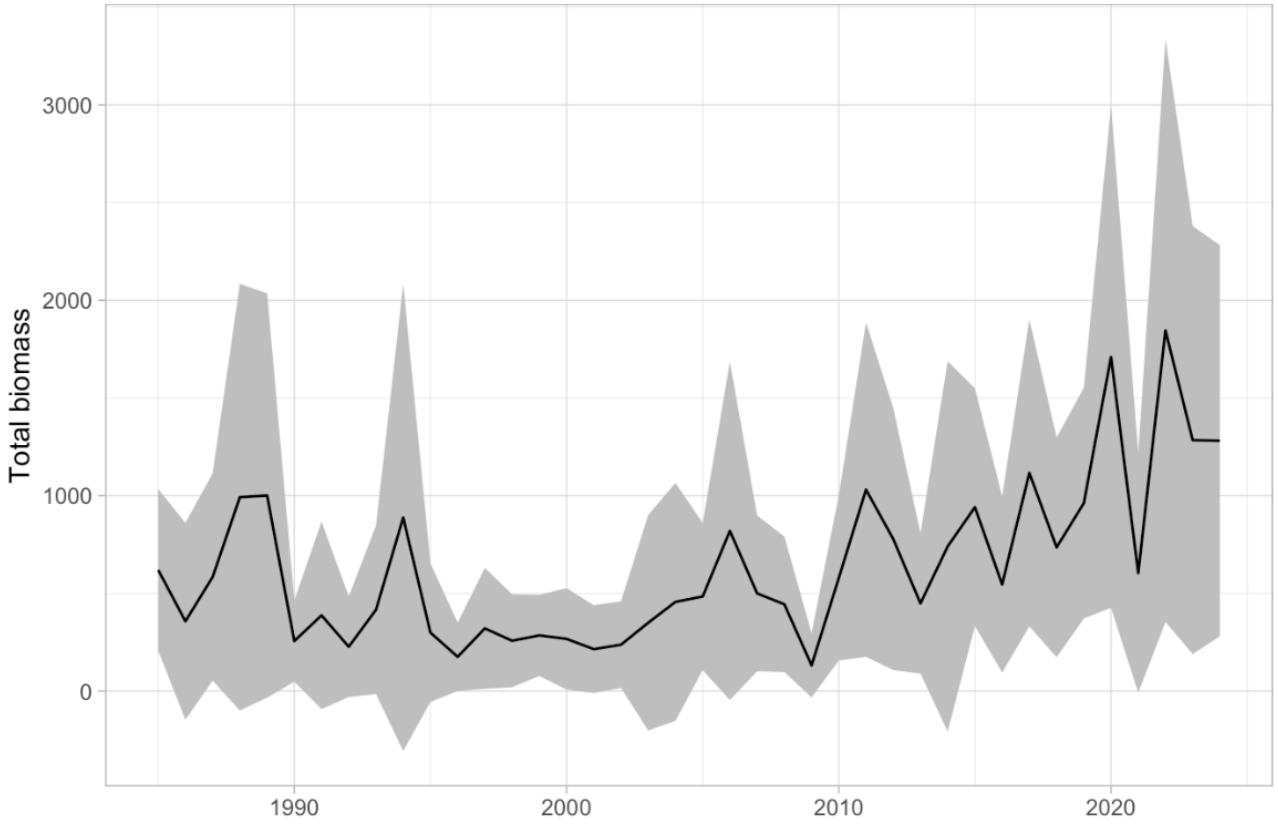


Figure 23. Blue skate. Biomass estimates based on IS-SMB survey.[37]

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 24). 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 25.

[37] https://www.hafogvatn.is/static/extras/images/15-skate_techreport_en.html

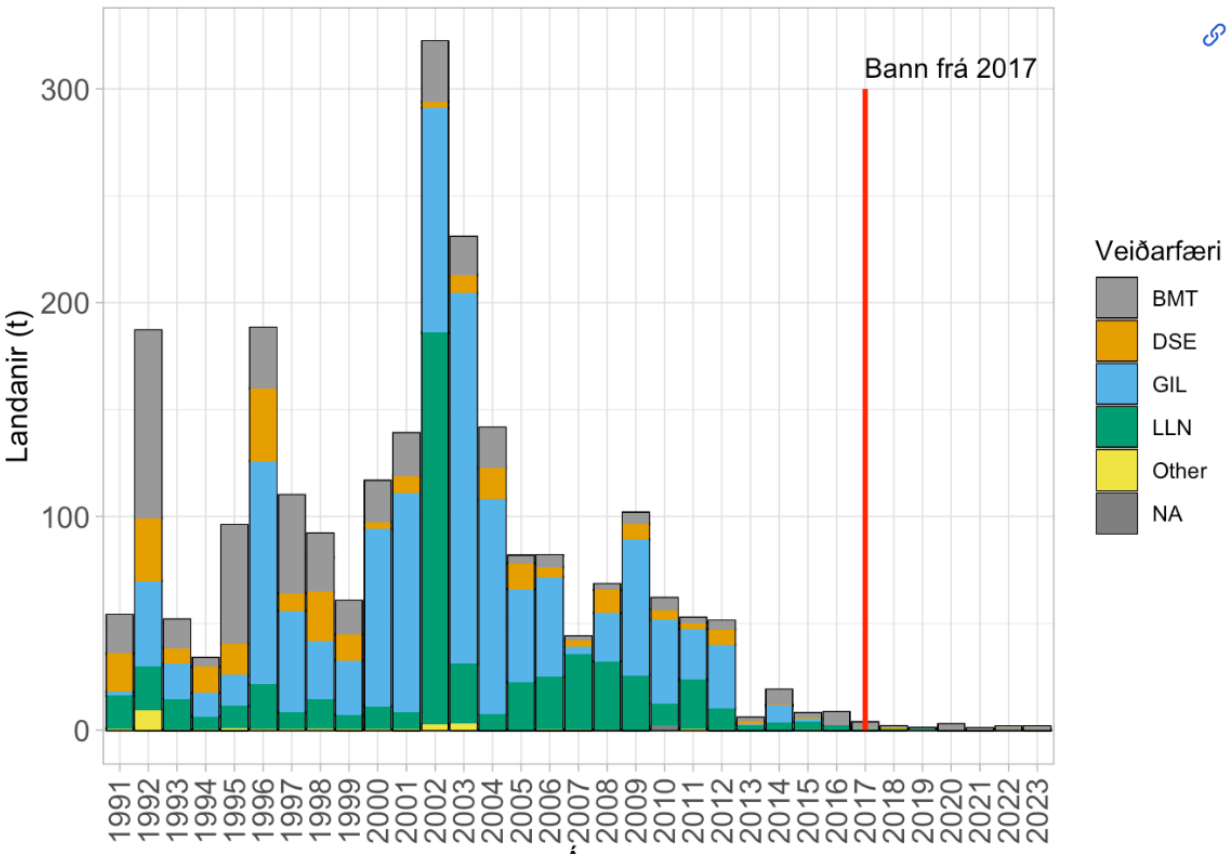


Figure 24 Landings of dogfish divided by fishing gear since 1991 according to the catch registration system of the Fiskistofa. BMT: Bottom trawler, DSE: Dragnet, GIL: Net LLN: Line, NA: unknown

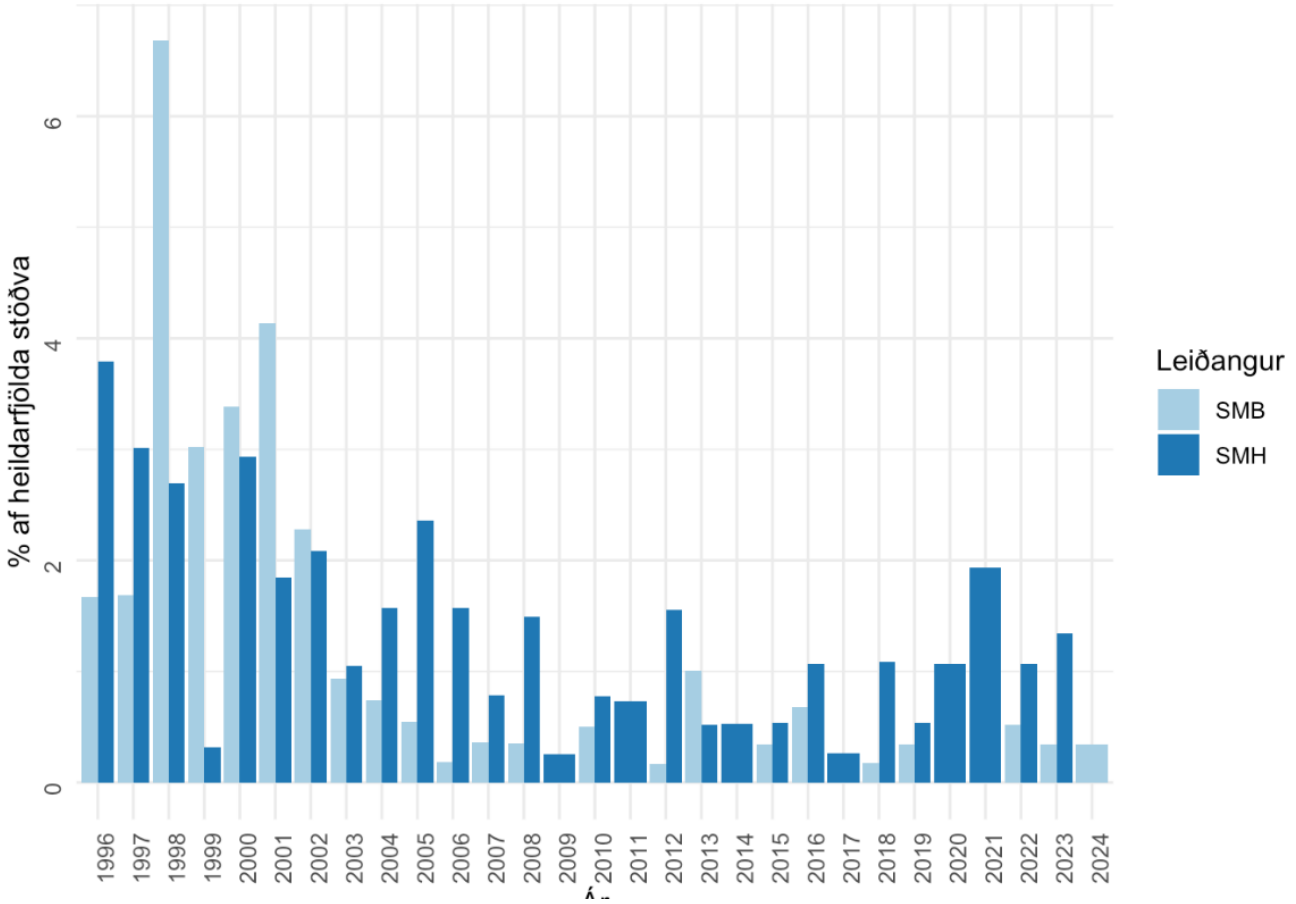


Figure 25 Frequency (percentage of total stations %) in SMB (spring) and SMH (autumn).

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 (MRFI site visit information).

7.4.1.1.3 Habitat

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). Within the ecoregion, abrasion caused by bottom trawls has been shown to impact fragile three-dimensional biogenic habitats in particular (e.g. sponge aggregations, coral gardens, and coral reefs), with impacts happening mainly in deeper waters (> 200 m). Effects of bottom trawling on soft substrates in shallow

waters have been shown to be minor. Other impacts involve overturning boulders, scouring the seabed, and direct removal of and/or damage to epifaunal organisms (ICES 2022).

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 (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).

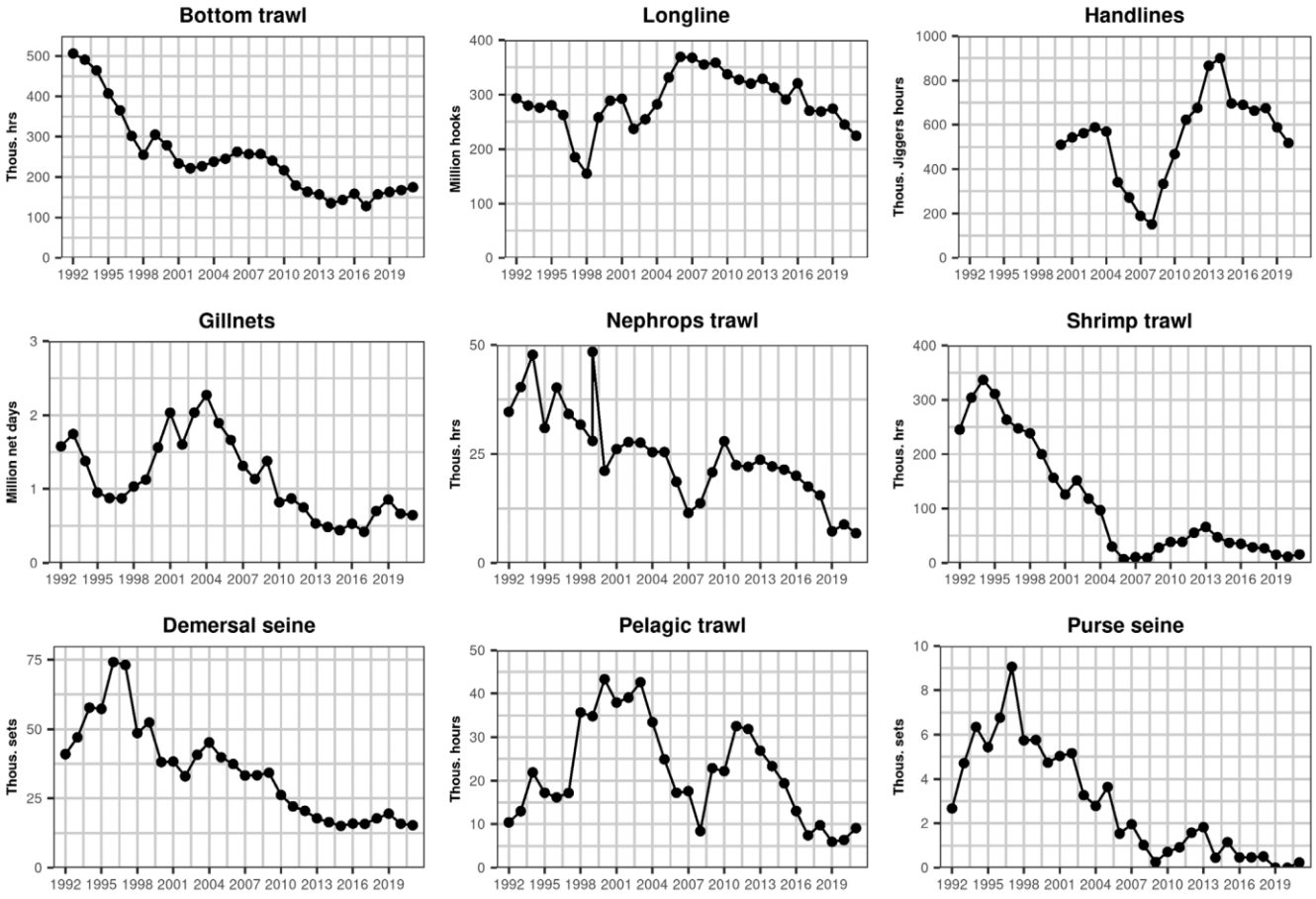


Figure 26 Temporal trends in effort by gear 1992–2021, based on logbook entries. Information on the anglerfish gillnet is not available (source: ICES 2022).

