

Iceland Responsible Fisheries (IRF) Certification Programme

1st Surveillance Assessment Report

Of The

Icelandic Ling Commercial Fishery

Facilitated By

Iceland Responsible Fisheries Foundation (IRFF)

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i Summary and Recommendations

The Fisheries Association of Iceland on behalf of the Federation of Icelandic Fishing Vessel Owners (LÍÚ), the Federation of Icelandic Fish Processing Plants (SF) and the National Association of Small Boat Owners, Iceland (NASBO) requested an assessment of the Icelandic common ling (*Molva molva*) commercial fisheries to the FAO Based Icelandic Responsible Fisheries Management (IRF) Certification Programme. Certification was granted the 23rd August 2019. The purpose of the Programme is to provide the fishing industry with a “Certification of Responsible Fisheries Management” at the highest level of market acceptance. Certification to the Programme demonstrates a commitment that will communicate to customers and consumers the responsibility of fishermen and fisheries management authorities and the provenance of Icelandic fish. The Iceland Responsible Fisheries Foundation, established in February 2011, owns and operates the brand of Iceland Responsible Fisheries.

The Certification Programme is accredited to the international standard ISO/IEC 17065, confirming that consistent, competent and independent certification practices are applied. Formal ISO/IEC 17065 accreditation by an IAF (International Accreditation Forum) Accreditation body gives the Programme formal recognition (since September 2014) and a credibility position in the International marketplace and ensures that products certified under the Programme are identified at a recognised level of assurance. Demonstration of compliance is verified through a rigorous assessment by a competent, third party, accredited certification body, Global Trust Certification. The assessment was conducted by a team of Global Trust appointed Assessors comprising of internal staff and externally contracted fishery experts. Details of the assessment team are provided in [Appendix 1](#).

The unit of certification includes the Icelandic common ling (*Molva molva*) commercial fisheries under state management by the Icelandic Ministry of Industries and Innovation, fished with longlines, demersal otter trawls (also known as bottom trawls), gillnets, Nephrops trawls, Danish seine nets, hook-and-line by small vessels and gears from other Icelandic fisheries also legally landing common ling within Iceland’s 200 nautical miles Exclusive Economic Zone (EEZ).

This Assessment report comprises the 1st Surveillance Report for Icelandic ling, following full assessment and certification in 2019¹. Therefore, this report monitors for any changes in the management regime, regulations and their implementation, stock assessment and status, and wider ecosystem considerations since the previous audit in 2019. Ultimately, this assessment evaluates whether current practices in the management of the common ling fishery remain consistent with criteria contained in Revision 2.0 of the IRF Standard. The assessment was conducted according to the Global Trust procedures for FAO-Based IRFM certification using Version 2.0 of the IRFM Standard (July 2016).

The assessment team recommends that the management system of the applicant fishery, the Icelandic common ling (*Molva molva*) commercial fisheries under state management by the Icelandic Ministry of Industries and Innovation, fished with longlines, demersal otter trawls (also known as bottom trawls), gillnets, Nephrops trawls, Danish seine nets, hook-and-line by small vessels and gears from other Icelandic fisheries also legally landing common ling within Iceland’s 200 nautical miles Exclusive Economic Zone (EEZ), is granted continued certification.

¹ <https://www.responsiblefisheries.is/media/1/form-11.2-iceling-initial-assessment-final-report-and-determination-1.pdf>

Conformance against the IRFF Standard V2

During the full assessment audit² 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 NCs for this 1st Surveillance is shown in detail in [Section 8 – Performance specific to agreed corrective action plans](#).

No new non-conformances were identified during the 1st Surveillance.

The Assessment Team has also issued a number of formal Recommendations for the client to consider.

Recommendations

Recommendation 1. Relevant to clauses 3.1.1 and 3.1.2.

Several Icelandic FMPs state that it is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs). Currently, there are explicit conservation measures for cold water corals and hydrothermal vents but not for deep sea sponge aggregations or sea pen fields. Therefore, the assessment team recommends that more formal conservation plans/measures be formulated for these VMEs.

Recommendation 2. Relevant to numerous clauses relating to catches conforming to recommended levels.

Due to the fact that there are a variety of ways to allowably overshoot TACs, the assessment team recommends that;

1. any TACs set according to established HCRs are regarded as “preliminary”;
2. that likely over/undershoots are quantified as far as possible, and;
3. that in future evaluations of HCRs, the difference between preliminary TAC and final catch is included in simulations.

In this way it might be ensured that the rule leading to the “preliminary TAC” considers that this TAC is likely to be modified (due to the degree of flexibility allowable within the ITQ system), and that any such modifications are tolerable for the stock.

It is noted that the issues highlighted in these recommendations will be reviewed in subsequent surveillance audits, and that some of these have the potential to develop into non-conformances if the issues worsen.

² <https://www.responsiblefisheries.is/media/1/form-11.2-iceling-initial-assessment-final-report-and-determination-1.pdf>

ii Assessment Team Details

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1 Introduction

This surveillance assessment of the Icelandic common ling commercial fishery fulfils part of the procedure for the continuing certification of the fishery to the Iceland Responsible Fisheries Programme (hereafter IRF Programme). The IRF Programme is a voluntary program for Icelandic fisheries initially established by the Fisheries Association of Iceland (FAI) and now owned and administered by the Iceland Responsible Fisheries Foundation (IRFF). The IRFF was established in February 2011 and operates on a cost basis, as a non-profit organisation.

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

This Surveillance Report comprises the 1st Surveillance Report for Icelandic common ling (year 2021). Therefore, this report monitors for any changes in the management regime, regulations and their implementation, stock assessment and status, and wider ecosystem considerations since the previous audit, the 2019 Full Assessment³.

The assessment was conducted according to the Global Trust procedures for FAO-Based IRFM certification using Revision 2.0 of the IRFM Standard (July 2016). The IRFM Standard is based on the 1995 FAO Code of Conduct for Responsible Fisheries and on the FAO Guidelines for the Eco-labelling of Fish and Fishery Products from Marine Capture Fisheries adopted in 2005 and amended/extended in 2009, which in turn are based on the current suite of agreed international instruments addressing fisheries.

The Assessment is based on the 3 major Sections of responsible fisheries management, as outlined in Revision 2.0 of the IRFM Standard, namely:

[Section 1: Fisheries Management](#)

[Section 2: Compliance and Monitoring](#)

[Section 3: Ecosystem Considerations](#)

³ <https://www.responsiblefisheries.is/media/1/form-11.2-iceling-initial-assessment-final-report-and-determination-1.pdf>

1.1. Recommendations of the Assessment Team

The assessment team recommends that the management system of the applicant fishery, the Icelandic common ling (*Molva molva*) commercial fisheries under state management by the Icelandic Ministry of Industries and Innovation, fished with longlines, demersal otter trawls (also known as bottom trawls), gillnets, Nephrops trawls, Danish seine nets, hook-and-line by small vessels and gears from other Icelandic fisheries also legally landing common ling within Iceland's 200 nautical miles Exclusive Economic Zone (EEZ), is granted continued certification.

2 Fishery Applicant Details

Table 1. Fishery 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 Reykjavík
	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

3 Proposed Unit(s) of Assessment and Certification

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

Table 2. Unit of Assessment (UoA).

Unit of Assessment (UoA) 1 - Ling		
Species:	Common name:	Common ling (Langa)
	Latin name:	<i>Molva molva</i>
Geographical Area(s)		Iceland 200-mile EEZ within FAO Fishing Area 27
Stock(s)		Ling in ICES Division 5.a (Iceland grounds)
Management System		Ministry of Industries and Innovation (Iceland)
Fishing gear(s)/method(s)		Longline; Demersal trawl; Nephrops trawl; Gillnet; Danish seine; Hook-and-line by small vessels; Gears from other Icelandic fisheries legally landing ling*

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

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

Table 3. Unit of Certification.

Unit of Certification (UoC) 1 - Ling		
Species:	Common name:	Common ling (Langa)
	Latin name:	<i>Molva molva</i>
Geographical Area(s)		Iceland 200-mile EEZ within FAO Fishing Area 27
Stock(s)		Ling in ICES Division 5.a (Iceland grounds)
Management System		Ministry of Industries and Innovation (Iceland)
Fishing gear(s)/method(s)		Longline; Demersal trawl; Nephrops trawl; Gillnet; Danish seine; Hook-and-line by small vessels; Gears from other Icelandic fisheries legally landing ling*

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

4 Surveillance Meetings

The remote audit for this fishery was conducted from the 11th to the 13th of January 2021. The video call with key Icelandic stakeholders was organized to cover all the certified fisheries under the Icelandic RFM program (concurrently), and included cod, haddock, saithe, Golden redfish, ling, tusk and ISS herring.

Table 4. 1st Surveillance remote audit meetings carried out for the cod, haddock, saithe, Golden redfish, ling, tusk and ISS herring fisheries.

Date	Organization and Location	Representative	Main Topics of Discussion
Monday January 11 th 2021, 10:00 am	Fisheries Iceland & IRFF Video call	The Client (opening meeting) Kristján Þórarinsson, Fisheries Iceland Finnur Gardarsson, IRF Foundation GT Assessment Team: Vito Romito Dankert Skagen	<ol style="list-style-type: none"> 1. Brief review or key highlights of the 2019/2020 fishing season for cod, haddock, saithe, golden redfish, ling, tusk and ISS herring. 2. Icelandic cod discards have increased trawl (highest on record). Reason? 3. Any significant changes in the management system, key laws or regulations in the past 12-18 months? 4. MFRI and ICES advice in 2020. 5. Any updates from the day to day operations of the large and small fleet sectors? 6. Plans for revisiting/updating Fishery Management Plans? 7. Corrective Action relating to Non-Conformance 1: <i>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.</i> Regarding NC 1, what are the updates, new information or developments addressing the issue? 8. Corrective Action relating to Non-Conformance 2: <i>There is insufficient evidence that adverse impacts of the cod, haddock and saithe fisheries on the following ecosystem components:</i> <ul style="list-style-type: none"> - Spotted wolffish, and; - Common loon <i>are being considered and appropriately assessed and effectively addressed, consistent with the precautionary approach.</i> Regarding NC 2, what are the key developments regarding spotted wolffish and common loon? 9. A smartphone app has been in development for some time by the Directorate of Fisheries to facilitate recording of marine mammal and seabirds' bycatch in smaller vessels. Updates on this item? 10. Weighing (Fiskistofa). We highlighted in previous assessment reports key findings from the Icelandic National Audit Office (NAO) report from December 2018⁴, noting 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. Are you aware of any updates or developments in the past 12-18 months relating to this item? 11. 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? Updates?