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 27 below.

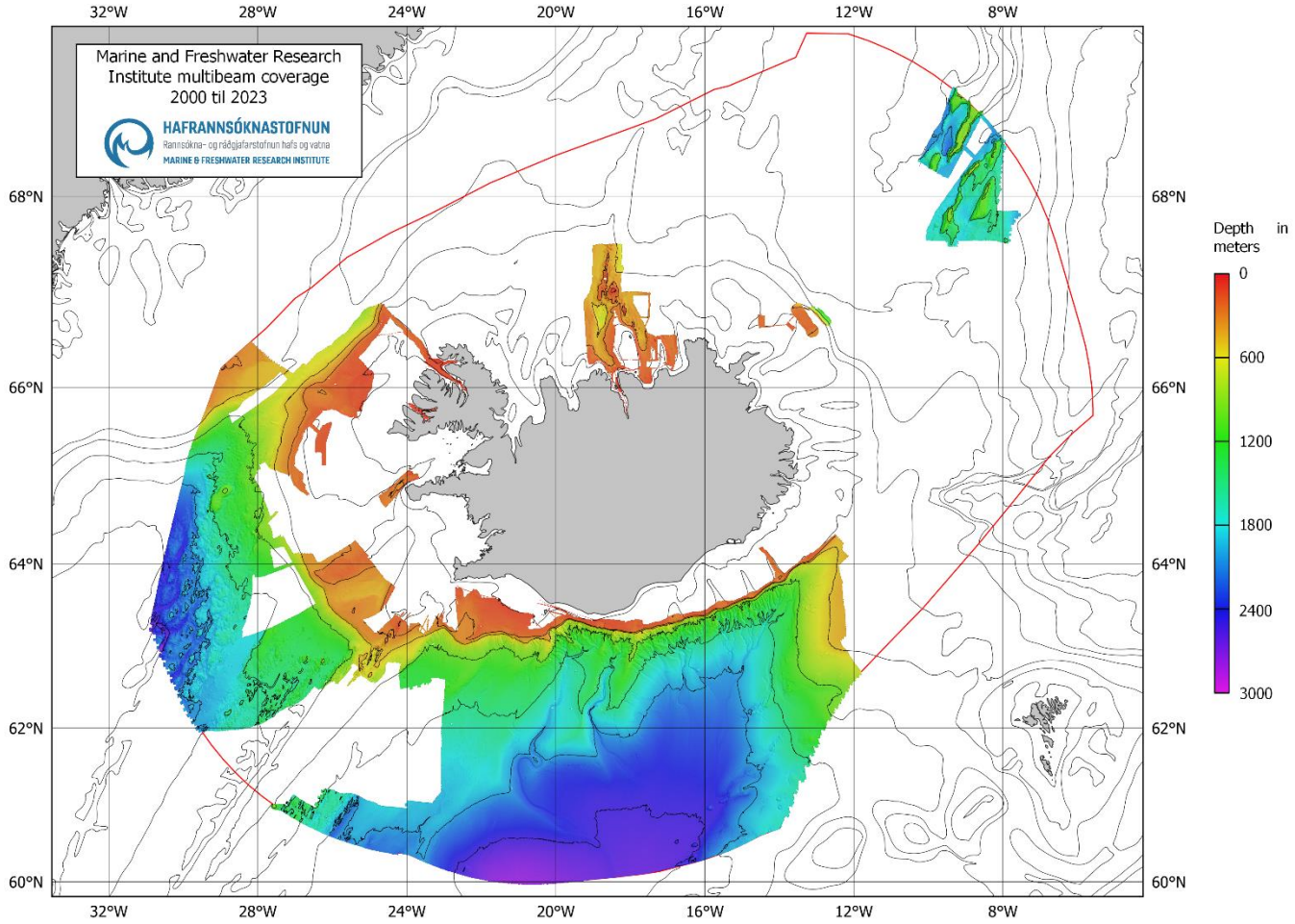


Figure 27. The image shows an overview of MFRI's seabed mapping with multibeam measurements in the years 2000-2023. (https://www.hafogvatn.is/en/research/seabed-mapping)

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).

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 28 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.[38] (Figure 29).
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 28).

[38] https://www.stjornartidindi.is/Advert.aspx?RecordID=df88f6db-5dc5-4e03-80c0-7ca095b16b20

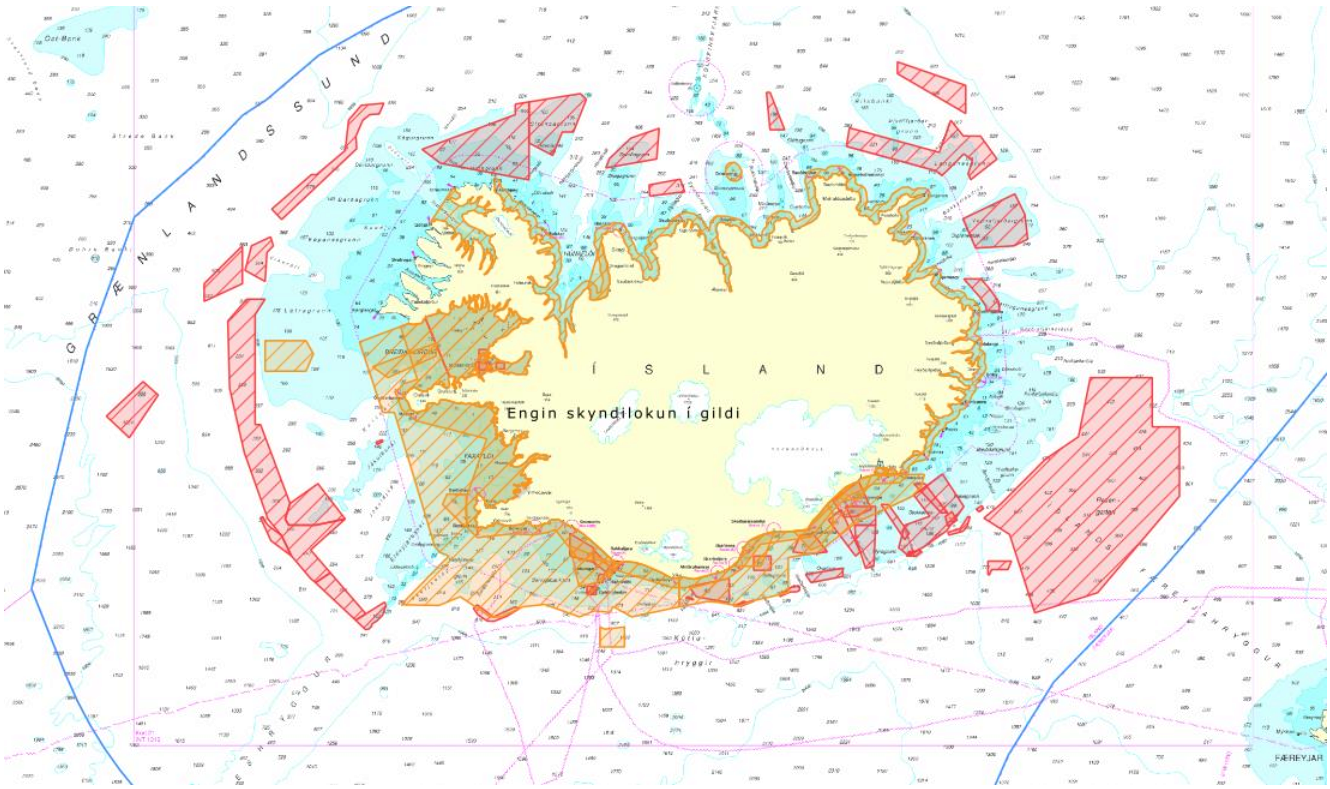


Figure 28 Regulatory long-term closures in Iceland, all gear types. Red closures are for bottom trawl and at times all gear closures. Yellow/orange boxes with internal lines near the coast (East, West and North West) are longline closures. For details on each closure including dates and gear restrictions please click on each red box in the Atlas/GIS website managed by Fiskistofa at http://atlas.lmi.is/mapview/?application=haf .

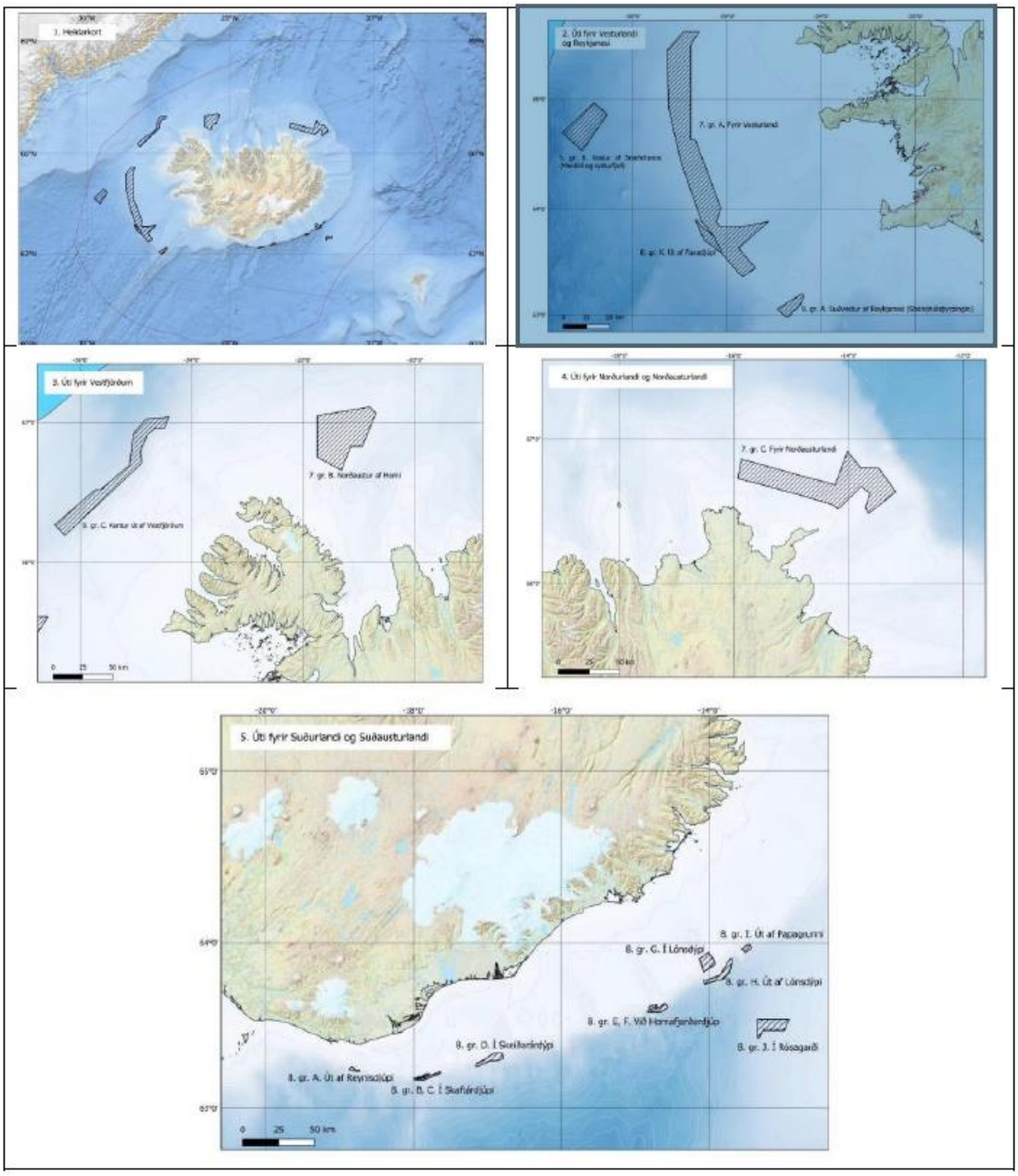


Figure 29 Map of protected areas under regulation No 188. 1, 2 and 3. From the left to the right, top and bottom; images 1,2 and 3 areas are aimed at protection of less disturbed marine areas. All fishing, except fishing with hand tools and fishing for pelagic fish with floating cast and purse seine. 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.