⁴ <https://rikisendurskodun.is/wp-content/uploads/2019/01/Eftirlit-Fiskistofu-Stjornsysluuttek.pdf>

Date	Organization and Location	Representative	Main Topics of Discussion
			<p>12. Any other changes or updates of mention for the 7 fisheries in question that may relate to day to day operations and industry activities, management, research, assessment and advice, or mitigation of ecosystem effects of fisheries we should discuss?</p>
<p>Monday 11th January 2021, 1.00 pm</p>	<p>Iceland Coast Guard Video call</p>	<p>Iceland Coast Guard (ICG) Björgólfur H. Ingason: Chief Controller, Jón Árni Árnason: Controller GT Assessment Team: Vito Romito Dankert Skagen</p>	<p>1. Enforcement Laws and Regulations. In the past 12 months, have there been any significant amendments or changes to Icelandic fisheries laws / regulations with a bearing on enforcement activities? 2. Has the level of resources and monitoring effort remained the same or has it changed in past 1-2 years? 3. Have there been changes over 2019/2020 in the systems or patrolling vessels used for enforcement (i.e. new vessels or other)? 4. How many airborne fisheries patrol hours have been conducted over the last fishing season? 5. Any other updates regarding enforcement assets (e.g. drones)? Or use of other electronic reporting systems? 6. Boardings rate and type/ number of violations recorded (in the most recent year/season)? What are the most commonly occurring violations? Is enforcement data available by gear type or fishery (i.e. for cod, haddock, saithe, golden redfish, ling, tusk, herring under assessment)? Foreign vessels boarded? 7. How many prosecutions and reprimands made against skippers did these activities (overall enforcement activities) result in? 8. Are there many violations of fishermen fishing over their TAC? 9. Enforcement of, and levels of compliance with, logbook reporting of interactions/bycatch between seabirds and marine mammal (especially in gillnets, longlines and trawl gear)? Updates and changes in the past 1-2 years? Any prosecutions for failing to report bycatch? 10. Have there been any major changes in overall violation/compliance rate in the past 2-3 years? 11. What is checked when vessels are boarded (gear specs, catch composition, logbook vs actual catches, other)? 12. Reporting requirements and or issues with lost fishing gear (e.g. longline, gillnets)? 13. Any changes to the range of monetary and operational penalties for infractions to fisheries regulations? Are there any repeating offenders in Icelandic waters? 14. Any instances of serious IUU fishing by Icelandic or foreign vessels in the past 2-3 years?</p>
<p>Tuesday 12th January 2021, 2.00 pm</p>	<p>Marine and Freshwater Research Institute (MFRI) Video call</p>	<p>Marine and Freshwater Research Institute (MFRI) Bjarki Elvarsson: Providing stock assessment expertise; Guðjón Már Sigurðsson: Providing bycatch interactions expertise; Steinunn Hilma Ólafsdóttir: Providing ecosystem and benthic</p>	<p>1. Updates on perception of the state of the stocks (cod, haddock, saithe, redfish, ling, tusk, ISS herring) and performance of their management plans in the past 12-18 months 2. Rules and regulations affecting these, in the same time period. 3. Updates of new management regulations 4. Short term (2/3 weeks) closures by year and species for cod, haddock, saithe, redfish, ling, tusk, herring. 5. Stock identity: Anything new for any of the stocks (cod, haddock, saithe, redfish, ling, tusk, herring) on sub stock structure, stock units etc? New studies, plans or projects? 6. Changes in area distributions of the 7 stocks and fisheries. New developments/information in distributions and in causes? 7. Difference between bottom trawl surveys: For many stocks fitting to each of the surveys give different results. The problem exists for several stocks and has been raised on various occasions, but is something being done to understand the cause better? 8. Retrospective errors. They still are there – this year the tusk is outstanding. Possible reasons? Are the present results more reliable than the past? i.e. is the tusk stock increasing or not?</p>

Date	Organization and Location	Representative	Main Topics of Discussion
		effects of fisheries expertise. GT Assessment Team: Vito Romito Dankert Skagen	<p>9. Sampling: Maps showing the location of catches and of samples are very useful but reveal that in some cases that important hot spots in the fishery apparently do not get covered by the sampling. In particular, that is the case in some long line fisheries, for example for cod (like we see in Figure 9 in the MFRI cod report), but also for other stocks.</p> <p>10. Is this a concern? Would that for example make the fitting to length distributions uncertain? Any thoughts about improvements?</p> <p>11. We are aware of the system where samples are requested more or less automatically when a certain amount has been caught. Does it always work? Does it operate on fleet basis or area basis or just on total catch?</p> <p>12. Adherence to the ICES stock annex (SA) procedures. Are there any other deviations from the latest approved SA than the extension of the age range in survey data for cod?</p> <p>13. Status of benchmarks and harvest rule revisions. An overview of plans for all the 7 stocks would be useful. If there already are plans for changes, that would be useful to know.</p> <p>14. Discards: We note the increasing trend, in particular for trawl. Why does this happen?? Any new information? Are there indications of trends after the last year examined (2017-2018)? Any plans for new approaches both to enforcement and to measurement.</p> <p>15. Spotted wolffish: Is the recruitment failure for that stock real? Is there some clear understanding of the causes? How strong is the need to protect the stock? Ideas for feasible measures to protect it?</p> <p>16. Non Conformances (NCs): 2 NCs were identified in previous IRF Full Assessments or carried over from the 4th Surveillance cycle in 2018.</p> <p>17. Non Conformance 1: <i>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.</i> Regarding NC 1, are there updates, new information or developments addressing the issue?</p> <p>18. Non Conformance 2: <i>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.</i> Regarding NC 2, what are the key developments regarding spotted wolf-fish (e.g. relating to research activities and/or live releases in the fishery)? Furthermore, is the seabird bycatch information for 2017-2019 available for sharing? This item was mentioned as part of the <i>corrective action plan</i> provided to review the most current bycatch rates for common loon (which were said to show lower rates than previous estimates), and other seabirds.</p> <p>19. Any new studies or report on Endangered, Threatened and Protected (ETP) species interactions as it relates to the fisheries under assessment?</p> <p>20. Recent known interactions between the fisheries under assessment and the following: basking sharks and leafscale gulper sharks?</p> <p>21. Can the assessment team be provided with total catch in numbers of Grey skate (<i>Dipturus flossada / batis</i>) for the latest available MFRI survey? Any additional updates on the state of this endangered species / complex?</p> <p>22. What survey abundance or status updates can be provided regarding vulnerable/ETP species: 1) Atlantic halibut, 2) dogfish, 3) Greenland shark and 4) porbeagle shark?</p> <p>23. Have there been any recent interactions with Blue whales and Northern right whales for the fisheries under assessment?</p>

Date	Organization and Location	Representative	Main Topics of Discussion
			<p>24. 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?</p> <p>25. Harbour porpoise updates, status and management? The 2019 NAMMCO SC report⁵ indicated that modelling work related to assessment of potential effects of by-catch on harbour porpoises (and coastal seals) around Iceland is being undertaken by an international expert group in relation to implementation of the US Marine Mammal Protection Act import provisions. Updates on this work?</p> <p>26. Do you have updated bycatch information in Icelandic fisheries (e.g. cod gillnets, lumpfish nets, other gear) of harbour porpoise, harbour seals, grey seals, harp, ringed, hooded and bearded seals for the most recent 2-3 years in table/figure format?</p> <p>27. A smartphone app has been in development for some time by the Directorate of Fisheries to facilitate recording of marine mammal and sea-birds' bycatch in smaller vessels? Updates?</p> <p>28. Any updated MFRI reports on the by-catch of seabirds and marine mammals in Icelandic fisheries (not relating to lumpfish)?</p> <p>29. Coral areas. Any updates or new closures in the past 12-18 months?</p> <p>30. Bycatch of sponges are recorded during bi-annual groundfish surveys allowing managers to estimate the distribution of mass sponge occurrences. Is there an index of past occurrence that can be provided to the assessment team? Any updates on management measures specific to conservation of sponge communities?</p> <p>31. Hydrothermal vents. Any updates or new closures in the past 12-18 months?</p> <p>32. Mapping the distribution of benthic assemblages and habitats which are considered to be sensitive to trawling disturbances. Such information was deemed important in order to predict which species and habitats are at risk of being damaged by fishing activities and for the protection of important marine habitats in the future. Since the publication of the Vulnerable Marine Ecosystem NovasArc report in 2019 (see http://norden.diva-portal.org/smash/get/diva2:1304079/FULLTEXT02.pdf), have there been additional activities or plans to reflect and address the findings of the report?</p> <p>33. Any new studies, papers or reports on Icelandic marine ecosystem's structure or foodweb dynamics?</p>
<p>Wednesday 13th January 2021, 10.00 am</p>	<p>Directorate of Fisheries / Fiskistofa Video call</p>	<p>Fisheries Directorate Porsteinn Hilmarsson, Head of Services and information Sævar Guðmundsson Department Manager GT Assessment Team: Vito Romito Dankert Skagen</p>	<p>1. Brief review or key highlights of the 2019/2020 fishing season for cod, haddock, saithe, golden redfish, ling, tusk and ISS herring. Any key issues or updates from a Fiskistofa perspective?</p> <p>2. Any significant changes in the management system, key laws or regulations in the past 12-18 months?</p> <p>3. Any changes or updates of mention within Fiskistofa in the past 12-18 months?</p> <p>4. Any changes or updates in technical measures and effort controls or controls for the demersal and pelagic fisheries under assessment (e.g. powers to spatially / temporally limit gear types and fishing areas, prevent fishing in areas with high catches of undersized fish, minimum legal sizes etc)?</p>

⁵ https://nammco.no/wp-content/uploads/2017/01/final-report_sc26-2019_rev230120.pdf

Date	Organization and Location	Representative	Main Topics of Discussion
			<p>5. Any new or updated closed areas within the Icelandic EEZ in the past 12-18 months?</p> <p>6. Any changes to the Fiskistofa website or the way information, data and reports are presented online?</p> <p>7. Is there an update / substitute document for fishing regulations booklet http://vefbirting.odd.is/raduneyti/fiskveidar2018 ?</p> <p>8. How many days have directorate inspectors spent on board of fishing vessels in the last 2 fishing seasons for which information is available? What is the average inspector coverage % on bottom / pelagic trawlers, longliners, gillnetters, purse seiners?</p> <p>9. Monitoring of less valued species including elasmobranchs – is this something you had planned for 2020?</p> <p>15. Weighing. We discussed previously a report from the Icelandic National Audit Office (NAO) from 2018, noting that more quantitative data are needed to substantiate the conclusions that rate if discards are low and that there are few irregularities in connection with re-weighing of catches after de-icing in Iceland. In continuing to review actions implemented to improve some of the shortcoming identified in the report, has there been progress and updates to deal with this issue in the past 18 months?</p> <p>16. Act No. 57/1996 empowers the Fisheries Directorate to monitor all weighing by a weighing license holder for a period of up to six weeks in cases where monitoring of the weighing license holder by the Directorate detects a significant deviation of the percentage of ice in the vessel's catch in a particular fish species, compared to the average ice percentage for that vessel, has this measured been applied in 2019 and 2020? Are there examples of this?</p> <p>17. Overfishing of quotas/deviation from TAC: Over the years, we have got a fair understanding of how that is possible within the legal framework, but a fresh overview of the various transfers would be useful. That also includes catches outside the ordinary ITQ system.</p> <p>18. Corrective Action relating to Non-Conformance 1 (applicable to all certified fisheries): <i>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.</i> Regarding NC 1, are there updates, new information or developments addressing the issue? Has the compliance of fishermen recording of such interactions in logbooks changed in the past 12-24 months? A smartphone app has been in development for some time by the Directorate of Fisheries to facilitate recording of marine mammal and seabirds' bycatch in smaller vessels? Has the app been rolled out?</p> <p>19. Corrective Action relating to Non-Conformance 2: <i>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.</i> Regarding Spotted wolffish: How can the quotas be overfished so much within the legal constraints? Is this an example of quota transfers hitting vulnerable stocks or are other mechanisms more important? Any plans for amending rules that allow overfishing? How far is it technically possible to avoid bycatches of spotted wolffish, in particular in the long line fishery?</p> <p>20. According to section 2 of Act no. 57/1996, concerning the treatment of commercial marine stocks, discard of catches is prohibited. However, minor exceptions include: a) Non-value catches and b) Heads and other refuse from working or processing. What species or species groups are considered non value catches?</p> <p>21. Collaboration between the Coast Guard and Fiskistofa relating to fisheries monitoring and enforcement activities. Updates for the past 12-18 months?</p>

Date	Organization and Location	Representative	Main Topics of Discussion
			<p>22. 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? Updates?</p> <p>23. Any other changes or updates of mention for the 7 fisheries in question that may relate to day to day operations and monitoring activities, from a Fiskistofa perspective that we should discuss?</p>

5 Conformity statement

The assessment team recommends that the management system of the applicant fishery, the Icelandic common ling (*Molva molva*) commercial fisheries under state management by the Icelandic Ministry of Industries and Innovation, fished with longlines, demersal otter trawls (also known as bottom trawls), gillnets, Nephrops trawls, Danish seine nets, hook-and-line by small vessels and gears from other Icelandic fisheries also legally landing common ling within Iceland's 200 nautical miles Exclusive Economic Zone (EEZ), is granted continued certification.

6 Conformance Criteria Fundamental Clauses for Surveillance Reporting

7.1. Section 1: Fishery Management

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

Supporting Clauses:	1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6 , 1.1.7, 1.1.8 and sub-clauses, 1.1.9 and sub-clauses, 1.1.10 and sub-clauses		
Important Note:	Clause 1.1.5 and Clause 1.1.6 are new to IRFM Standard v2.0 and are scored separately in Appendix 2 . Text added to 1.1.10.5 in IRFM Standard v2.0: <i>"...and relevant authorities."</i> Clause 1.1.10.5 (minor change) – wording change only no change to intent of Clause.		
Clause Guidance:	<i>There shall be a structured and effective fisheries management system, with objectives including the limiting of total annual catches for the stock under consideration. Accordingly, appropriate management measures for the conservation and management of the stock shall be adopted and effectively implemented by the competent authorities. Fishing for the "stock under consideration" shall be managed by the competent authorities in accordance with a documented and publicly available Fisheries Management Plan.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

SUMMARY EVIDENCE

Iceland has a well-established marine policy, specified in legislation, on the structure of fisheries management and in practical implementation. The Ministry of Industries and Innovation is the principal management organization responsible for Icelandic fisheries. The Directorate of Fisheries is responsible for the implementation of Fishery Regulations on behalf of the Ministry. The Icelandic Coast Guard 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 Marine and Freshwater Research Institute conducts a wide range of marine research and provides the Ministry with scientific advice. The stock is managed according to a management plan, approved by ICES, that has been in place since 2017. The main management measures include TACs in an ITQ system, discard ban, area closures to protect undersized and spawning fish and mesh size regulations.

Due to the ongoing Covid-19 epidemic, Iceland in 2020 did not take part in ICES meetings but relied on its own assessment and advice, following the standards approved by ICES.

EVIDENCE

Iceland has an established Marine Policy and a structured management system⁶ covering all commercial species, including ling⁷. There is a principal Act (*last amendment No 116/2006*)⁸ and a number of supporting Acts and Regulations for the management of the fishery.⁹ 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.* Policies

6 <http://www.fiskistofa.is/english/fisheries-management/>

7 <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/>

8 <https://www.althingi.is/lagas/nuna/2006116.html>

9 https://vefbirting.prenmetoddi.is/raduneyti/stjorn_fiskveida_2020-21/66/

incorporate a number of International Agreements and declarations¹⁰, including; UN Convention of the Law of the Sea, Agenda 21 of the Rio Declaration, FAO Code of Conduct for Responsible Fisheries and the International Plan of Action to prevent, deter and eliminate Illegal, Unregulated and Unreported Fishing.

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 Industries and Innovation¹¹ 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 ministry now (after 2012) covers all sectors of ordinary business and economic activity. Two ministers share the responsibilities, one for fisheries and agriculture and one for tourism, industry and innovation. Overall responsibilities in the fisheries sector include:

- Fisheries Management
- Research, conservation and utilization of fish stocks, other living marine resources of the ocean and the seabed and management of areas where these resources can be harvested
- Research and control of production and import of fisheries products
- Mariculture of marine species
- Supporting the research, development and innovation in the fisheries sector

The executive body is the **Fisheries Directorate (Fiskistofa)**¹², 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
- Supporting research, survey work
- Supporting Coastguard and surveillance activities
- Managing and policing the Icelandic ITQ system

The Icelandic Coast Guard¹³ 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 vessels is unusual.

The **Marine and Freshwater Research Institute (MFRI)**¹⁴ conducts a wide range of marine research and now provides the Ministry with scientific advice as Marine Research Institute (MRI) did previously. MFRI was established on July 1, 2016 as a result of a merger of two Icelandic research institutes, the Institute of Freshwater Fisheries (founded in 1946), and the MRI (founded in 1965).¹⁵ MFRI has wide international cooperation in all major fields of marine science, as indicated by its publication record¹⁶.

Limiting the total annual catch of tusk is achieved primarily by an annual TAC. The TAC is set by the Ministry taking advice from MFRI, which is responsible for collecting and analysing scientific data on the stock. Management also includes fora for consultation with stakeholders. The overall TAC is distributed on vessels as individual transferable quotas (ITQ), managed by the Directorate. The ITQ system has evolved gradually in

¹⁰ <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/international-policy/>

¹¹ <http://eng.atvinnuvegaraduneyti.is/>

¹² <http://www.fiskistofa.is/english>

¹³ <http://www.lhg.is/english>

¹⁴ <https://www.hafogvatn.is>

¹⁵ <http://www.althingi.is/lagas/nuna/2015112.html>

¹⁶ <https://www.hafogvatn.is/is/midlun/utgafa/ritaskra>

Icelandic fisheries management and was fully implemented in 1990. The legal basis for the ITQ system is the principal fisheries management act (116/2006)¹⁷. The main elements are:

- Each vessel is assigned a quota share (%) in each stock, initially based primarily on catch history over a reference period.
- The annual allowable catch for each vessel from each stock is obtained by multiplying the TAC of the year and the vessel's quota share (as a proportion).
- Quotas can be transferred between vessels; this applies both to quota shares and annual catch allotments, and in some cases between species. Quota transfer is mainly intended to promote rationalisation and thus increase profitability in the industry.
- To reduce the incentive for high-grading, undersized fish that is caught has to be sold. Only part of the catch is subtracted from the quota. The fisher gets a strongly reduced price and the surplus goes to a fund to promote scientific work of the MFRI.

A coastal fishery is permitted under quotas aside from the ITQ system: Coastal fishing allocations are¹⁸ not based on vessels' quota share; have a limited amount and have a series of applicable provisions¹⁹. These are designed to support local communities. General fishing permits are of two types, a general fishing permit with a catch quota and a general fishing permit with a hook-and-line catch quota²⁰.

Supportive measures include area closures (temporary and permanent) and gear restrictions. Both permanent and temporary closures are in effect. The permanent closures can be for the whole year or seasonal, and apply to specific gears, like trawl and long line²¹. The general minimum mesh size in trawls is 135 mm. There is extensive control and monitoring of landings. Discards are prohibited, as discussed in Section 1.2.

Normally, the MFRI advice is based on calculations done within the framework of ICES (The International Council for Exploration of the Sea) by the ICES Deep Sea Working Group (WGDEEP), according to standards approved by ICES in regular benchmark assessments²². ICES provides advice, which normally, but not necessarily is followed by MFRI and subsequently by the Ministry. The ministry also seeks advice from ICES on management plans. In 2020, because of the ongoing Covid 19 epidemic, an assessment was still made by WGDEEP, but Iceland did not seek advice from ICES. The advice was made by MFRI according to the management plan, following ICES standards, based on an assessment performed by MFRI that was similar to the WGDEEP assessment.

There is a management plan in place for most commercial stocks, including ling, with a general objective is stated as: *The management strategy for Icelandic fish stocks, in general, is to maintain the exploitation rate at the level which is consistent with the Precautionary Approach and that generates maximum sustainable yield (MSY) in the long term.*²³ When harvest rules have been established, as for ling, the Ministry recognizes an obligation to set the TAC accordingly. The current management plan for ling was introduced in 2017 after having been examined and approved by ICES.²⁴ The plan is publicly available²⁵.