7.4.1.1.4 Ecosystem

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 warm-water species in the ecoregion has increased in recent years.

- 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).

7.5 Enforcement and Compliance update

The Icelandic Directorate of Fisheries is an independent administrative body responsible to the Fisheries Minister, accountable 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)[39], the Fisheries Management Act (no. 116/2006)[40], 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[41]. 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. 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[42]). Provisions of the Act on a Special Fee for Illegal Marine Catch[43] 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).

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 is on board and when not, to detect discards. Some findings have been published in 2019[44] and 2020[45].

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[46].

[39] https://www.althingi.is/lagas/149a/1992036.html
[40] https://www.ecolex.org/details/legislation/fisheries-management-act-1990-lex-faoc003455/
[41] http://www.fiskistofa.is/english/about-the-directorate/
[42] https://www.althingi.is/lagas/149a/1996057.html
[43] https://www.althingi.is/lagas/149a/1992037.html
[44] http://www.fiskistofa.is/umfiskistofu/frettir/aflasamsetning-a-botnvorpu-og-dragnotarveidum
[45] http://www.fiskistofa.is/umfiskistofu/frettir/aflasamsetning-i-thorskanetum-og-botnvorpu
[46] https://www.stjornartidindi.is/Advert.aspx?RecordID=884be309-64a5-4367-9e4d-f5e7216b6f40

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 298/2020[47]. The App also called Afladagbókina or catch diary[48] [49] 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)[50] on certain aspects of the Icelandic enforcement system highlighted that more quantitative data are needed to substantiate the conclusions that 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 violators[51].

[47] https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887
[48] http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla
[49] https://www.mbl.is/200milur/frettir/2020/08/31/oll_aflaskraning_rafraen_fra_og_med_morgundeginum/
[50] https://rikisendurskodun.is/wp-content/uploads/2019/01/Eftirlit-Fiskistofu-Stjornsysluuttekt.pdf
[51] https://island.is/s/fiskistofa/frett/birting-ishlutfalls-vid-endurvigtun-undir-eftirliti

During the 2024 audit, Fiskistofa confirmed (3rd 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.

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 990/2020[52] 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 Fisheries [53].

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 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)[54].

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.[55]

All scientific advice is available online[56]. 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[57].

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

[52] https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/22140
[53] http://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf
[54] https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2021/09/23/Stjorn-fiskveida-2021-2022-Log-og-reglugerdir/
[55] http://www.fiskistofa.is/
[56] https://www.ices.dk/advice/Pages/Latest-Advice.aspx
[57] http://atlas.lmi.is/mapview/?application=haf

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

Table 11. Short term (real-time) closures in Iceland for 2023 by gear.

Year	Gear	Number of closures
2023	Bottom trawl	6
2023	Line	2
2023	Pelagic trawl	1

Directorate Inspections at Sea

Days spent by Fisheries Directorate inspectors at sea inspecting vessels provided during the June 2024 IRFM site visit as the Fiskistofa coverage in the past fishing season 2022/2023:

114 fishing trips on lumpfish = 4.6% coverage of trips

283 days at sea for bottom trawlers = 1.1% coverage

6 trips demersal longline (0.2% coverage) large vessels, 5 trips (0.3% coverage) small vessels

27 trip for cod gillnets = 1.4% coverage

3% purse seine coverage from 9 trips

Whaling 100% coverage

0.3 Danish seine coverage

2.2% midwater trawl coverage from 11 inspected trips

7.5.1 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. 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. Then the Directorate of Fisheries can in individual cases, deprive individuals of a fishing license to enforce law enforcement and rules. 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 12. Fiskistofa suspected violations in 2020, 2021 and 2023. Source: Fiskistofa 2020[58], 2021 Annual Report[59] 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 No.	2021 No.	2023 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	
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	

[58] https://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf
[59] https://www.fiskistofa.is/media/arsskyrslur/arsskyrsla-2021.pdf

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

7.5.2 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 7) 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.

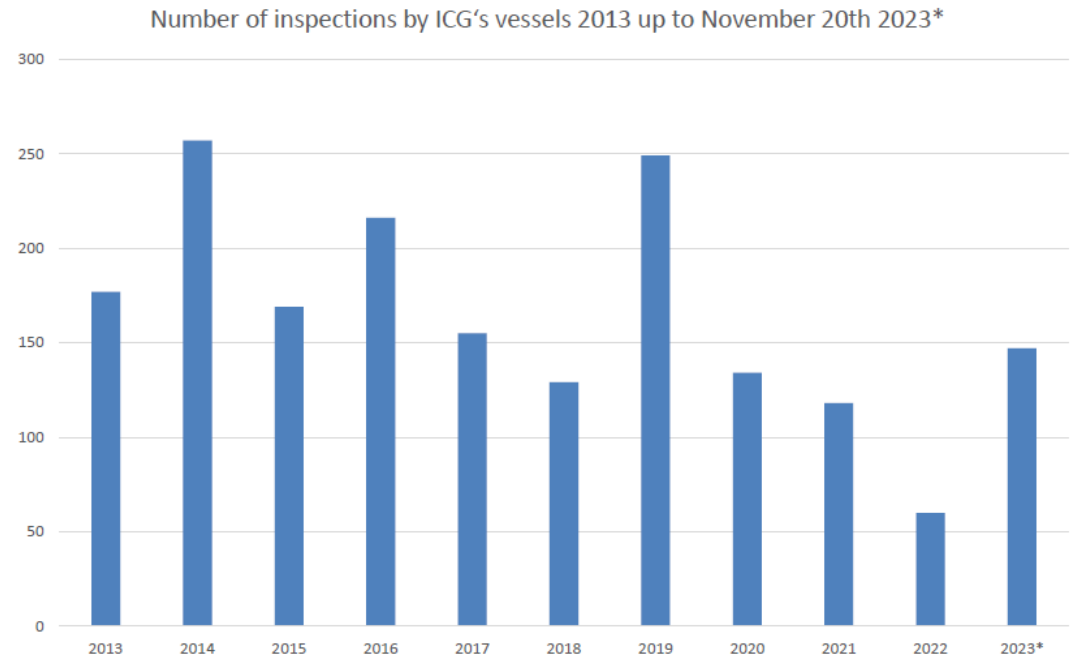


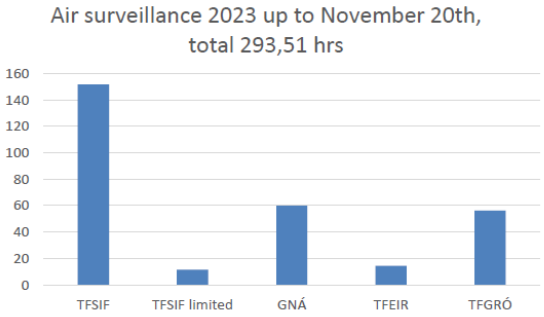
Figure 30. Overall number of ICG inspection from 2013 to 2023**.** Source: ICG, June 2024.

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.



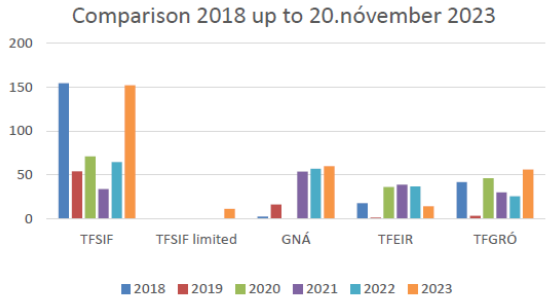


Figure 31. Air Surveillance 2023 and comparison from 2018.

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.

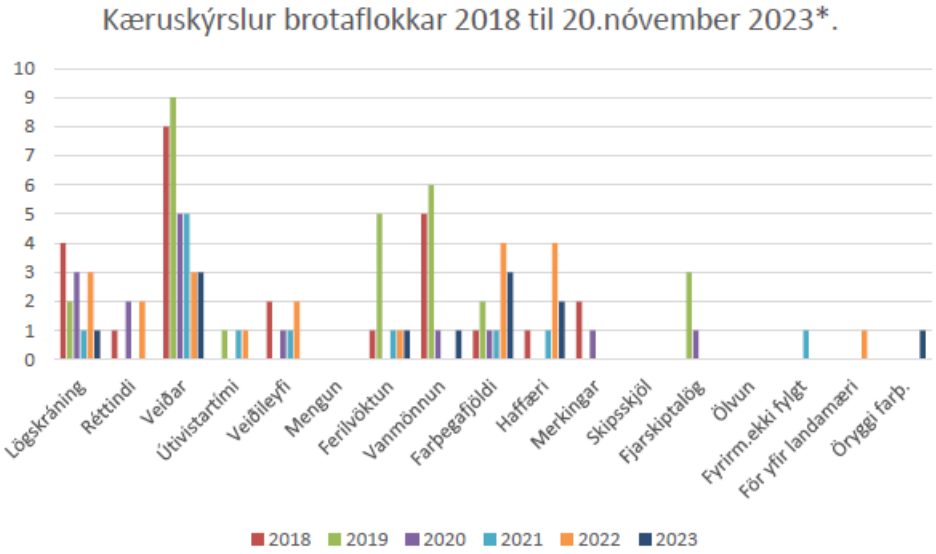


Figure 32. Overview of ICG infringement reports in 2018- (20th Nov) 2023. Source: provided by the ICG.

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.

7.6 Update on consistency to the fundamental clauses of the RFM Fishery Standard

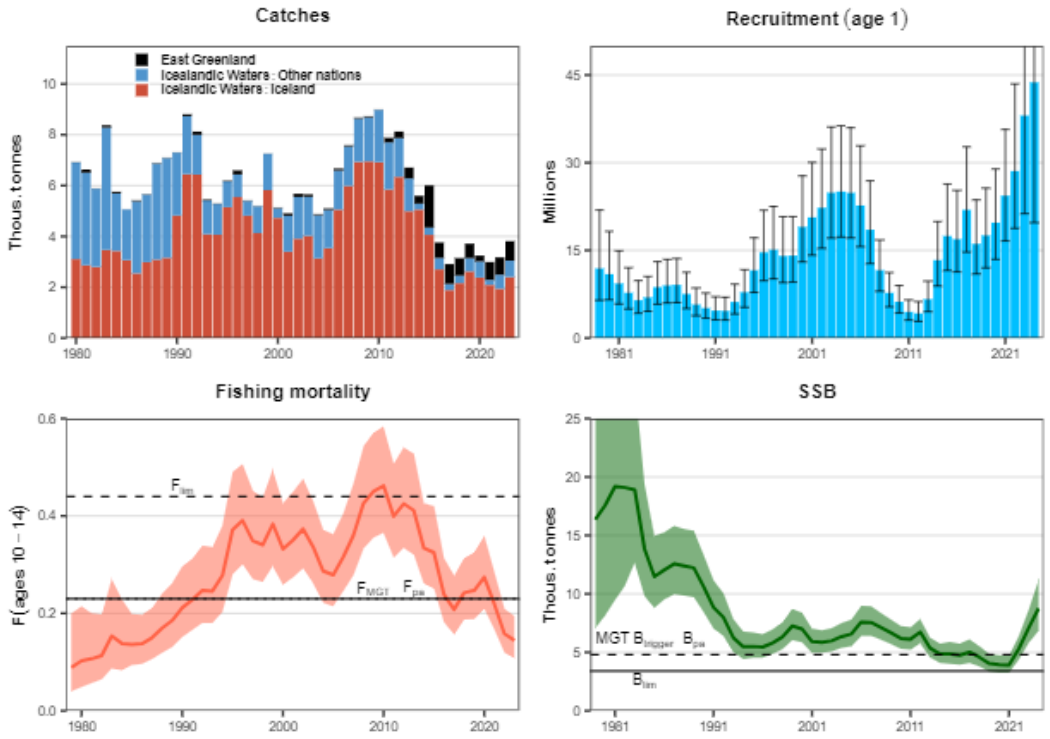
This section includes a brief update on changes in the fishery relevant to the fundamental clauses of the IRF Fishery Standard and a statement of continuing consistency (or not) to those fundamental clauses.

Section 1. Fisheries Management

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

1.1	Fisheries Management System and Plan for Stock Assessment, Research, Advice and Harvest Controls including: – The fisheries management system – The fisheries management plan
Summary of relevant changes:	The tusk stock advice is prepared annually by MFRI and subsequently presented and reviewed by ICES. The current advice procedure is based in a management plan that was evaluated by ICES in 2022, and it is considered precautionary and incorporates all relevant information. The management plan has a clearly formulated harvest control rule that sets the TAC for the next fishing season. All the advice procedures are documented and publicly available. There are no changes in the assessment, the advice procedure or the harvest control rule since the last surveillance audit.
References:	Please see the references in the section LINK
Statement of continuing consistency to the IRF Fishery Standard	The fishery continues to remain consistent with the standard.

7.6.2 Clause 1.2 Research and Assessment

1.2 Research and Assessment	
Summary of relevant changes:	The tusk assessment unit as defined by ICES covers ICES Division 5a and 14 (Iceland and East Greenland). Catches in Icelandic waters dominate, and there is little evidence of effective exchange between the areas, but the stock structure is unclear. The assessment is made with only Icelandic data and effectively the assessment is of tusk in Icelandic waters. With Greenland catches being significant (20%) this should be explored for future assessments. The assessment model was changed two years ago, and there have been no changes since other than adding new data to the assessment. The assessment is undertaken by MFRI and ICES and input data, assessment results and assessment uncertainty are publicly available. The stock perception has changed in a positive direction since the last surveillance audit. The spawning stock size is larger than for the past 30 years, and the fishing mortality has dropped significantly below the target reference points. Recruitment continues to increase. The advice increased by 15% for the 2024/2025 fishing season. The key assessment diagnostics are shown below. 
References:	Please see the references in the section LINK
Statement of continuing consistency to the IRF Fishery Standard	The fishery continues to remain consistent with the standard.

7.6.3 Clause 1.3 Stock under Consideration, Harvesting Policy and the Precautionary Approach

1.3 Stock under Consideration, Harvesting Policy and the Precautionary Approach including:
- 1.3.1 The precautionary approach
- 1.3.2 Management targets and limits
  - 1.3.2.1 Harvesting rate and fishing mortality
  - 1.3.2.2 Stock biomass
  - 1.3.2.3 Stock biology and life-cycle (structure and resilience)

Summary of relevant changes:

The TAC for tusk in Icelandic waters is set in accordance with a harvest control rule that has been evaluated by ICES, who concluded that it is precautionary. The approach is implemented by targeting a fishing mortality of 0.23, which is in accordance with the msy approach and considered precautionary. Additionally, Greenland sets a TAC of 1,500 t that is not rooted in precautionary considerations or a management plan. This leads to TACs greater than the advice for Iceland and Greenland combined. Following the revision after the 2022 ICES benchmark, there has been no change in the reference points. The reference points are shown below:

Framework	Reference point	Value	Technical basis
MSY approach	MSY $B_{trigger}$	4 800	B_{pa}
	F_{MSY}	0.23	F_{pa}
Precautionary approach	B_{lim}	3 400	$B_{pa} \times e^{-1.645 * \sigma B}$, using the default $\sigma_B = 0.2$
	B_{pa}	4 800	B_{loss} (SSB in 2016)
	F_{lim}	0.44	Fishing mortality that in stochastic equilibrium will result in median SSB at B_{lim}
	F_{pa}	0.23	Maximum F at which the probability of SSB falling below B_{lim} is < 5%
Management plan	MGT $B_{trigger}$	4 800	From the management plan
	F_{mgt}	0.23	From the management plan

The harvest strategy in the management plan targets a fishing mortality of 0.23. The harvest rule is further to reduce the fishing mortality linearly towards the origin for spawning stock biomasses below the MSY Btrigger value of 4,800 t. The expected range of realized fishing mortalities (F) following the management plan is between 0.15 and 0.31.

Further protective measures include area closures and rules for landing of undersized fish. Closed areas can be permanent, which are defined in regulations and remain unchanged from year to year, as well as temporary closures of areas where undersized fish are caught.

There have been no changes to the management plan or the harvest control rule in the last year. The harvest control rule as defined by ICES is shown below:

1.3	Stock under Consideration, Harvesting Policy and the Precautionary Approach including: 1.3.1 The precautionary approach 1.3.2 Management targets and limits 1.3.2.1 Harvesting rate and fishing mortality 1.3.2.2 Stock biomass 1.3.2.3 Stock biology and life-cycle (structure and resilience)
	Management plan for the stock component in Division 5.a (ICES, 2017) The Icelandic Ministry of Food, Agriculture, and Fisheries management plan for Icelandic tusk has been evaluated by ICES (ICES, 2022). It is considered precautionary and conforms to ICES MSY approach. According to the management plan, $F_{Y/Y+1}$, which is the advice fishing mortality that is applied from 1 September year *Y* to 31 August year *Y+1*, is calculated from the harvest control rule (HCR) as: $$F_{Y/Y+1} = min\left(\frac{SSB_Y}{MGT\ B_{trigger}}, 1\right) * F_{mgt}$$ To calculate the catch in the last four months of the year *Y* (September to December), the following F is used in the year *Y*: $$F_{\mathrm{Y}} = \frac{2}{3} * F_{\mathrm{SQ}} + \frac{1}{3} * F_{\mathrm{mgt}}$$ In year *Y+1*, $F_{Y/Y+1}$ is used. Finally, the catch advice for the year *Y/Y+1* is calculated using the following formula: $$C_{Y/Y+1} = \frac{1}{3} * \mathrm{C}[F_{\mathrm{Y}}] + \frac{2}{3} * C[F_{\mathrm{Y/Y+1}}]$$ where the catch is calculated using the Baranov catch equation with the corresponding biomass, natural mortality, and fishing mortality values in each year.
References:	Please see the references in the section LINK
Statement of continuing consistency to the IRF Fishery Standard	The fishery continues to remain consistent with the standard.

7.6.4 Clause 1.4 External Scientific Review

1.4	External Scientific Review
Summary of relevant changes:	ICES continues to be the relevant external review body. The advice is prepared by MFRI and is evaluated and reviewed by ICES. ICES has also evaluated the current harvest control rule and management plan. This procedure remains unchanged and constitutes a thorough external review.
References:	Please see the references in the section LINK
Statement of continuing consistency to the IRF Fishery Standard	The fishery continues to remain consistent with the standard.

7.6.5 Clause 1.5 Advice and Decisions on TAC

1.5	Advice and Decisions on TAC
Summary of relevant changes:	Stock assessment and advice, including advice on harvest rules, TACs and reference points is provided by ICES. The process involves all relevant nations. The advice is published on the MFRI and ICES websites once it is ready. The MFRI advice follows the ICES advice. The Minister of Fisheries and Agriculture decides on the TAC of the tusk stock for each fishing year (Sept –Aug) in accordance with the Fisheries Management Act no. 116, based on HCR and the advice mentioned above. This TAC only applies to Icelandic waters and does not consider the catch or TAC in Greenland waters. The

1.5	Advice and Decisions on TAC
	Greenland quota is set a fixed value of 1,500 t for the past years. This is the result of an internal political process unlinked to the advice and the Icelandic management plan. There is no change in this procedure.
References:	Please see the references in the section LINK
Statement of continuing consistency to the IRF Fishery Standard	The fishery continues to remain consistent with the standard.

Section 2. Compliance and Monitoring

7.6.6 Clause 2.1 Implementation, Compliance, Monitoring, Surveillance and Control

2.1	Implementation, Compliance, Monitoring, Surveillance and Control
Summary of relevant changes:	The Icelandic Directorate of Fisheries, or Fiskistofa[60], is an independent administrative body responsible to the Fisheries Minister, in charge of 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. The Icelandic Coast Guard[61] is responsible for control at sea, both of the catches and the quality of the vessels. It performs sea and air patrols of Iceland's 200-mile exclusive economic zone and 12-mile territorial waters, and monitoring of fishing within the zone in consultation with the Marine and Freshwater Research Institute and Ministry of Industries and Innovation. The Coast Guard operates the Icelandic Maritime Traffic Service within its operations centre which has a key role in ensuring safety at sea, but can also take action if the behaviour of a fishing vessel is unusual. 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[62]). Provisions of the Act on a Special Fee for Illegal Marine Catch[63] 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). **Summary of relevant updates.** 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 up to 2023 as provided by the management authorities (MFRI and Fiskistofa) is shown below.

[60] https://www.fiskistofa.is/umfiskistofu/
61 http://www.lhg.is/english
[62] https://www.althingi.is/lagas/149a/1996057.html
[63] https://www.althingi.is/lagas/149a/1992037.html

Table 11. Short term (real-time) 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
2022	Cod	2
2022	Haddock	2
2022	Sea cucumber (quota finished)	1
2023	Cod	3
2023	Saithe	4
2023	Haddock	1
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 vessels provided during the June IRFM site visit as the Fiskistofa coverage in the past fishing season 2022/2023:
114 fishing trips on lumpfish = 4.6% coverage of trips
283 days at sea for bottom trawlers = 1.1% coverage
6 trips demersal longline (0.2% coverage) large vessels, 5 trips (0.3% coverage) small vessels
27 trip for cod gillnets = 1.4% coverage
3% purse seine coverage from 9 trips
Whaling 100% coverage
0.3 Danish seine coverage
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 13. Fiskistofa suspected violations in 2020, 2021 and 2023. Source: Fiskistofa 2020[64] and 2021 Annual Report[65] 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.

Suspected violation	2020 No.	2021 No.	2023 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	
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

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

[64] https://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf
[65] https://www.fiskistofa.is/media/arsskyrslur/arsskyrsla-2021.pdf

2.1	Implementation, Compliance, Monitoring, Surveillance and Control

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 7) 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.

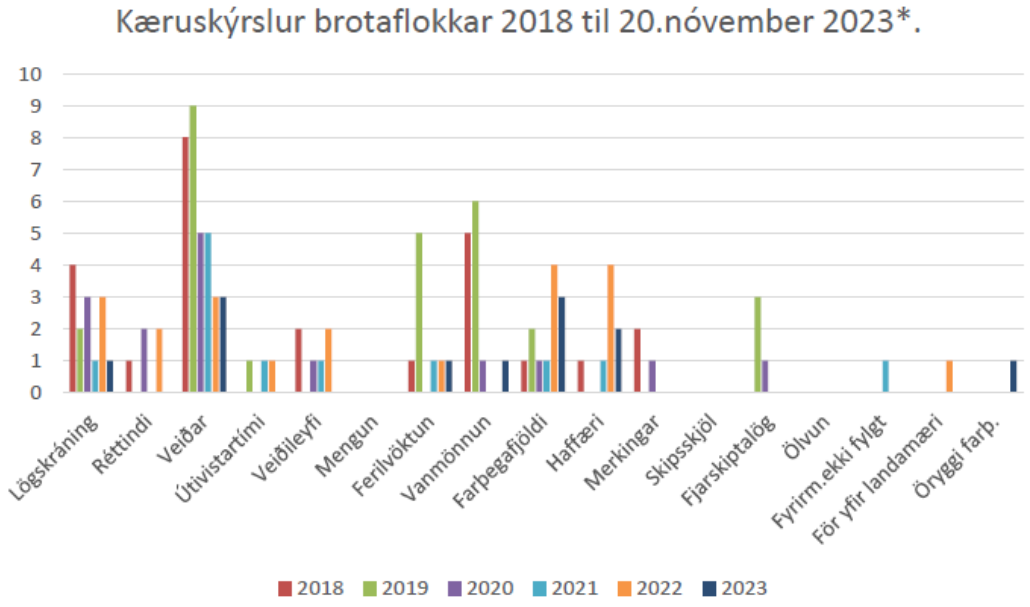


Figure 33. Overview of ICG infringement reports in 2018- (20th November) 2023. Source: provided by the ICG in June 2024.

References:	Please refer to the footnotes and references in the text above, the summary/background section and the Reference section at the end of this document.
Statement of continuing consistency to the IRF Fishery Standard	The fishery continues to remain consistent with the standard.

7.6.7 Clause 2.2 Concordance between actual Catch and allowable Catch

2.2 Concordance between actual Catch and allowable Catch	
Summary of relevant changes:	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.746/2016[66]. These must be electronic (e-logs). Small vessels used to use paper logbooks until late 2020 when regulation 298/2020[67] implemented the use of an electronic app. The App also called Afladagbókina or catch diary[68] [69] 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)[46]. 2023/24 updates: In the evaluation of the management plan (MP) for tusk in Icelandic waters (ICES, 2022a), the basis for assessment was revised and the adopted harvest control rule (HCR) was considered in accordance with the precautionary approach and consistent with the ICES MSY framework. The results of the assessment in 2024 are in line with those in 2023. Table 13. MFRI 2024 advice for Tusk.

[66] https://www.stjornartidindi.is/Advert.aspx?RecordID=42a16a67-60a7-4ae7-ad7c-0f53fc254654
[67] https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887
[68] http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla
[69] https://www.mbl.is/200milur/frettir/2020/08/31/oll_aflaskraning_rafraen_fra_og_med_morgundeginum/

2.2	Concordance between actual Catch and allowable Catch

Tusk. Recommended TAC, national TAC, and catches (tonnes).

Fishing year	Recommended TAC	National TAC	Catches Iceland	Catches other nations	Total catch
2010/2011	6 000	6 000	6 235	1 898	6 235
2011/2012	6 900	6 900	5 983	1 606	5 983
2012/2013	6 700	6 700	5 555	1 314	5 569
2013/2014	6 300	6 300	4 850	487	5 438
2014/2015	4 000	4 000	4 136	1 304	5 440
2015/2016	3 440	3 440	3 221	900	4 121
2016/2017	3 780	3 780	1 689	729	2 418
2017/2018	4 370[1)]	4 370	2 200	885	3 085
2018/2019	3 776[1)]	3 776	2 453	778	3 231
2019/2020	3 856[1)]	3 856	2 460	781	3 241
2020/2021	2 289[1)]	2 289	2 192	757	2 949
2021/2022	2 172[1)]	2 172	1 918	503	2 421
2022/2023	4 464[2)]	4 464	2 420	640	3 060
2023/2024	5 139[2)]	5 139			
2024/2025	5 914[2)]				

[1)] 13 % harvest control rule

[2)] FMGT = 0.23

References:	Please refer to the footnotes and references in the text above, the summary/background section and the Reference section at the end of this document.
Statement of continuing consistency to the IRF Fishery Standard	The fishery continues to remain consistent with the standard.

7.6.8 Clause 2.3 Monitoring and Control

2.3	Monitoring and Control including: 2.3.1 Vessel registration and catch quotas 2.3.2 Fishing vessel monitoring and control systems 2.3.3 Catches are subtracted from relevant quotas 2.3.4 Rules are enforced 2.3.5 Analysis is carried out
Summary of relevant changes:	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.