17 <https://www.althingi.is/lagas/nuna/2006116.html>

18 <http://www.fiskistofa.is/veidar/aflaheimildir/byggdakvoti/>

19 <http://www.fiskistofa.is/fiskveidistjorn/umfiskveidistjornunarkerfid/strandveidar/>

20 <https://www.sciencedirect.com/science/article/pii/S0308597X16302238>

21 Closure for long line: <https://www.reglugerdir.is/reglugerdir/eftir-raduneytum/atvinnuvega-og-nyskopunarraduneyti/nr/21661>,

Closure for trawl: <https://www.reglugerdir.is/reglugerdir/eftir-raduneytum/atvinnuvega-og-nyskopunarraduneyti/nr/21660>

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http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2017/WKICEMSE/wkicemse_2017.pdf

23 <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/>

24 http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/Special_requests/Iceland.2017.09.pdf

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

Clause 1.2 – Research and Assessment

Supporting Clauses:	1.2.1, 1.2.2, 1.2.3, 1.2.4 and sub-clauses, 1.2.5, 1.2.6, 1.2.7		
Important Note:	<p>Clause 1.2.1: Text added (Bold) in IRFM Standard v2.0: “A competent research institute or arrangement shall collect and/or compile the necessary data and carry out scientific research and assessment of the state of fish stocks and the condition of the ecosystem. Research results shall be made public in a timely and readily understood fashion.”</p> <p>Minor change – Dissemination of research results addressed specifically below.</p>		
Clause Guidance:	<p><i>The relevant data collected/compiled by the relevant authorities shall be appropriate to the chosen method of stock assessment and sufficient for its execution, in line with assessing the size and/or productivity of the fish stock(s) under consideration. The determination of suitable conservation and management measures shall include or take account of total fishing mortality from all sources (including discards, incidental mortality and catches in other fisheries). Furthermore, there shall be active collaboration with international scientific organizations for stock assessment activities and review, and, in cases where the stock under consideration is a shared stock or a straddling stock or a highly migratory stock, there shall be scientific cooperation at the relevant bilateral, regional or international level for obtaining data and/or conducting stock assessments and/or providing advice, as appropriate.</i></p>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>There is an established assessment method (Gadget) for Icelandic ling, which is approved by ICES. The assessment is based on catch in numbers by length, age-length keys, life history data from the fisheries, and stock abundance measurement by length class by a bottom trawl survey in the spring. Catch numbers at age are obtained by combining landings statistics with samples from the landings, obtained through an organized sampling regime. The assessment is normally done within ICES by the Deep Waters Working Group (WGDEEP). Due to the ongoing Covid-19 epidemic, Iceland in 2020 did not take part in ICES meetings but relied on its own assessment and advice, following the standards approved by ICES. International review is through ICES. Iceland also has a broad international cooperation on matters relevant to the fishery in several other organisations.</p>			
EVIDENCE			
Assessment method			
<p>The assessment is done with the Gadget software, which has a combined age-length disaggregated forward projecting population model that is fitted to observations by the maximum likelihood approach. As such, it is versatile with respect to which data to use, but the data must be sufficient both in content and in quality to reliably estimate the key model parameters that characterize the time course of stock abundance and mortality. The method was approved for ling by ICES at a combined benchmark and management plan evaluation in 2017²⁶, which implies that the data were regarded as sufficient for the method. A detailed technical description of the assessment method and the data that go into the assessment is found in the ICES Stock Annex for Ling (<i>Molva molva</i>) in Icelandic waters²⁷.</p>			

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http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2017/WKICEMSE/wkicemse_2017.pdf

27

http://www.ices.dk/sites/pub/Publication%20Reports/Stock%20Annexes/2017/lin.27.5a_SA.pdf

The assessment unit as defined by ICES covers ICES Division 5a, which for practical purposes is similar to the Icelandic economic zone. The stock structure is poorly known, but substantial migrations between the main areas of occurrence is regarded as quite unlikely²⁸. More recent genetic studies support the perception of Icelandic ling as a separate management unit²⁹.

In 2020, due to the Covid-19 epidemic, the involvement of ICES was reduced. The WGDEEP prepared a report on ling,³⁰ including an updated assessment. The MFRI also provided an assessment, which is largely the same as in the WGDEEP report.³¹ Due to the Covid 19 disruption, no advice was requested from ICES by Iceland in 2020. The advice by MFRI³² followed the ICES standards and the harvest rule, and is publicly available.

The main data, provided by MFRI, are catch statistics, including catch in numbers by length, age-length keys, life history data from the fisheries, and stock abundance measurement by length class by a bottom trawl survey in the spring.

Catch data

The fishery for ling is conducted mostly with long line (65%), mostly at depths less than 300 m and trawl (20%), mostly at depths less than 500 meters. The area of distribution of the fishery (Figure 1) largely reflects the distribution of the stock as seen in the spring survey. All catches of ling (as well as all other commercial fish) has to be landed in authorized ports and weighed by authorized weighers.³³ These landings are reported to the Directorate and are the primary source of catch data.

The commercial landings are modelled by fleet, starting in 1982 with a selection patterns described by a logistic function and the total catch in tonnes specified for each quarter. The survey (1985 onwards), on the other hand is modelled as one fleet with constant effort and a non-parametric selection pattern that is estimated for each length group (one 10 cm length group). A fixed natural mortality (0.15) is assumed.

28 <http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2007/WGDEEP/Sec-04-%20Stock%20Identity.pdf>

29 Blanco Gonzalez, E., Knutsen, H., Jorde, P. E., Glover, K. A., and Bergstad, O. A. (2015). Genetic analyses of ling (*Molva molva*) in the Northeast Atlantic reveal patterns relevant to stock assessments and management advice. – ICES Journal of Marine Science, 72: 635 – 641.

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<http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2020/WGDEEP/05%20WGDEEP%20Report%20-%20Sec%2003%20Ling.pdf> (Section 3.4)

31 https://www.hafogvatn.is/static/extras/images/06-ling_tr1206877.pdf

32 <https://www.hafogvatn.is/static/extras/images/06-ling1206876.pdf>

33 <https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutveggraduneyti/nr/20213>

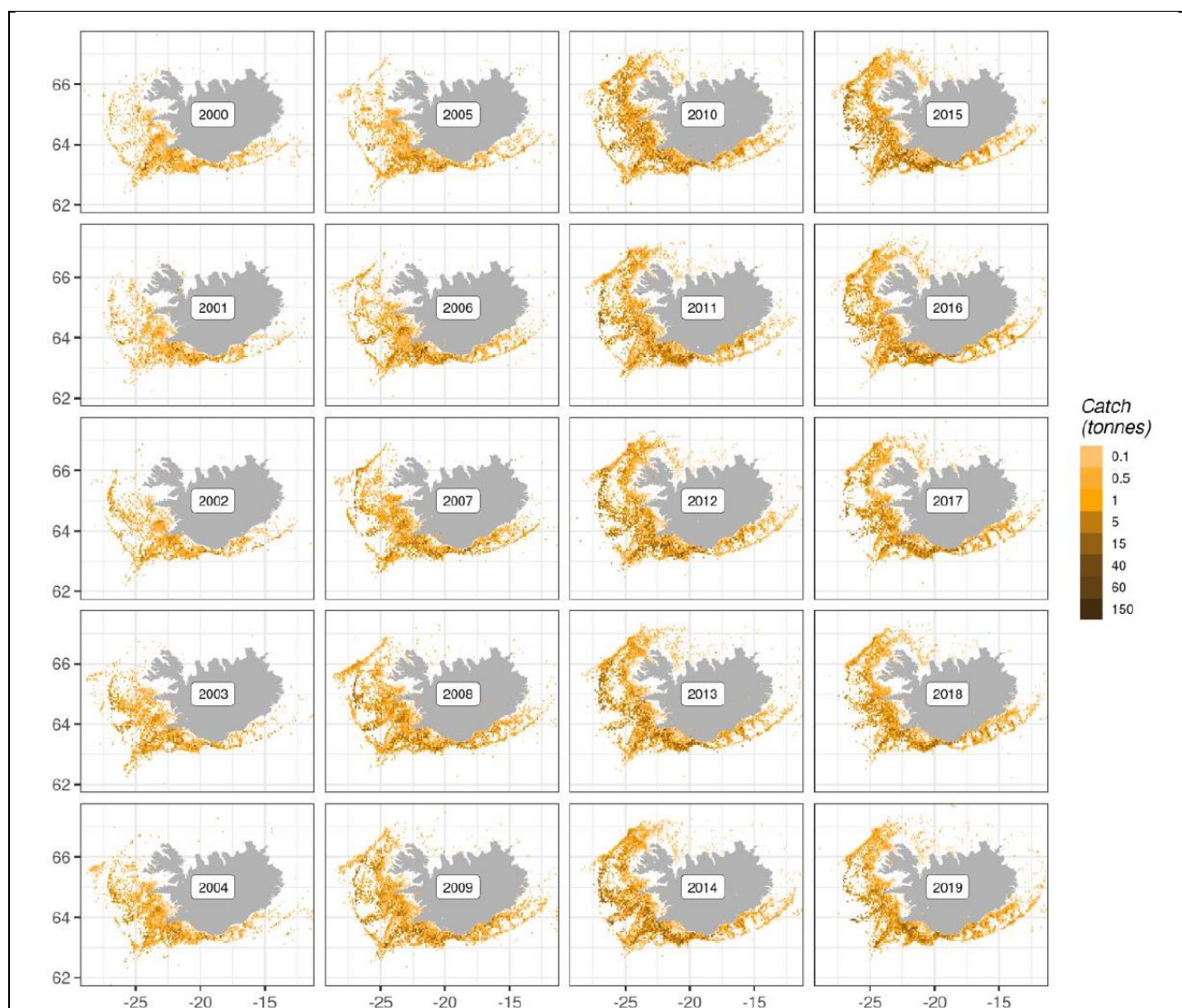


Figure 1. Geographical distribution (tonnes/square mile) of the Icelandic longline ling fishery since 2003 as reported in logbooks by the Icelandic fleet.

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 general process of the sampling strategy is to take one sample of ling, each consisting of 150 fish, for every 180 t landed; this means that between 30–40 samples are taken from the commercial longline catch each year. Otoliths are extracted from 50 fish which are also length measured and weighed gutted. In most cases ling are landed gutted so it not possible to determine sex and maturity, but if a sample is ungutted, sex and maturity is recorded. The information from the samples is then used along with the total landings data to estimate catch-in-weight, catch-at-age-in numbers, weight-at-age-in-the-catch, and length composition in the catch.

Discards. In Iceland, discards are prohibited.³⁴ Ling discards are not included in the assessment but are considered to be negligible³⁵. Studies by MRI indicate that discards of ling (and of tusk) are very small (<1% by number, <0.5% by weight)³⁶.

34 Act concerning the Treatment of Commercial Marine Stocks No. 57, 3 June 1996: <https://www.althingi.is/lagas/nuna/1996057.html>

35 Communicated by MFRI at site visit 27/11-2018

36 Thordarson, G. (2011) Estimates of tusk and ling discards in the Icelandic longline fishery. WGDEEP-2011:WD02: http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2011/WGDEEP/wgdeep_Annex02_WorkingDocuments_2011.pdf; pages 10-18

Survey data

There is a spring groundfish survey and an autumn groundfish survey, both 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 in the coverage. An extensive survey protocol is available³⁷.

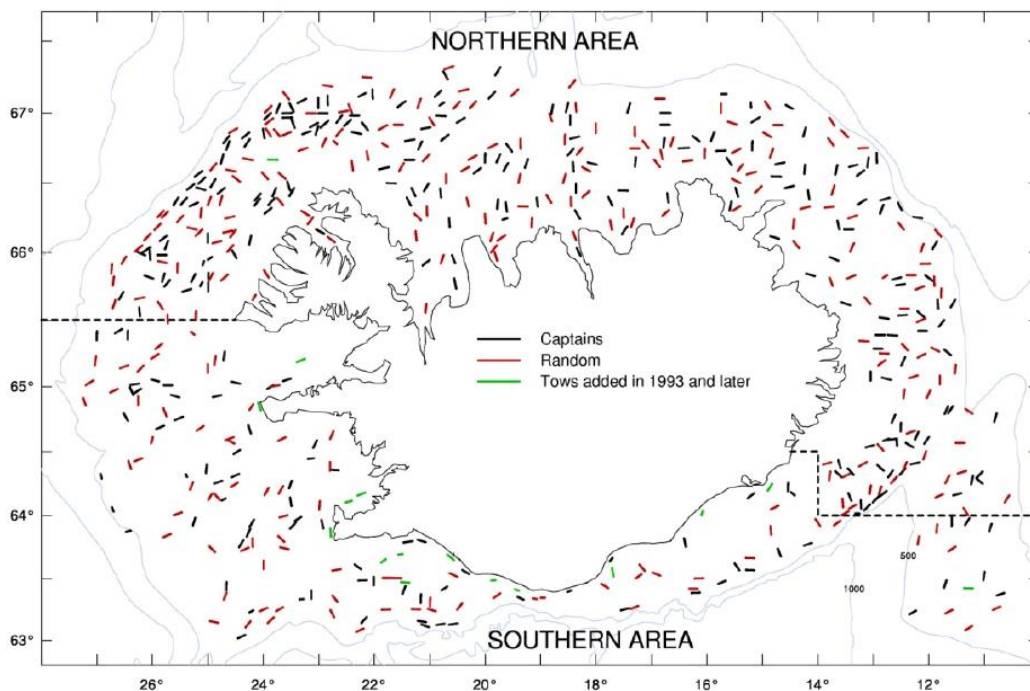


Figure 2. Stations in the Spring groundfish survey. Colors indicate how the stations were decided.

The surveys are used for most stock assessments. For ling, only the spring survey is used, as that covers the small ling better.

Data shall be appropriate

The data outlined above are relevant and sufficient for assessing the stock using the Gadget method. The Gadget method is sufficiently versatile to make proper use of the data that are available. The quality of the data is generally good, although fitting the model to some of the length distributions may be problematic. There is some retrospective error, but hardly detrimental to management (Figure 3).

³⁷ <https://www.hafogvatn.is/static/research/files/fjolrit-156.pdf>

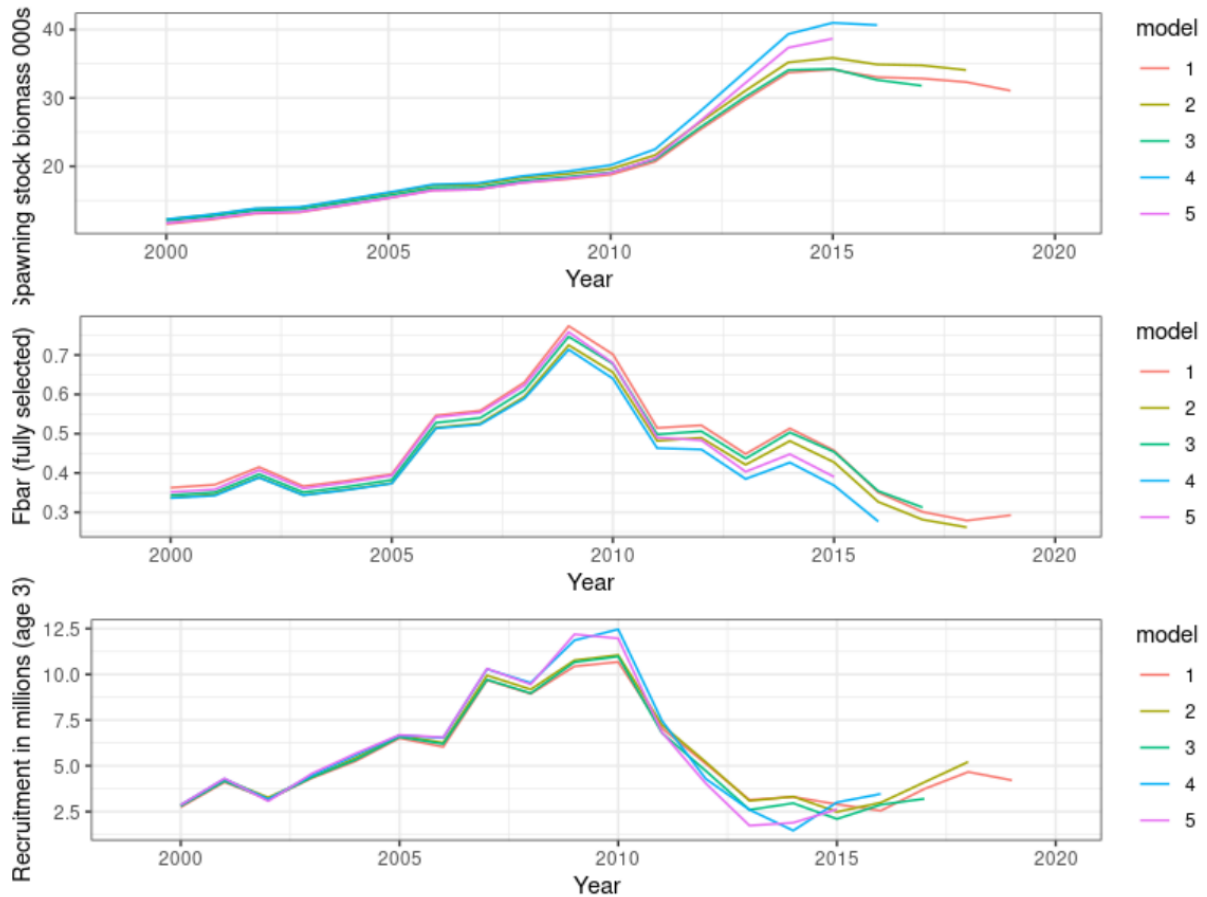


Figure 3. Ling. Retrospective plots illustrating stability in model estimates over a 5-year ‘peel’ in data. Results of spawning stock biomass, fishing mortality F , and recruitment (age 3) are shown.

International cooperation and review

Normally, the assessment is conducted by the ICES Deep Waters Working Group (WGDEEP), where stakeholder nations participate. In 2020, because of the ongoing Covid 19 epidemic, WGDEEP presented an assessment based on work by the MFRI, but ICES did not provide a formal advice. The advice was made by MFRI following ICES standards, as approved in the benchmark-process and harvest rule evaluation by ICES in 2017.

Iceland has broad international scientific cooperation through organisations such as [the Northeast Atlantic Fisheries Commission](http://www.neafc.org/) (NEAFC)³⁸, [the Northwest Atlantic Fisheries Organization](http://www.nafo.int/) (NAFO)³⁹, and [the North Atlantic Marine Mammal Commission](http://www.nammco.no/) (NAMMCO)⁴⁰. Icelandic scientists have been involved in many international projects arranged by these organizations and in co-operative projects with research institutes and universities.

Ling is considered to be a local Icelandic stock and not a migratory or straddling stock.

Research results are made public in a timely and readily understood fashion

The assessment is normally done by the ICES Deep water working group (WGDEEP). Then ICES provides advice based on the results from WGDEEP. Once released, the advice and the NWWG report are available at the

38 <http://www.neafc.org/>

39 <http://www.nafo.int/>

40 <http://www.nammco.no/>

ICES website. MFRI provides its own assessment and advice, which for practical purposes normally does not deviate from that of ICES. In 2020, the MFRI advice was provided without an advice from ICES, but following the harvest rule approved by ICES. MFRI provides an overview of the state and the advice for all major Icelandic stocks on its website⁴¹. The final advice to Icelandic authorities is provided by MFRI. The MFRI advice follows the advice for ICES when there is one unless there is good reasons to deviate from it. Research results are made public in a timely and readily understood fashion.

41 <https://www.hafogvatn.is/en/harvesting-advice>

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

Clause 1.3.1 – The Precautionary Approach

Supporting Clauses:	1.3.1.1, 1.3.1.2, 1.3.1.3, 1.3.1.4, 1.3.1.5, 1.3.1.6		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>The precautionary approach shall be implemented, as specified in the Fisheries Management Plan, to effectively protect the stock under consideration. Accordingly, relevant uncertainties shall be taken into account through a suitable method of risk assessment, appropriate reference points shall be determined, and specified remedial actions shall be taken if reference points are approached or exceeded.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

SUMMARY EVIDENCE

A limit reference point is defined for the spawning stock biomass at the lower confidence bound of the lowest observed biomass. Mortality reference points were derived from that according to standard ICES procedures.

EVIDENCE

Reference points were defined at the benchmark/management plan evaluation in 2017⁴². They were approved by ICES and adopted by Icelandic authorities. Compatible reference points are incorporated in the management plan. The values are tabulated in Table 5, taken from the MFRI advice⁴³.

Table 5. Reference points for Ling.

Nálgun Framework	Gátmörk Reference point	Gildi Value	Grundvöllur Basis
Aflaregla Management plan	SSB _{MGT}	9930	B _{pa}
	HR _{MGT}	0.18	Veiðihlutfall af viðmiðunarstofni (B ₇₅₊), leiðir til langtíma hámarksafkraksturs. Vænt gildi veiðihlutfalls, þegar veitt er samkvæmt aflareglu, er milli 0.12 og 0.28. Percentage of biomass 75+ cm. Leads to long-term MSY. Realized HR can range from 0.12-0.28.
MSY	MSY-B _{trigger}	9930 t	B _{pa}
	HR _{MSY}	0.24	Slembireikningar innan Gadget líkans Stochastic projections
	F _{MSY}	0.284	Slembireikningar innan Gadget líkans Stochastic projections
Varúðarnálgun Precautionary approach	B _{lim}	7090 t	B _{pa} /1.4
	B _{pa}	9930 t	B _{loss}
	F _{lim}	0.7	Veiðidánartala sem leiðir til þess að hrygningarstofn er yfir B _{lim} með 50% líkum Equilibrium F which will maintain the stock above B _{lim} with a 50% probability
	F _{pa}	0.41	95% líkur á að veiðidánartala sé undir F _{lim} 95% probability that true F is below F _{lim} .
	HR _{lim}	0.56	Veiðihlutfall sem leiðir til þess að hrygningarstofn er yfir B _{lim} með 50% líkum Equilibrium HR which will maintain the stock above B _{lim} with a 50% probability
	HR _{pa}	0.35	95% líkur á að veiðihlutfall sé undir HR _{lim} 95% probability that true HR is below HR _{lim} .

The precautionary limit biomass was derived from the lowest observed biomass in the time series (in 1992), at a value representing the mean of that biomass in a bootstrap estimate of its distribution (Figure 4). There is no clear stock-recruitment relationship, the dynamical range is quite narrow and the fishing mortality in

42

http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2017/WKICEMSE/wkicemse_2_017.pdf

43

<https://www.hafogvatn.is/static/extras/images/06-ling1206876.pdf>

the period is relatively low (0.15 – 0.30 for F5-10). recruitment. In this situation, according to the ICES technical guidelines, Bpa but not Blim can be estimated and Bpa was set at Bloss = 9,93 kt . A proxy for Blim can be calculated based on the inverse of the standard factor, $e^{\sigma \cdot 1.645}$ where σ is 0.2, used for calculating Bpa from Blim. Therefore, a proxy for Blim was set at $Bpa / e^{1.645 \cdot 0.2} = 9.93 / 1.4 = 7.09 \text{ kt}$.