2.3	Monitoring and Control including: 2.3.1 Vessel registration and catch quotas 2.3.2 Fishing vessel monitoring and control systems 2.3.3 Catches are subtracted from relevant quotas 2.3.4 Rules are enforced 2.3.5 Analysis is carried out	
		Catches by vessel are monitored and recorded in near real-time in a central database maintained by the Fisheries Directorate[70]. 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. 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, using VMS for all Icelandic vessels and for all foreign vessels. Fishing gear is subject to inspection, as well as the composition of the catch and its handling onboard the fishing vessels. At-sea inspections are undertaken during boardings by the Coast Guard and on fishing trips accompanied by the inspectors of the Fisheries Directorate. The Coast Guard undertakes unannounced inspections at sea and check logbooks during these boardings. Fisheries Directorate inspectors also make unannounced checks of logbooks during port inspections. The Coast Guard 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), and more recently drones. **Deviations and flexibility measures**

[70] http://www.fiskistofa.is/veidar/aflaheimildir/aflahlutdeildalisti/

2.3	Monitoring and Control including: 2.3.1 Vessel registration and catch quotas 2.3.2 Fishing vessel monitoring and control systems 2.3.3 Catches are subtracted from relevant quotas 2.3.4 Rules are enforced 2.3.5 Analysis is carried out	
		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). Excess catches which are not corrected using these flexibility measures can result in a revocation of fishing licenses and fines[71]. 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 and Fiskistofa can send inspectors to verify for issues. **Updates for 2022** 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. Aside from the above, the monitoring and control systems remain largely unchanged since the previous surveillance. The only other update for 2022 relates to the progress to address the minor non-conformance raised against Clause 2.3.2.4 . **Non-conformance #1 (Clause 2.3.2.4: Minor Non-conformance). Although required by legislation, there is some evidence of non-reporting/under-reporting of seabirds and marine mammals bycatch such that the Assessment Team cannot be fully confident that catch amounts by species and fishing area (of marine mammals and seabirds) are estimated and continually recorded in fishing logbooks.** 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 e-logbook) which contains information on catch and bycatch, including that of marine mammals and seabirds. This follows regulation 298/2020[72]. The App also called Afladagbókina or catch diary[73] [74] 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

[71] http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Vidurlog
[72] https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887
[73] http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla
[74] https://www.mbl.is/200milur/frettir/2020/08/31/oll_aflaskraning_rafraen_fra_og_med_morgundeginum/

2.3	Monitoring and Control including: 2.3.1 Vessel registration and catch quotas 2.3.2 Fishing vessel monitoring and control systems 2.3.3 Catches are subtracted from relevant quotas 2.3.4 Rules are enforced 2.3.5 Analysis is carried out	
		recording system. Updates from 2022 (previous surveillance audit) and from 2023 (current surveillance audit) are provided below for full context: **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. All in all, since implementation of the App it is not clear if bycatch information a) is being collected and b) received by the relevant science authorities in charge of data analysis. **Status:** Open, Corrective Actions in place to be reviewed annually in subsequent audits. **Progress is deemed to be behind schedule and a revised corrective action has been requested from the Client.** A corrective action plan against this non-conformance has been provided under the Non Conformances and Corrective Action Section of this report. Please refer to it for further detail on the non-conformance, the corrective action plan and the corrective evidence supplied during this audit. **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 a equipment, normally “sound gun”. ICG noted that they do not have the percentage of vessel using the equipment. **Status:** The corrective action requested from the Client is deemed to be behind schedule and target.
References:		Please refer to the footnotes and references in the text above, the summary/background section and the Reference section at the end of this document.
Statement of continuing consistency to the IRF Fishery Standard		The fishery continues to remain consistent with the standard, but we note the non-conformance highlighted above.

Section 3. Ecosystem considerations

7.6.9 Clause 3.1 Guiding Principle

3.1 Guiding Principle	
Summary of relevant changes:	**Associated species catch and bycatch to the fishery** The Icelandic groundfish fishery is multispecies in nature with vessels simultaneously targeting numerous species. With regards to catches, most commercially fished species in Iceland are now part of the ITQ system. Discarding is prohibited and comparison between observer measured catch compositions and self-reporting by fishers ensures that a high level of compliance with the ban on discarding is maintained. The species listed in Table 11 are those that were identified during the 2019-2020 re-assessment[75]. A status update on each of these species has been provided in this report but in summary the cod fishery appears not to have any significant negative effects on any of the listed species but one, spotted wolffish, which is the subject of an open non-conformance and related corrective action. Please refer to Section 7.4.1.1.1 for further information on the status of all bycatch species, including spotted wolffish. **Endangered, Threatened and Protected (ETP) and vulnerable species interactions** **Context to the tusk fishery.** Some of the updates below are only partially relevant to the tusk fishery because although (cod) gillnets are responsible for the majority of issues relating to seabird and marine mammal bycatch, tusk catches from gillnet gear in the past 5 years have been negligible, at around 0.2% of total gillnet catches. However, bycatch updates from longline (main gear used to catch >95% of tusk) and trawl gear (very small catches used to catch <4% of tusk) are certainly more relevant to the tusk fishery. 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[76]. The 2023 ICES WGBYC report[93] 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: • 114 fishing trips on lumpfish = 4.6% coverage of trips • 283 days at sea for bottom trawlers = 1.1% coverage • 6 trips demersal longline (0.2% coverage) large vessels, 5 trips (0.3% coverage) small vessels • 27 trip for cod gillnets = 1.4% coverage • 3% purse seine coverage from 9 trips • Whaling 100% coverage • 0.3 Danish seine coverage • 2.2% midwater trawl coverage from 11 inspected trips Table 8 details the reported number of bycaught specimens in Icelandic waters in 2020-23 provided through the ICES WGBYC 2023 data call by ecoregion for all reported species.

[75] https://www.responsiblefisheries.is/media/1/irf-cod-re-assessment-report-final-03feb2020.pdf

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

Table 9 details the bycatch in fishing gears as reported by onboard inspectors between 2021 and 2023, and by the fishing fleet in 2023. The numbers are standardized by the number of landings (inspected and total). This information was provided by the MRFI in October 2024.

In an earlier comparison between the observer and logbook 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 of percent higher and suggested that very little 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 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.

Relevant updates for species for which data is available is provided below. All the species below were identified and analyzed as vulnerable or ETP 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).

Harbour Porpoises (*Phocoena phocoena*)
Harbour porpoises are classified as Least Concern in the IUCN Red List[77] (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)[78]. The 2019 Report of the NAMMCO Scientific Committee Working Group on Harbour Porpoise (19-22 March 2019)[79] 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 2009–2013[80] 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.[81]

In 2022 the same group provided the following update[82]:"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.
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

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	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 behavioral 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)[83]. 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.

[77] 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.
[78] https://www.ni.is/node/27406
[79] 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
[80] 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
[81] 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
[82] 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
[83] https://nass.nammco.org/2024/

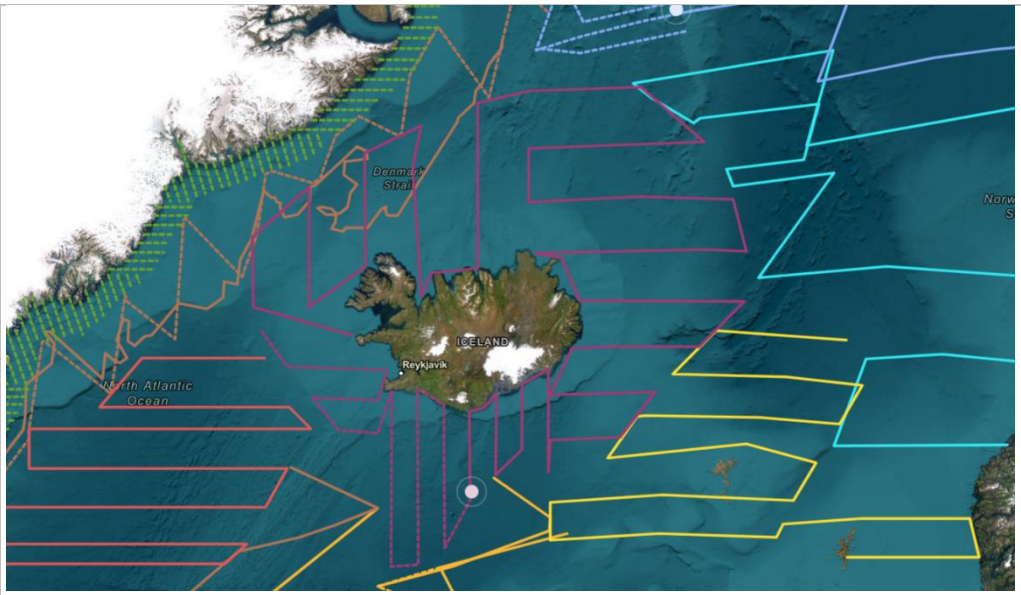

Figure 34. NASS-North Atlantic Sightings Survey 2024. (Source https://nass.nammco.org/2024/)

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 seals[84] 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). Negative effects from the cod gillnet fisheries (and associated fisheries that land fish in those nets) are considered to be very limited.

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)

Elasmobranchs

Leafscale gulper shark

No catch of leafscale gulper shark has been reported for the last 5 years. Deepwater autumn survey trends show increasing trend (see Figure 22).

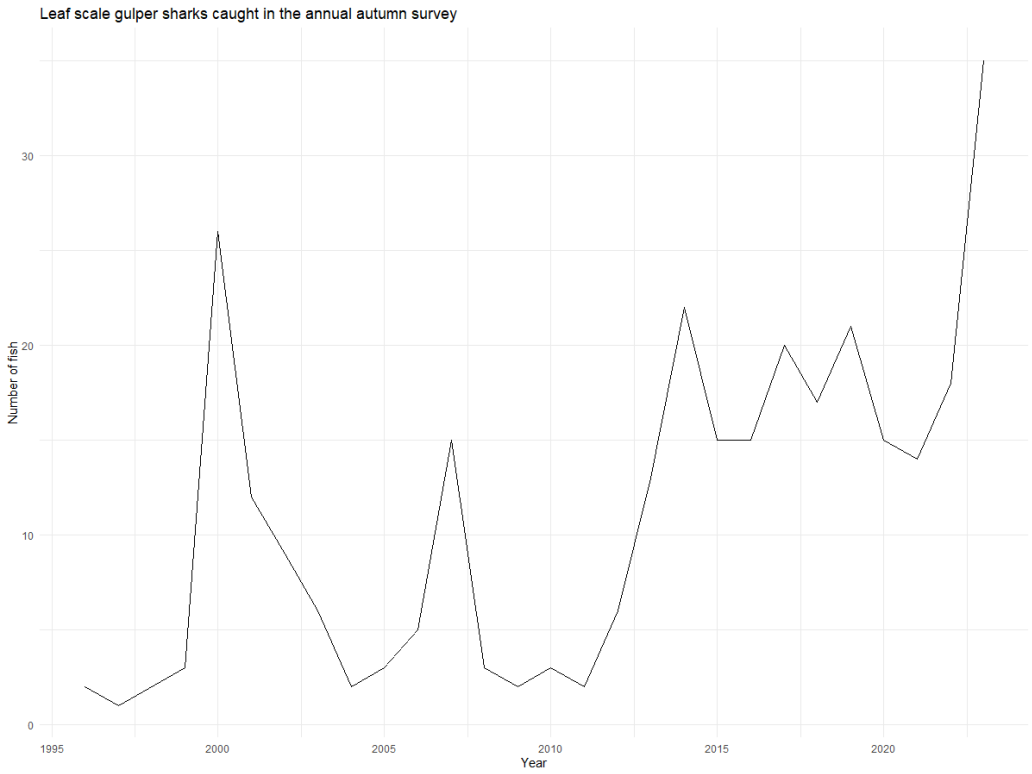

Figure 35. Leaf scale gulper sharks caught in the annual autumn survey 2023.

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 23). The mean biomass in annual spring survey is estimated around 600 tonnes.

[84] https://www.hafogvatn.is/static/extras/images/radgjof-landselur20201286028.pdf

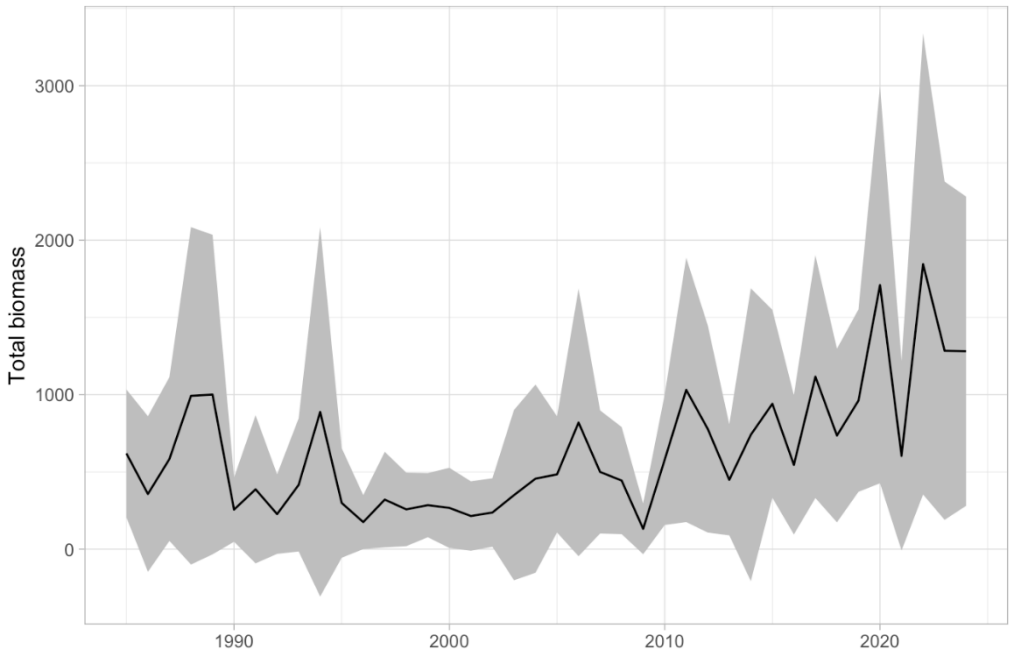

Figure 36. Blue skate. Biomass estimates based on IS-SMB survey.[85]

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 24). 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 25.