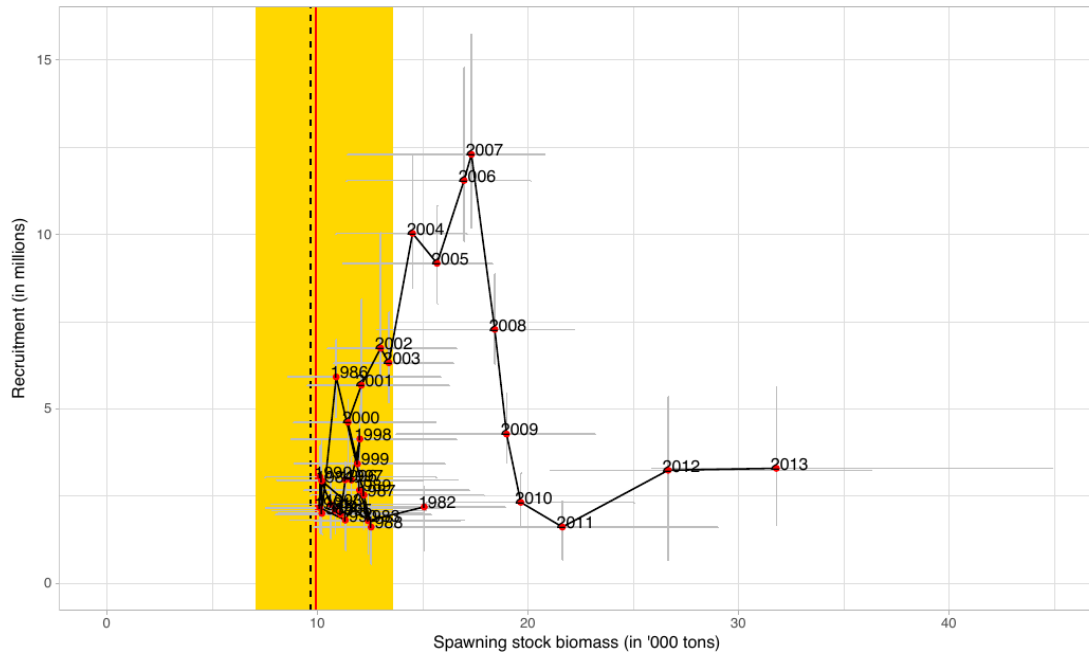


Figure 4. Spawning stock biomass recruitment relationship for ling in 5a. Uncertainty in recruitment and SSB is indicated with 95% quantile intervals. The yellow vertical bar represents the distribution of Bloss. According to the benchmark assessment in 2017.

Precautionary mortality reference points were derived according to standard practise: Flim as the F where the median SSB is at Blim, and Fpa as Flim*1.4. The HR reference points were derived as the median HR when fishing at reference Fs.

Clause 1.3.2 – Management targets and limits

Clause 1.3.2.1 – Harvesting rate and fishing mortality

Supporting Clauses:	1.3.2.1.1, 1.3.2.1.2		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>The management target for fishing mortality (or its proxy) and the associated limit reference point, as well as the management action to be taken when the limit reference point is exceeded, shall be stated in the Fisheries Management Plan. If fishing mortality (or its proxy) is above the limit reference point, management actions shall be taken to decrease the fishing mortality (or its proxy) below the limit reference point.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>The management plan has a target harvest rate (TAC/Reference biomass) of 0.18, as a proxy for a fishing mortality. The rule also has a trigger biomass with the same value as Bpa (9930 t), below which the harvest rate is reduced with a factor SSB/Btrigger. If the estimate of realized harvest rate is different from the target, the obvious recipe would be to apply the rule next year.</p>			
EVIDENCE			
<p>The management plan prescribes an exploitation with a harvest rate of 0.18 (TAC/Reference biomass). The reference biomass is the biomass of fish larger than 75 cm in the assessment year.</p> <p>The harvest rule was tested by simulations with a forward projecting bootstrap procedure without assessment feedback, but taking into account uncertainty in process, in particular in recruitment, and assessment uncertainty, both including autocorrelations. This harvest rate is set on the safe side slightly below the harvest rate leading to MSY, which is 0.24. The loss in yield compared to the HR_{MSY} is just 2%. When including a corresponding CV of the estimate at 0.28 and an autocorrelation in assessment error at 0.8 which is perceived as the upper limit to potential correlation, and taking the delay (½ year) between assessment and start of the TAC year into account, the the probability of falling below Blim was less than 0.005. The lower 5-percentile of SSB would be at Blim at a harvest rate of 0.23. The expected realized Fishing mortality (F15+) when applying the adopted harvest rate of 0.18 was calculated at 0.207 (0.121,0.329) and the range of realized harvest rate would be 0.12 – 0.28.</p> <p>This risk evaluation assumes that the TAC is set according to the target harvest rate. If the subsequent estimate of realized harvest rate is different, the obvious recipe would be to apply the rule next year.</p> <p>As an additional safety precaution, the rule has a trigger biomass with the same value as Bpa (9930 t), below which the harvest rate is reduced with a factor SSB/Btrigger.</p>			

Clause 1.3.2.2 – Stock biomass

Supporting Clauses:	1.3.2.2.1, 1.3.2.2.2, 1.3.2.2.3, 1.3.2.2.4		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>The long term management target for stock size (biomass), either explicit or implicit depending on management approach, and limit reference points consistent with the objective of promoting optimum utilization, shall be specified. Furthermore, limits or directions for stock size (or its proxy), consistent with avoiding recruitment overfishing shall be specified and should the estimated stock size approach B_{lim} (or its proxy), then appropriate management action shall be taken with the objective of restoring stock size to levels above B_{lim} (or its proxy) with high probability within a reasonable time frame.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>A target biomass has not been defined, as the primary management tool is a harvest rate, which should lead to near maximum catches in the long term. The harvest rule has a trigger spawning biomass below which the harvest rate shall be reduced. According to simulations, the probability of reaching the limit with this harvest rate is highly unlikely. If needed, there is the legal framework and a suite of control measures available to management to take further action.</p>			
EVIDENCE			
<p>A long term target for the stock biomass is not defined explicitly, as the harvest strategy is defined in terms of mortality. However, the expected long term yield by following the rule was tested by the simulations and found to be near the maximum obtainable. The harvest rule has a trigger spawning biomass at 9930 tonnes, below which the harvest rate shall be reduced, as described under Clause 1.3.2.1. A limit spawning biomass is defined at 7090 tonnes. This is the lower bound of the confidence range of the lowest value in the historical time series, as explained in Clause 1.3.1. The target harvest rate (18% of biomass of fish > 75cm) in the management plan is associated with a near maximum long term yield and a low probability of bringing the spawning biomass below the trigger level, which is still well above the limit biomass. The existing rules, together 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 under control.</p> <p>The stock is currently at its historical highest above its trigger reference point, as shown below.</p>			

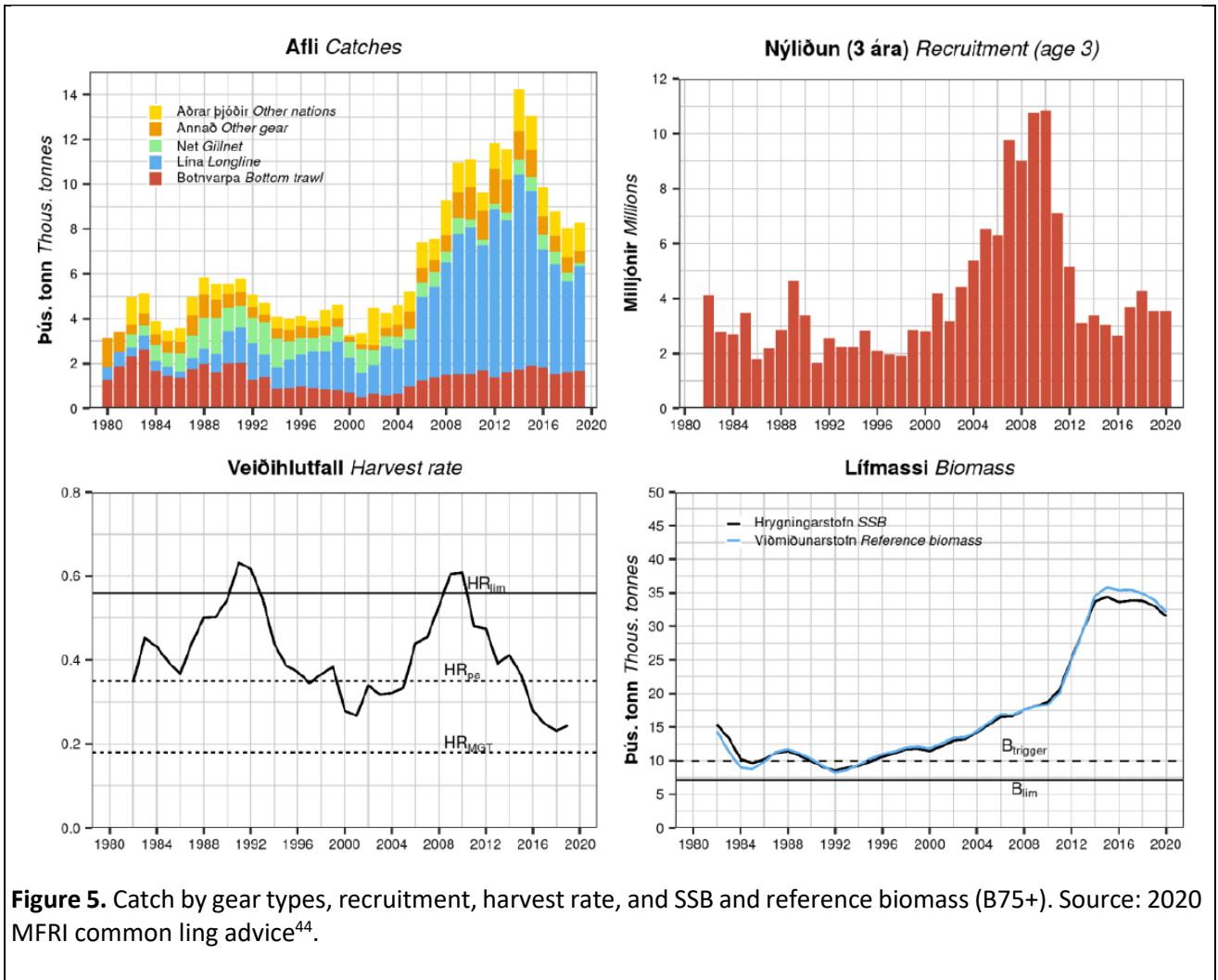


Figure 5. Catch by gear types, recruitment, harvest rate, and SSB and reference biomass (B75+). Source: 2020 MFRI common ling advice⁴⁴.

⁴⁴ <https://www.hafogvatn.is/static/extras/images/06-ling1206876.pdf>

Clause 1.3.2.3 – Stock biology and life-cycle (Structure and resilience)

Supporting Clauses:	1.3.2.3.1, 1.3.2.3.2, 1.3.2.3.3		
Important Note:	Old Clause 1.3.2.3.3 removed from Standard in IRFM Standard v2.0.		
Clause Guidance:	<i>Information on the biology, life-cycle and structure of the stock shall be taken into account and consideration shall be given to measures designed to avoid excessive exploitation of spawning components at spawning time, as appropriate, especially at times when biomass (SSB) may approach the level of the limit reference point (B_{lim}). Relevant gear selectivity properties for the protection of juvenile fish shall be specified, as appropriate. Consideration shall also be given to measures designed to limit fishing mortality of juvenile fish, e.g. through temporary closures to fishing of areas containing a high proportion of juveniles of stock under consideration, with the objective of reducing the likelihood of growth overfishing and increasing the contribution of year classes to the spawning stock.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/> None <input checked="" type="checkbox"/>
SUMMARY EVIDENCE			
Ling in Icelandic waters are considered to be a local stock. There are area closures (permanent and temporary in real time) to protect spawners and juveniles. They are mostly directed towards cod, but may offer some protection to ling as well. There are mesh size regulations, a discard ban and special arrangements for payment of undersized fish that is landed.			
EVIDENCE			
Ling in Icelandic waters is regarded as a local stock, which is confined to Icelandic waters. There is no genetic evidence of distinct populations, but ICES still considers that the main fishing areas are so widely separated that substantial exchange is unlikely. WGDEEP examined available evidence on stock discrimination in 2007 ⁴⁵ and concluded that available information is not sufficient to suggest changes to current ICES interpretation of stock structure. More recent studies support this conclusion. ⁴⁶			
Ling reaches sexual maturity at the age of 5-8 years and 60-80 cm total length. It spawns in May and June mostly along the edges of the south, southwest and west of the Icelandic continental shelf. Protective measures include area closures (temporary and permanent) and gear restrictions. The various measures are not species specific but designed primarily to protect cod, and in some cases other species. None of them are directed specifically at protecting spawning ling in the spawning season.			
There is an extensive system of areal closures that are, to a large extent, designed to avoid exploitation of cod at the spawning grounds in the spawning season, and to avoid catching juvenile fish. Closures can be permanent or temporary. Permanent closures are according to regulations by the Ministry and can be valid for parts of the year or the whole year. They are intended to protect spawning grounds, nursery areas, vulnerable habitats etc. and most of them have been in place for many years (Figure 6) ⁴⁷ .			

45 <http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2007/WGDEEP/Sec-04-%20Stock%20Identity.pdf>

46 Blanco Gonzalez, E., Knutsen, H., Jorde, P. E., Glover, K. A., and Bergstad, O. A. (2015). Genetic analyses of ling (Molva molva) in the Northeast Atlantic reveal patterns relevant to stock assessments and management advice. – ICES Journal of Marine Science, 72: 635 – 641.

47 This map was previously available at <http://www.fiskistofa.is/fiskveidistjorn/veidibann/reglugerdarlokanir/>. Presently, one gets directed to a solution in Google earth where the link <http://uv.fiskistofa.is/uv.kml> provides very detailed information on locations of interest.

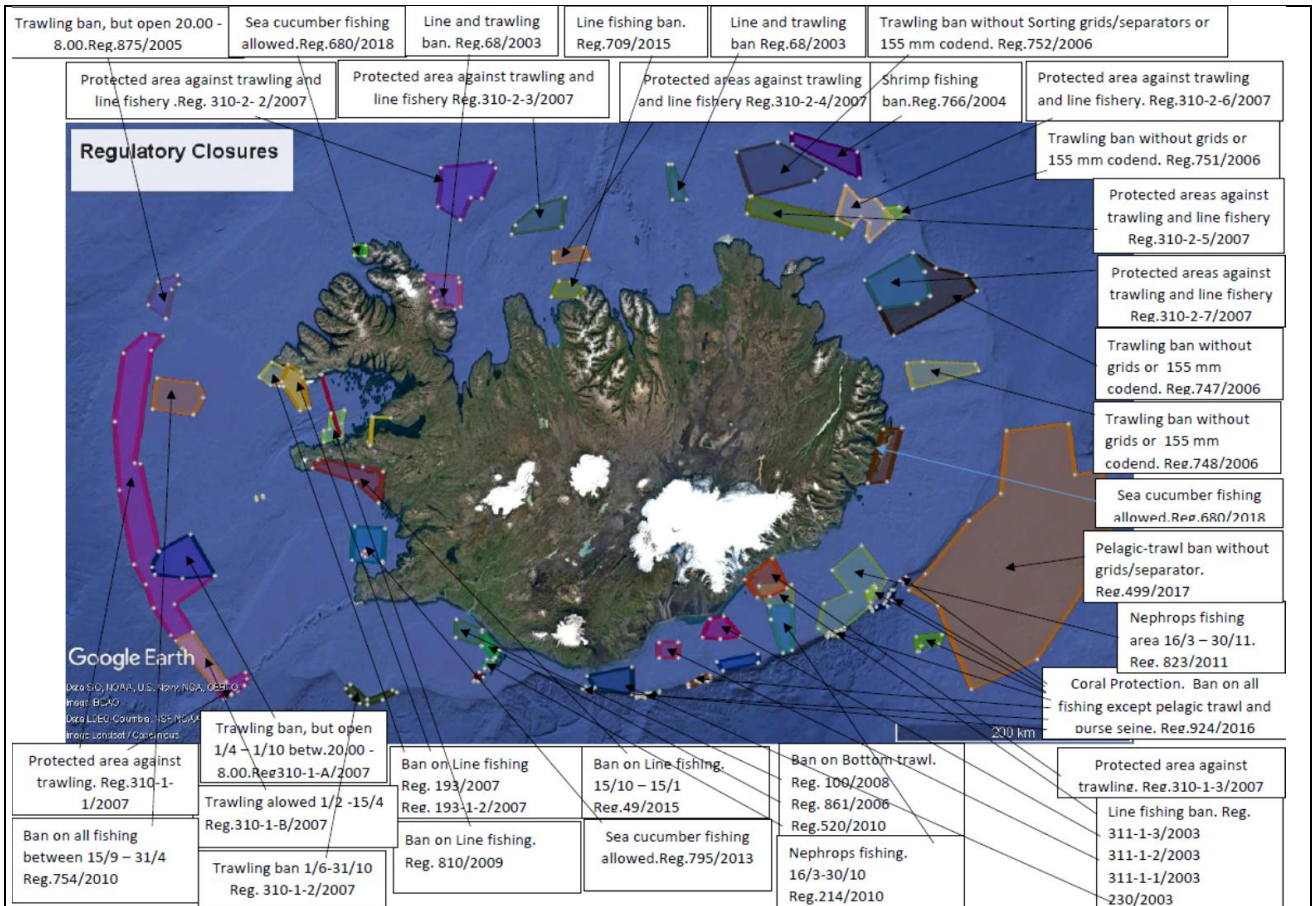


Figure 6. Overview of permanent closed areas.

Temporary closures are as a rule triggered by reports from the Coast Guard, Directorate or others of too much undersized fish. Recently in 2020, the Directorate has taken over the administration of these closures from the MFRI. Such closures are introduced on short notice (hours) and are valid for 3 weeks. Ling has not led to such closures in recent years. The system for announcing them is under revision these days⁴⁸. Furthermore, there are mesh size regulations in place to protect juveniles; the standard mesh size in trawl is 135 mm⁴⁹. If undersized fish are caught, they have to be landed. Special rules apply for payment to encourage landing, but discourage catching of undersized fish. Discards are prohibited, see Clause 1.2.2.

48 Communicated by the Directorate in net meeting 13 Jan. 2021.

49 Mesh size regulations: <https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/4032>

Clause 1.4 – External Scientific Review

Supporting Clauses:	1.4.1, 1.4.2		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>For the stock under consideration the harvesting policy (including its consistency with the precautionary approach), stock assessments and advice shall be reviewed, by request from the fisheries management authorities at appropriate, regular intervals as well as when substantive changes are made in harvesting policy by an appropriate international scientific body or committee. Following external scientific review, the competent fisheries management authority shall review and/or revise the harvesting policy, taking into consideration the external review, as appropriate.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
ICES is regarded as the relevant scientific body. The assessment and the management plan for ling were evaluated and approved in 2017. The approved procedures have been followed since then.			
EVIDENCE			
ICES ⁵⁰ is regarded as the relevant scientific body. It organizes stock assessments, performs evaluations of management plans and advises on a wide range of issues within marine science, including fisheries management. The assessment and the management plan for ling were evaluated and approved in 2017. ⁵¹ The approved procedures have been followed since then.			
As discussed in Clause 1.2, the assessment in 2020 was done by WGDEEP while the advice was provided by MFRI, both following the ICES protocol.			

50 <http://www.ices.dk>

51 http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/Special_requests/Iceland.2017.09.pdf

Clause 1.5 – Advice and Decisions on TAC

Supporting Clauses:	1.5.1, 1.5.2, 1.5.3, 1.5.4, 1.5.5, 1.5.6, 1.5.7, 1.5.8, 1.5.9, 1.5.10		
Important Note:	<p>Clause 1.5.1: Text added (Bold) in IRFM Standard v2.0: <i>“A competent scientific body, research institute, designated advisory body or arrangement shall provide the competent fisheries management authority with fisheries advice on the harvesting of the stock under consideration, in a timely manner.”</i></p> <p>Minor change – Timeliness of fisheries advice addressed specifically below.</p> <p>Clause 1.5.9: Minor change to wording and text added (Bold). IRFM Standard v1.1: <i>Management agreements reached in the competent Regional Fisheries Management Organization(s) or arrangements, relevant to the stock under consideration, shall be implemented by states and effectively and uniformly executed.</i></p> <p>IRFM Standard v2.0: <i>The competent fisheries management authorities shall cooperate and actively participate in competent Regional Fisheries Management Organisation(s) (RFMOs) or arrangement(s), relevant to the stock under consideration and management agreements reached shall be implemented by fisheries authority and effectively and uniformly executed.</i></p> <p>Minor change – Management authorities’ cooperation and participation in RFMOs or arrangements addressed specifically below.</p>		
Clause Guidance:	<i>Appropriate scientific advice shall be provided to the competent fisheries management authority including on the appropriate value(s) for precautionary reference points. For shared stocks the setting of TAC shall take into consideration international agreements and scientific advice. Decisions on TAC shall be made and implemented in such a way as to ensure that the actual catch is as close to the intended catch as practically possible.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/> None <input checked="" type="checkbox"/>
SUMMARY EVIDENCE			
<p>Ling in Icelandic waters is regarded as a local stock. Stock assessment and advice, including advice on harvest rules, TACs and reference points is provided by ICES. The Minister of Fisheries and Agriculture decides on the TAC of the ling stock for each fishing year (Sept – Aug) in accordance to law (Fisheries Management Act 116), based on the advice by MFRI. The MFRI advice is based on work and advice by ICES. The actual catch can deviate from the TAC, up to about 15% in both directions. A likely cause is the year-to-year flexibility that is permitted and transfer of quotas between species. Over time, this levels out, the sum of catches over the last decade is close to the sum of TACs.</p>			
EVIDENCE			
<p>Stock assessment and advice, including advice on harvest rules, TACs and reference points is provided by ICES. The process involves all relevant nations and the advice is for all areas. The advice is taken over by local authorities and published once it is ready on the MFRI website. The advice includes the reference points as shown in Clause 1.3.1.</p>			
<p>The Icelandic ling stock is a local stock confined to Icelandic waters, and is managed by Iceland alone. The Minister of Fisheries and Agriculture decides on the TAC of the ling stock for each fishing year (Sept –Aug) in accordance to law (Fisheries Management Act 116), based on HCR and the advice mentioned above.</p>			