[85] https://www.hafogvatn.is/static/extras/images/15-skate_techreport_en.html

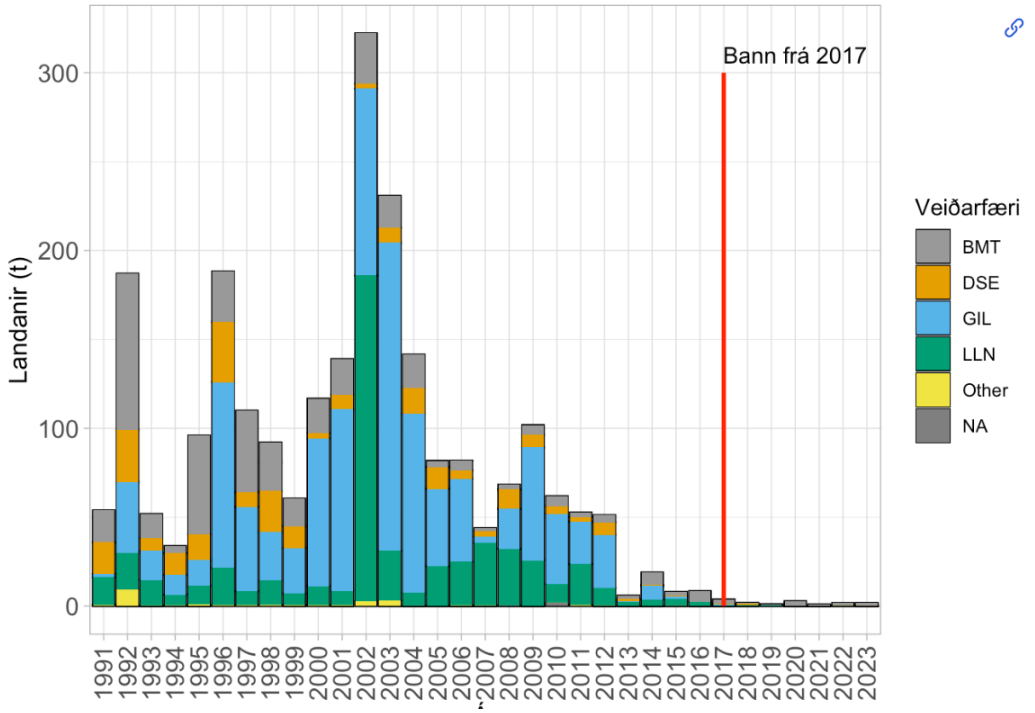

Figure 37 Landings of dogfish divided by fishing gear since 1991 according to the catch registration system of the Fiskistofa. BMT: Bottom trawler, DSE: Dragnet, GIL: Net LLN: Line, NA: unknown

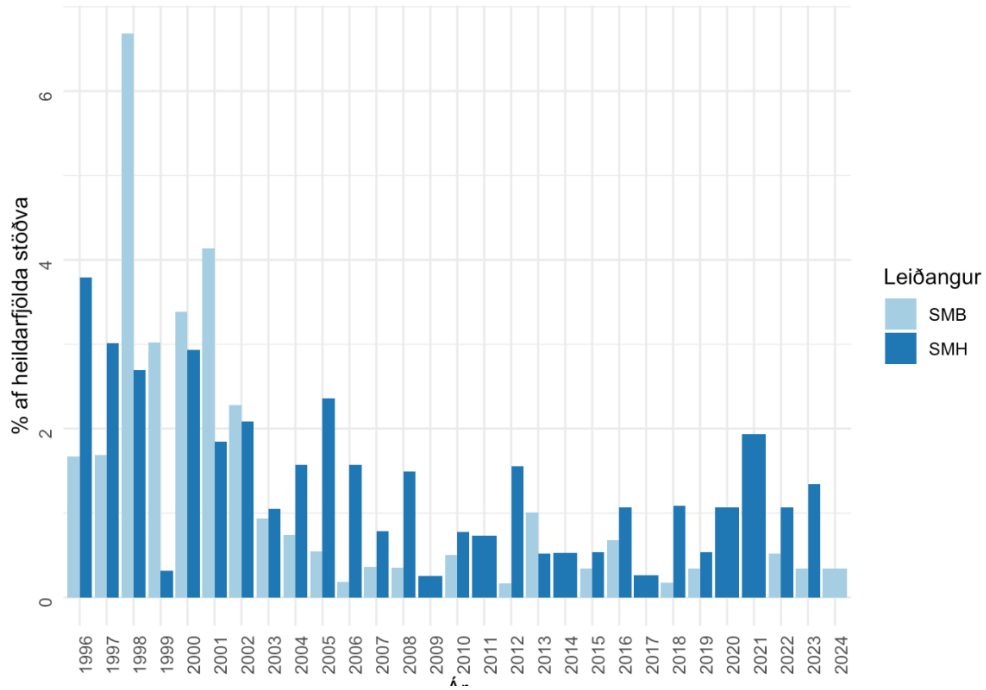

Figure 38 Frequency (percentage of total stations %) in SMB (spring) and SMH (autumn).

Greenland sharks (*Somniosus microcephalus*)

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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 (MRFI site visit information).

Habitat

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). Within the ecoregion, abrasion caused by bottom trawls has been shown to impact fragile three-dimensional biogenic habitats in particular (e.g. sponge aggregations, coral gardens, and coral reefs), with impacts happening mainly in deeper waters (> 200 m). Effects of bottom trawling on soft substrates in shallow waters have been shown to be minor. Other impacts involve overturning boulders, scouring the seabed, and direct removal of and/or damage to epifaunal organisms (ICES 2022).

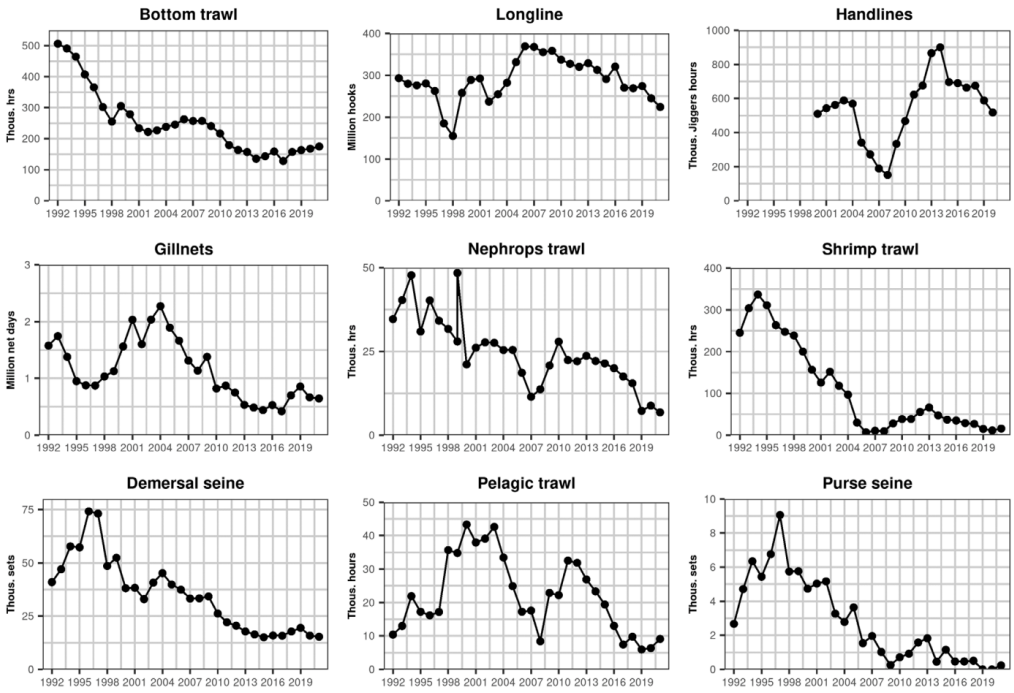

Figure 39 Temporal trends in effort by gear 1992–2021, based on logbook entries. Information on the anglerfish gillnet is not available (source: ICES 2022).

Seabed mapping

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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 40** below.

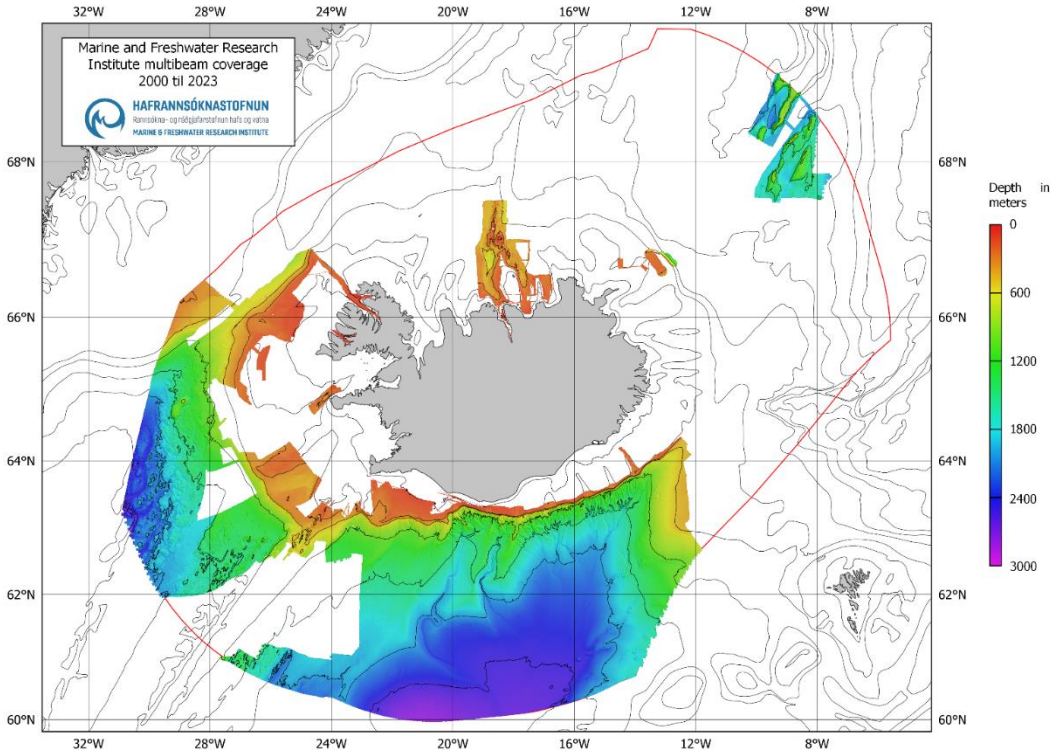

Figure 40. The image shows an overview of MFRI's seabed mapping with multibeam measurements in the years 2000-2023. (https://www.hafogvatn.is/en/research/seabed-mapping)

NovasArc project

3.1	Guiding Principle
	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). **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 28 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.[86] (**Figure 41**). 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 44).

[86] https://www.stjornartidindi.is/Advert.aspx?RecordID=df88f6db-5dc5-4e03-80c0-7ca095b16b20

3.1	Guiding Principle

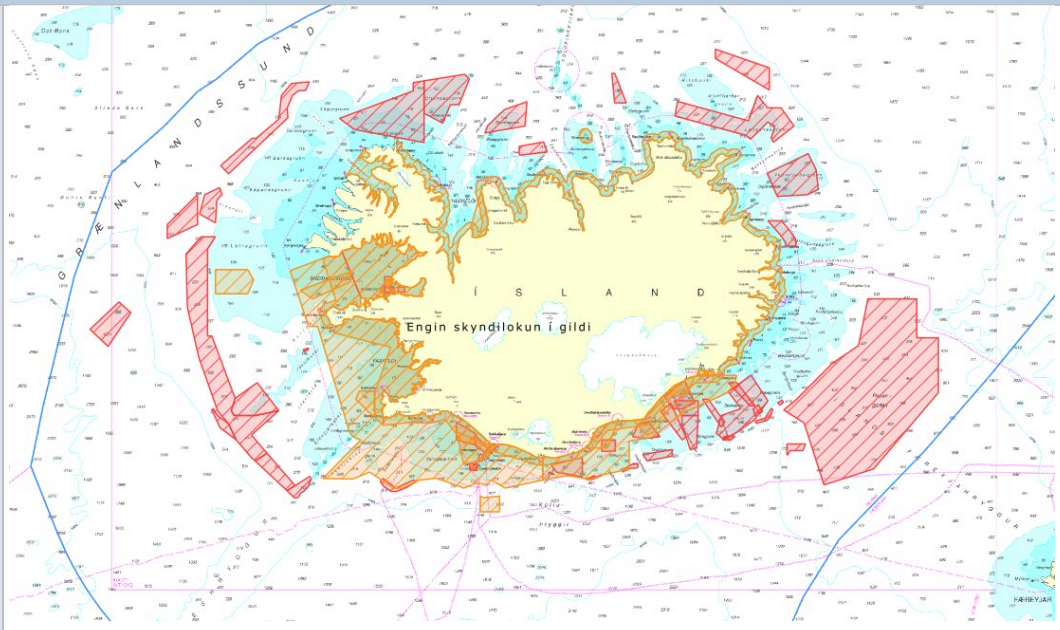

Figure 41 Regulatory long-term closures in Iceland, all gear types. Red closures are for bottom trawl and at times all gear closures. Yellow/orange boxes with internal lines near the coast (East, West and North West) are longline closures. For details on each closure including dates and gear restrictions please click on each red box in the Atlas/GIS website managed by Fiskistofa at http://atlas.lmi.is/mapview/?application=haf .

3.1	Guiding Principle

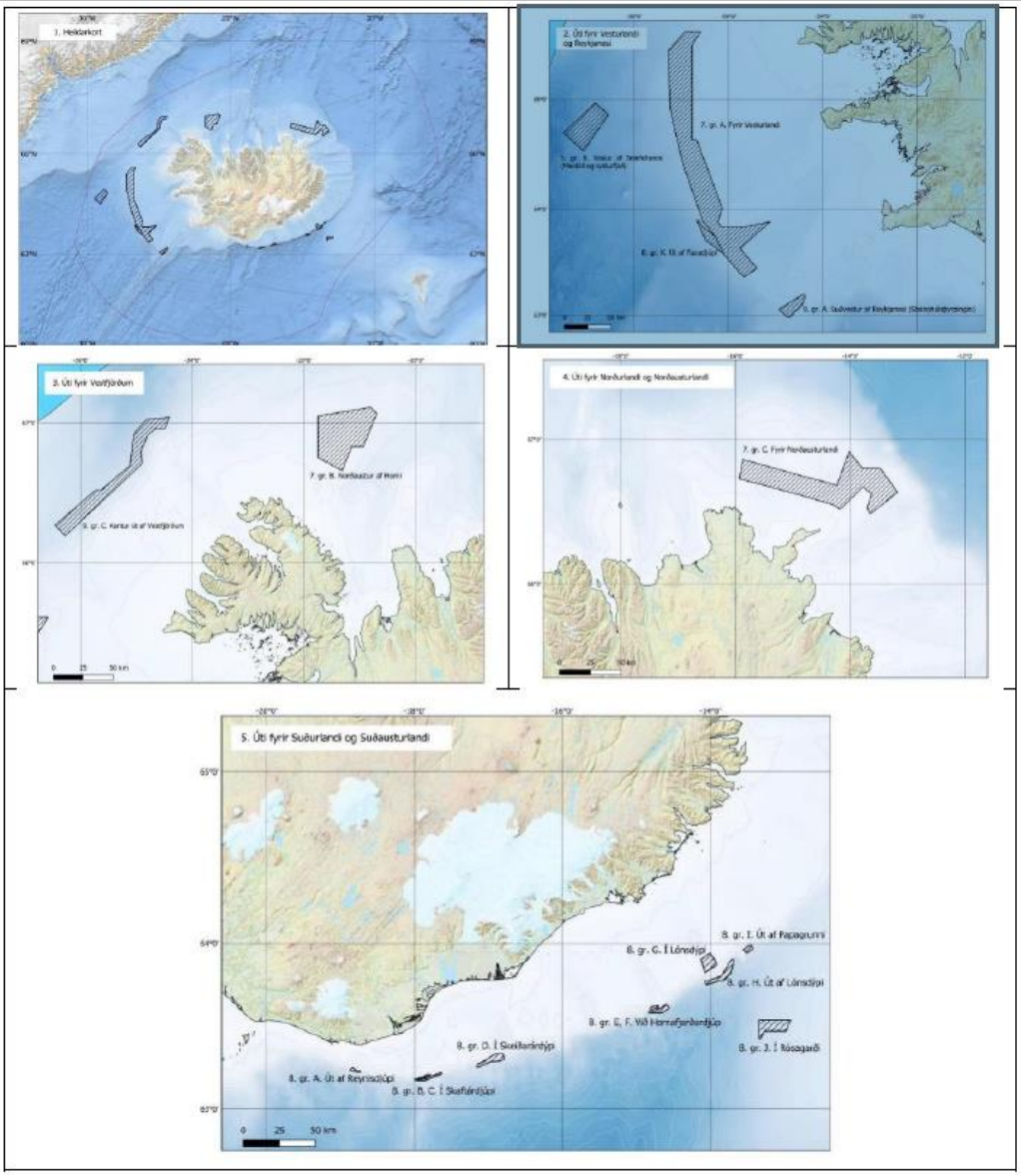

Figure 42 Map of protected areas under regulation No 188. 1, 2 and 3. From the left to the right, top and bottom; images 1,2 and 3 areas are aimed at protection of less disturbed marine areas. All fishing, except fishing with hand tools and fishing for pelagic fish with floating cast and purse seine. 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.

3.1	Guiding Principle
	Ecosystem 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 warm-water species in the ecoregion has increased in recent years. - 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.

3.1	Guiding Principle
	- 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).
References:	Please refer to the footnotes and references in the text above, the summary/background section and the Reference section at the end of this document.
Statement of continuing consistency to the IRF Fishery Standard	The fishery continues to remain consistent with the standard.

7.6.10 Clause 3.2 Specific Criteria

3.2	Specific Criteria including: 3.2.1 Information gathering and advice 3.2.2 By-catch and discards 3.2.3 Habitat Considerations 3.2.4 Foodweb Considerations 3.2.5 Precautionary Considerations
Summary of relevant changes:	**Context and updates** Information is available on the legal specification of fishing gear in the Icelandic groundfish fishery. 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.[87] 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. Two new regulations were implemented in 2023 which affect the ETPs species and non-target species. Regulation no. 849/2023[88] about preventing ETP bycatch and new digital reporting and registration of catch data regulation no. 307/2023[89]

[87] http://www.fiskistofa.is/veidar/aflastada/aflastodulisti/
[88] https://island.is/reglugerdir/nr/0849-2023
[89] https://island.is/reglugerdir/nr/0307-2023

3.2	Specific Criteria including: 3.2.1 Information gathering and advice 3.2.2 By-catch and discards 3.2.3 Habitat Considerations 3.2.4 Foodweb Considerations 3.2.5 Precautionary Considerations	
		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 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 the Norwegian Fisheries Agency'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. The status of bycatch and associated species has been detailed in the previous clause. Spotted wolffish is depleted and subject to corrective actions to reverse the trend. 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). 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 fishermen to land such catches. Key habitat considerations are listed in the yearly ICES ecosystem report for the Icelandic waters, the last of which was published in 2022[90]. Key findings summarised in the report highlight that using vessel monitoring system (VMS) and logbook data ICES estimates that mobile bottom trawls used by

[90] ICES. 2022. Icelandic Waters ecoregion –Ecosystem overview. In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, Section 11.1, https://doi.org/10.17895/ices.advice.21731663

3.2	Specific Criteria including: 3.2.1 Information gathering and advice 3.2.2 By-catch and discards 3.2.3 Habitat Considerations 3.2.4 Foodweb Considerations 3.2.5 Precautionary Considerations	
		commercial fisheries in the 12 m+ vessel category have been deployed over approximately 132,485 km^2 of the Icelandic ecoregion in 2018, corresponding to ca. 17.5 % of the ecoregion's spatial extent. Extensive spatial closures are also shown in the region. Aside from the Sturludottir *et. al.* 2018 [91] publication showing that Cod appears to be reasonably well connected to other key fish species as both prey and predator but it does not appear to be a key prey species in the Icelandic marine ecosystem, there are no further updates on this topic. Precautionary considerations are integrated in the management of associated and non- target species.
References:		Please refer to the footnotes and references in the text above, the summary/background section and the Reference section at the end of this document.
Statement of continuing consistency to the IRF Fishery Standard		The fishery continues to remain consistent with the standard.

[91] https://www.sciencedirect.com/science/article/pii/S0165783618301620

8 Update on compliance and progress with non-conformances and agreed action plans

This section details compliance and progress with non-conformances and agreed action plans including:

a) A review of the performance of the Client specific to agreed corrective action plans to address non-conformances raised in the most recent assessment or re-assessment or at subsequent surveillance audits including a summary of progress toward resolution.
b) A list of pre-existing non-conformances that remain unresolved, new nonconformances raised during this surveillance, and non-conformances that have been closed during this surveillance.
c) Details of any new or revised corrective action plans including the Client's signed acceptance of those plans.
d) An update of proposed future surveillance activities.

During the full assessment audit[92] 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 this 4th Surveillance is specified below but has been found to be behind target. No new non-conformances were identified during this 4th Surveillance.

8.1.1 Closed non-conformances

Not applicable, the active minor non-conformance is still open.

8.1.2 Progress against open non-conformances

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[93]. 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 under-reporting and/or non-reporting of seabird and marine mammal bycatch. Examples of available evidence to support this conclusion include the findings of Pallson *et al.* 2015[94] and the March 2018 MFRI report titled: "Bycatch of Seabirds and Marine Mammals in lumpsucker gillnets 2014-2017".

[92] https://www.responsiblefisheries.is/media/1/form-11.2-icetusk-initial-assessment-final-report-and-determination-1.pdf
[93] https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/18967
[94] https://www.hafogvatn.is/static/research/files/fjolrit-178.pdf

	Pallson *et al.* 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. 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 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[95]. 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"*. While much of the evidence related to non-compliance with reporting requirements may relate to the lumpsucker fishery, this fishery is still part of the management system under review and in addition there is insufficient evidence to show that compliance in the fisheries under assessment here is better.
Corrective Action Plan	In accordance with rules of the IRF Programme, the Client is required to submit a Corrective Action Plan (CAP) within 28 days. **The Client submitted the following CAP in February 2019**

[95] https://www.hafogvatn.is/static/files/skjol/techreport-bycatch-of-birds-and-marine-mammals-lumpsucker-en-final-draft.pdf

To whom it may concern

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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.

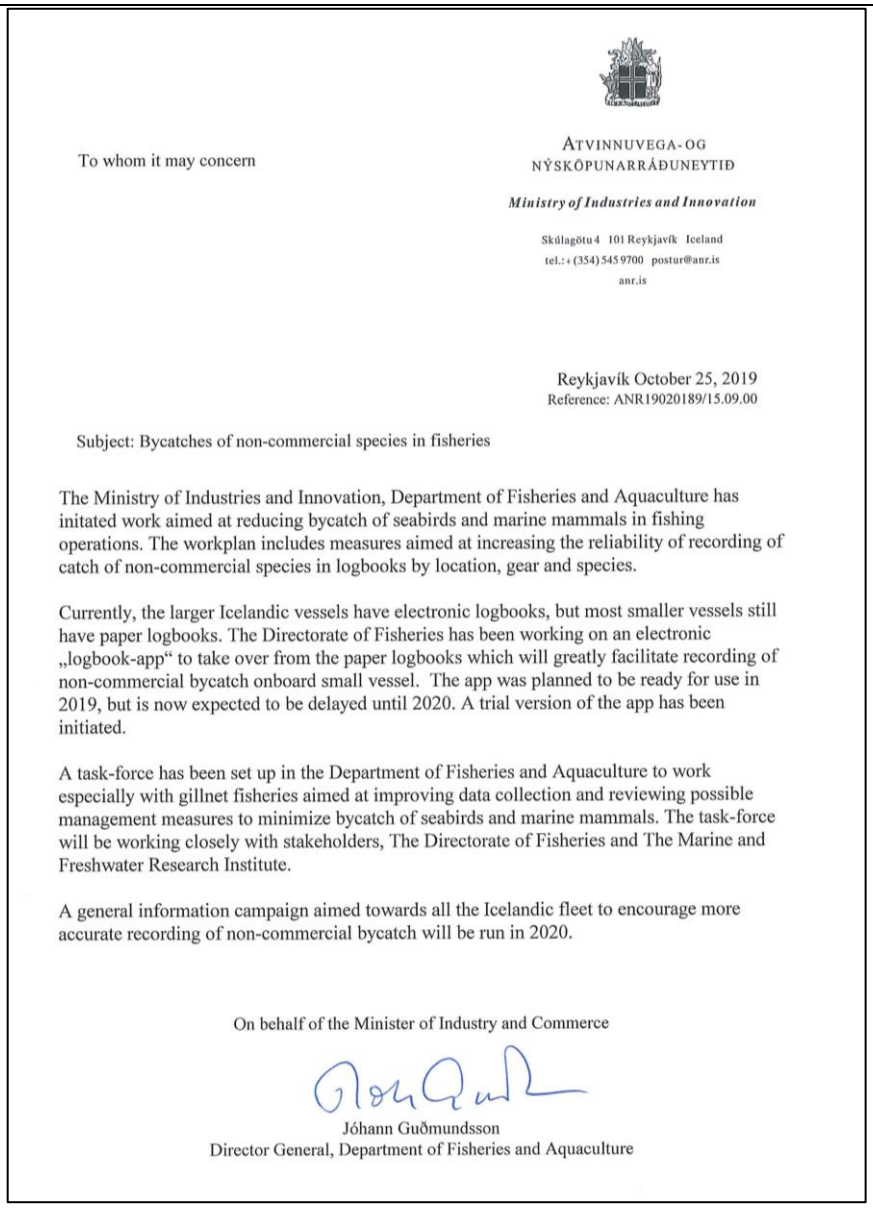
On behalf of the Minister of Fisheries and Agriculture

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:

1) 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 fishermen 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;
2) Measures to reduce bycatch (e.g. potential spatial/temporal closures at sensitive times such as around seal pupping or bird breeding season); and
3) US Marine Mammal Protection Act importing requirements collectively dealt with through improvements in the previous two points (i.e. information gathering and management measures).

	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: Ongoing work to further refine the actions identified above in terms of specific deliverables with their accompanying timeline; Year 2: Initiate deliverable x, y, z identified in Year 1; Year 3: Fully implement and report on progress; Year 4: Continued implementation and reporting.
Assessment Team CAP response	**The Assessment Team has accepted the Corrective Action Plan provided by the Client for the fishery under assessment.**
Year 1 progress (Re-assessment 2019-2020)	**The Client Group submitted the following corrective action evidence in October 2019**



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Reykjavík October 25, 2019
Reference: ANR19020189/15.09.00

Subject: Bycatches of non-commercial species in fisheries

The Ministry of Industries and Innovation, Department of Fisheries and Aquaculture has initated work aimed at reducing bycatch of seabirds and marine mammals in fishing operations. The workplan includes measures aimed at increasing the reliability of recording of catch of non-commercial species in logbooks by location, gear and species.

Currently, the larger Icelandic vessels have electronic logbooks, but most smaller vessels still have paper logbooks. The Directorate of Fisheries has been working on an electronic „logbook-app" to take over from the paper logbooks which will greatly facilitate recording of non-commercial bycatch onboard small vessel. The app was planned to be ready for use in 2019, but is now expected to be delayed until 2020. A trial version of the app has been initiated.

A task-force has been set up in the Department of Fisheries and Aquaculture to work especially with gillnet fisheries aimed at improving data collection and reviewing possible management measures to minimize bycatch of seabirds and marine mammals. The task-force will be working closely with stakeholders, The Directorate of Fisheries and The Marine and Freshwater Research Institute.

A general information campaign aimed towards all the Icelandic fleet to encourage more accurate recording of non-commercial bycatch will be run in 2020.

On behalf of the Minister of Industry and Commerce

Jóhann Guðmundsson
Director General, Department of Fisheries and Aquaculture

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 fishermen. 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 fishermen 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 to hold 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 e-logbook) which contains information on catch and bycatch, including that of marine mammals and seabirds. This follows regulation 298/2020[96]. The App also called Afladagbókina or catch diary[97] [98]automatically records the location of the boat during fishing and the captains then

[96] https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887
[97] http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla
[98] https://www.mbl.is/200milur/frettir/2020/08/31/oll_aflaskraning_rafraen_fra_og_med_morgundeginum/

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**
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

Species	2016	2017	2018	2019	Total
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 fishermen 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 fishermen.

	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[99]. 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 3rd surveillance activities will review evidence of continuous implementation of the App in the small vessel sector.**
Year 4 progress (3rd 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 4th surveillance audit in late 2023, now one year later in late 2024). **Revised corrective action plan (CAP) provided on the 14th February 2023 by the Client Group**

[99] https://www.facebook.com/Fiskistofa-1151844504903713/videos/304666984614930/

Icelandic Commercial Fishery

IRF Client Action Plan

Reference is made to *IRF. Icelandic Cod Commercial Fishery. 2nd 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 4th 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:

a) 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 4th 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

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,

Þorsteinn Sigurðsson
Director

HAFRANNSÓKNASTOFNUN
Rannsókna- og ráðgjafarstofnun hafs og vatna
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Year 5 progress (4th Surveillance, late 2024)	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, 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 fishermen. • DoF has held training sessions with inspectors which are to engage with fishermen 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. The assessment team regarded these not informative enough towards closure of NC# 1, in part because it only captures one year of data in logbook records (2023) and because it does not estimate the proportion or scale of

	reporting/underreporting across Icelandic fleets/gear types. In fact, 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 and the AT agreed that information provided was insufficient to close NC#1. 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. Progress in the past 5 years, or since the 2014 regulation came out is considered insufficient and behind project schedule. 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/ETP species. The MRAG study on observer rates 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 regulation 849/2023 requires vessels to have on board equipment to avoid entanglement of seabirds and marine mammals upon deployment. The assessment teams have never been provided factual information of implementation of mitigation measures across the longline and gillnet fleet. Indeed the AT never received any other proof of these measures being in place e.g. reports, fleet survey on implementation of management measures, pictures, or other evidence. Hence this information could be categorised as anecdotal information only. As a result of the above **NC#1 remains open and cannot be closed by its extended deadline (October 2024). The Client has 30 days to provide evidence to the contrary.**

8.1.3 New non-conformances

Not applicable. No new non-conformances have been identified.

8.1.4 New or revised corrective action plans

Not applicable

8.1.5 Update on Recommendations

Assessment Teams may make Recommendations in areas where conformity to the RFM Standard could be improved. While Recommendations do not require Corrective Action Plans, the issues highlighted in these recommendations may be reviewed at surveillance audits.

Recommendation 1 (of 1)	
Clause:	3.1.1 and 3.1.2
Recommendation:	Several fisheries management plans (e.g. those for cod, haddock, saithe and redfish) state that it is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs). VMEs of particular importance within Iceland include cold water coral communities and hydrothermal vent areas, but also deep-sea sponge aggregations (a threatened and declining habitat, according to OSPAR[100]) and sea-pen fields[101]. Currently, there are explicit conservation measures for cold water corals and hydrothermal vents (i.e. area closures) but nothing explicit for either deep sea sponge aggregations or sea pen fields. The assessment team recommends that more formal conservation plans/measures are formulated for these VMEs.
Rationale:	These VMEs are not formally protected.
Progress against Recommendation:	The Ministry of Industry and Innovation has begun work on formulating a protection policy for vulnerable bottom ecosystems (or vulnerable marine ecosystems) within the Icelandic economic zone to shape procedures for the protection of fragile benthic ecosystems based on international standards criteria that Iceland is signatory to. The closures that MFRI proposed are being processed at present time (October 2022) by the Ministry of Fisheries. The closures include Hydrothermal vents, Sponge Aggregations mixed with Cauliflower coral ground and Sponge Aggregations on underwater mountains.
Progress 2024	**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 28 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.[102] (Figure 29). 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 28).

[100] http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/Ecosystem_overview-Icelandic_Waters_ecoregion.pdf
[101] https://novasarc.hafogvatn.is/project/
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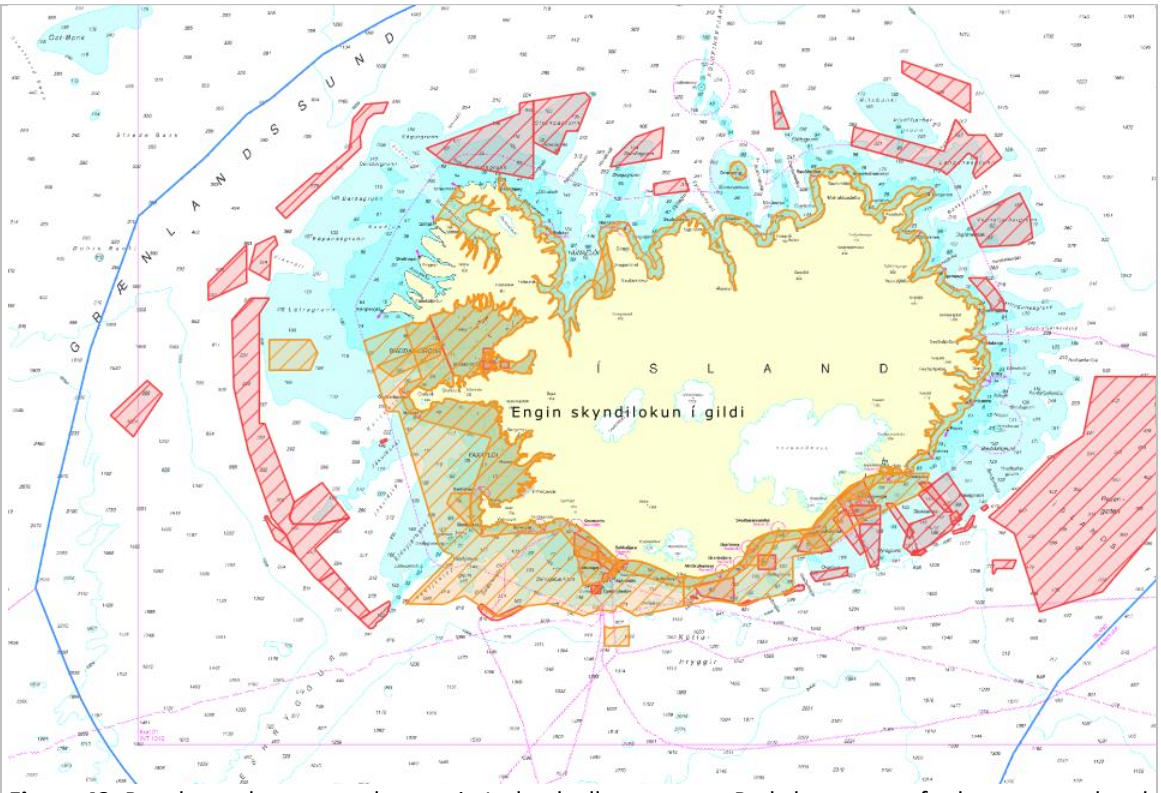

Figure 43 Regulatory long-term closures in Iceland, all gear types. Red closures are for bottom trawl and at times all gear closures. Yellow/orange boxes with internal lines near the coast (East, West and North West) are longline closures. For details on each closure including dates and gear restrictions please click on each red box in the Atlas/GIS website managed by Fiskistofa at http://atlas.lmi.is/mapview/?application=haf .

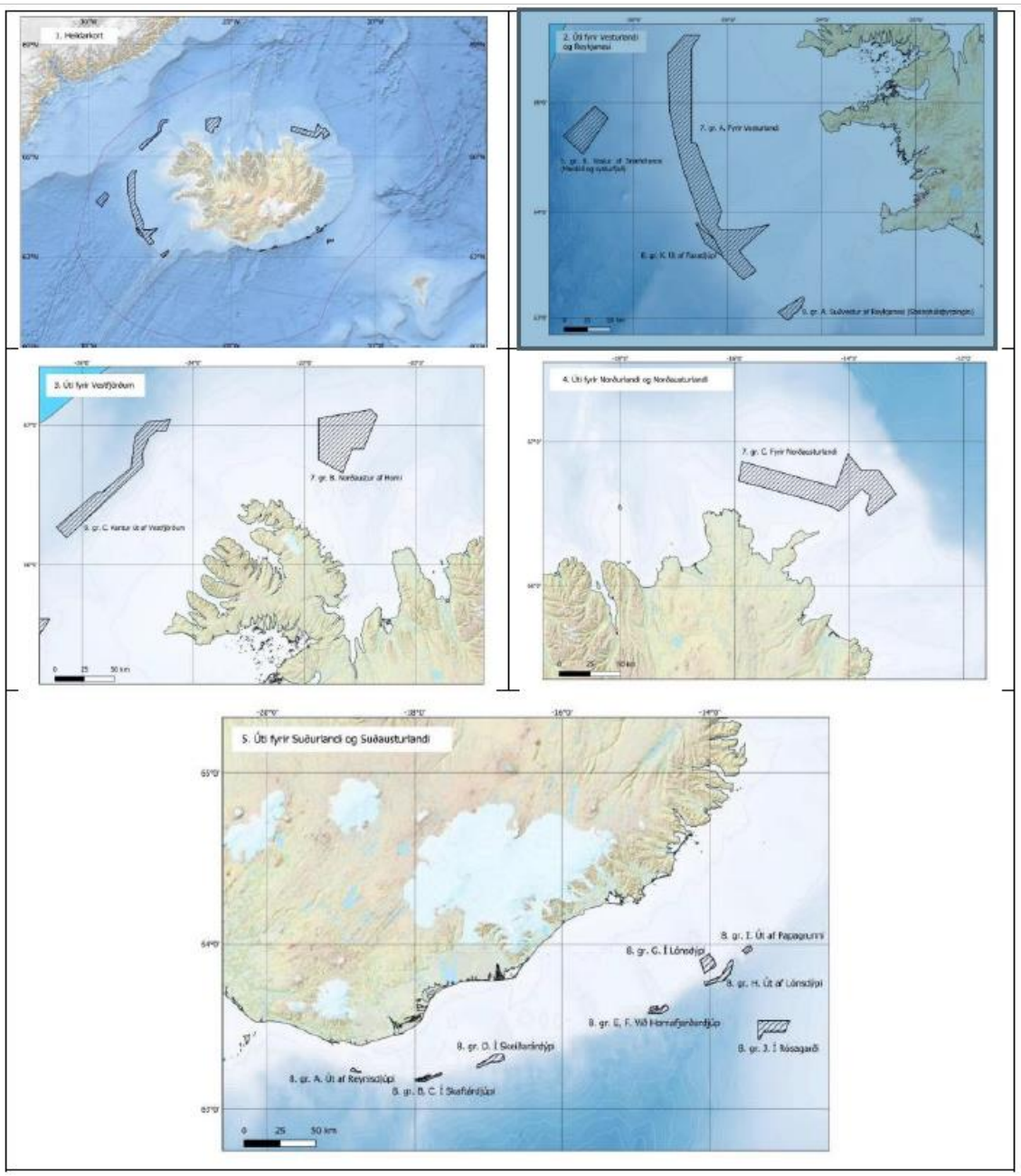

Figure 44 Map of protected areas under regulation No 188. 1, 2 and 3. From the left to the right, top and bottom; images 1,2 and 3 areas are aimed at protection of less disturbed marine areas. All fishing, except fishing with hand tools and fishing for pelagic fish with floating cast and purse seine. 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.

9 Recommendations for continued certification

9.1 Certification Recommendation

Following this surveillance audit, the Assessment Team recommends that the fishery not be awarded continuing certified against GULF RFM Certification Program Fisheries Standard Issue 1.2 and that the certificate be suspended.

9.2 Certification Committee Determination

The involvement of a Certification's Certification Committee is only required where one or more new non-conformances are raised during a Surveillance Audit.

As no new non-conformances were raised during this Surveillance Audit, the involvement of a Global Trust's Certification Committee is not required; therefore, the above recommendation of the assessment team constitutes a Determination.

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11 Appendices

11.1 Appendix 4 – Assessment Team Bios

11.1.1 Assessment Team Bios

Based on the technical expertise required to carry out this assessment, an Assessment Team was selected 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, Primary Responsibility for stock assessment and fish stock biology/ecology.

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, Assessor

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).