Adherence to the advice, including the rule, is shown in Table 6 and Figure 7. For the last decade, both before and after the introduction of the harvest rule in 2017, quotas have been set according to the scientific advice with minor exceptions. Since the introduction of the HCR in the fishing year 2017–2018, the scientific advice has been according to the rule. Most years, the predicted catch by other nations (Faroes and Norway) has been taken into account when setting the National TAC. The actual catch can deviate from the TAC, up to about 15% in both directions. A likely cause is the year-to-year flexibility that is permitted, as further discussed in Section 2. Over time, this levels out – the sum of catches is 98.7% of the recommended TAC over the last 10 years. The deviations is to a large extent due to transfers between years, and also between species (Figure 7). A ling quota can be used to cover catches of other species (negative transfers) or quotas of other species can be used to cover catches of ling (positive transfers).

Table 6. Recommended TAC, quotas and reported catches for Icelandic ling.

Fiskveiðiár <i>Fishing year</i>	Tillaga <i>Rec. TAC</i>	Aflamark <i>National TAC</i>	Afli Íslendinga <i>Catches Iceland</i>	Afli annarra þjóða <i>Catches other</i>	Afli alls <i>Total catch</i>
2010/11	7500	7500	9327	768	10095
2011/12	8800	9000	10074	1059	11133
2012/13	12000	11500	11196	1249	12445
2013/14	14000	13500	11717	1683	13400
2014/15	14300	13800	11112	1311	12423
2015/16	16200	15000	9773	1456	11229
2016/17	9343	8143	7291	1135	8426
2017/18	8598 ¹⁾	7598	6948	1625	8573
2018/19	6255 ¹⁾	5200	6927	1101	8028
2019/20	6599 ¹⁾				
2020/21	5700 ¹⁾				

¹⁾ 18% aflaregla. 18% harvest control rule

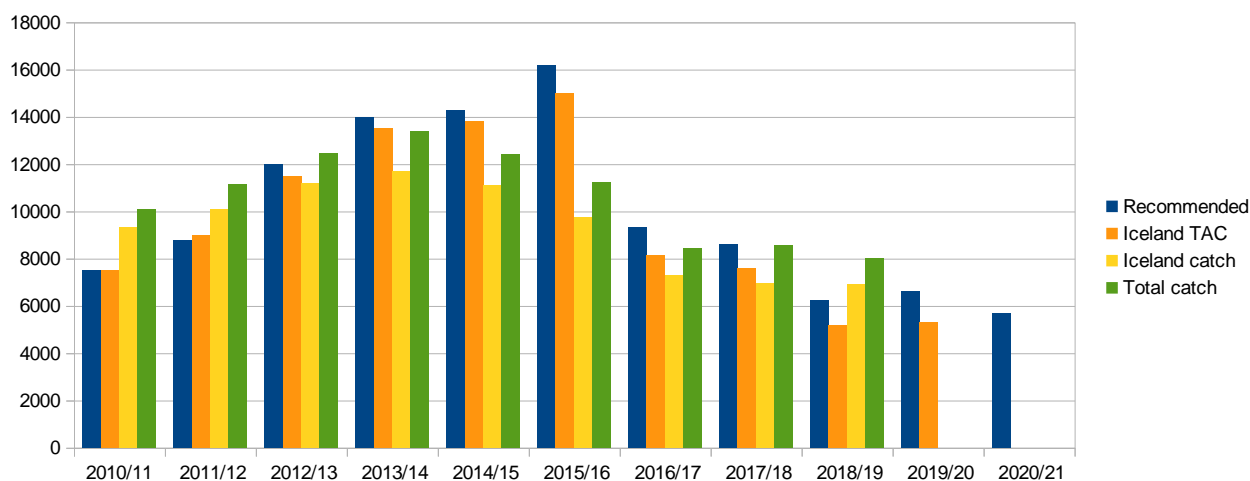


Figure 7. Recommended, decided and realized catches.

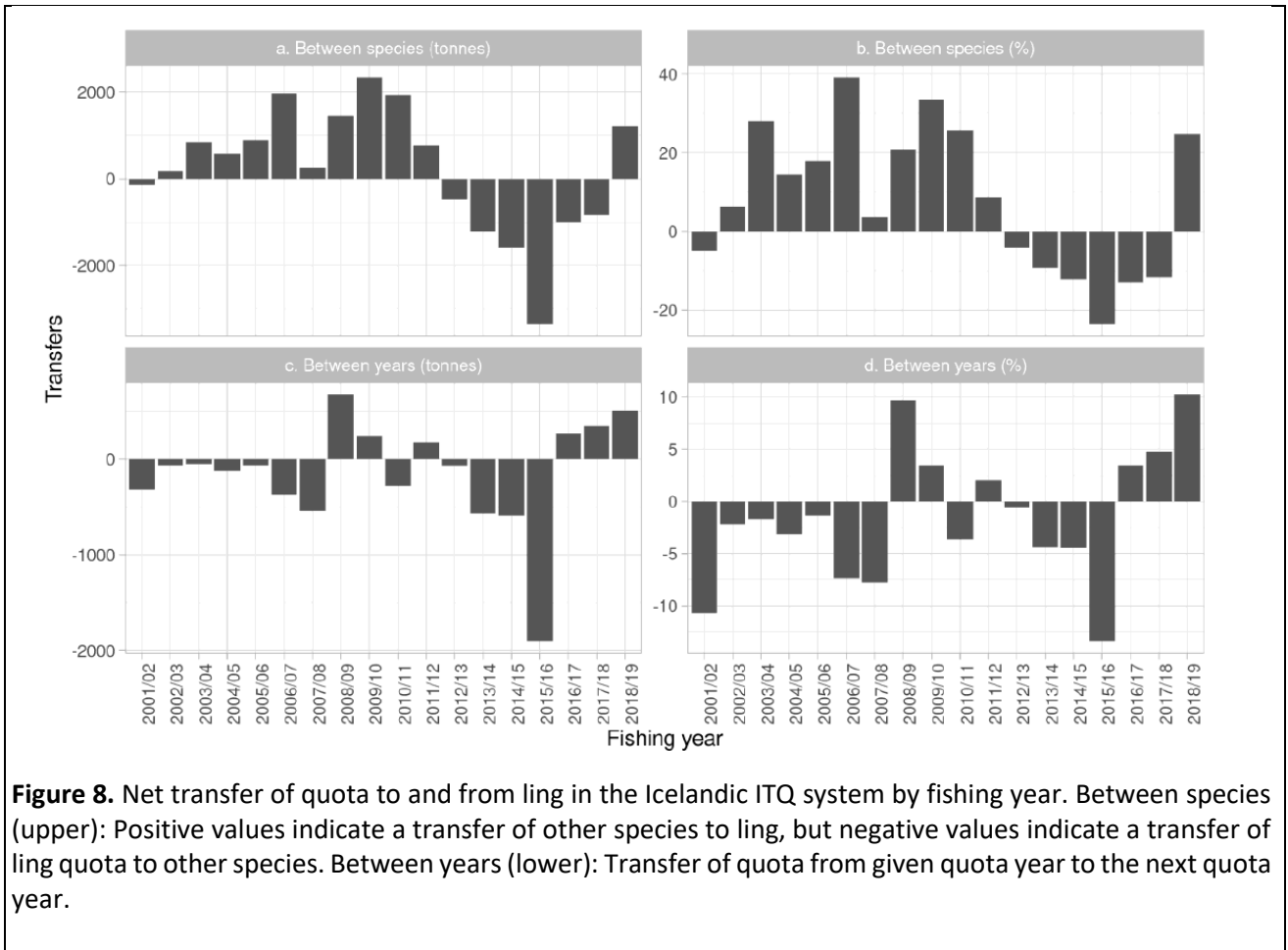


Figure 8. Net transfer of quota to and from ling in the Icelandic ITQ system by fishing year. Between species (upper): Positive values indicate a transfer of other species to ling, but negative values indicate a transfer of ling quota to other species. Between years (lower): Transfer of quota from given quota year to the next quota year.

7.2. Section 2: Compliance and Monitoring

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

Supporting Clauses:	2.1.1, 2.1.2		
Important Note:	Clause 2.1.2 is new to IRFM Standard v2.0 and is scored separately in Appendix 2 .		
Clause Guidance:	<i>An effective legal and administrative framework at the local, national or regional level, as appropriate, shall be established for the fishery, and compliance shall be ensured through effective mechanisms for monitoring, surveillance, control and enforcement.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>An effective legal and administrative framework exists which is implemented by the Fisheries Directorate, part of the Ministry of Industries and Innovation. The Directorate works closely with the Coast Guard and Port Authorities. Key legislation underpinning the framework comprises the Fisheries Management Act (No. 116/2006), the Act on Fishing in Iceland’s Exclusive Economic Zone (no. 79/1997) and the Act concerning the Treatment of Commercial Marine Fish Stocks (no. 57/1996).</p> <p>Acts and regulations concerning conservation and management measures are publicly available and effectively disseminated through a number of government websites including via an annual law gazette.</p>			
EVIDENCE			
<p>The Icelandic Directorate of Fisheries is an independent administrative body responsible to the Fisheries Minister, responsible for the day to day implementation of the Act on Fisheries Management and related legislation, for day-to-day management of fisheries and for supervising the enforcement of fisheries management rules. More specifically, the Directorate of Fisheries works in accordance with the following Acts, the Directorate of Fisheries Act (no. 36/1992)⁵², the Fisheries Management Act (no. 116/2006), the Act on Fishing in Iceland’s Exclusive Economic Zone (no. 79/1997), the Act concerning the Treatment of Commercial Marine Fish Stocks (no. 57/1996) and the Act on a Special Fee for Illegal Marine Catch (no. 37/1992). Accordingly, it issues fishing permits to vessels and allocates catch quotas, imposes penalties for illegal catches, supervises the transfer of quotas and quota shares between fishing vessels, monitors vessels using the VMS system e-logbooks, controls the reporting of data on the landings of individual vessels and monitors the weighing of catches⁵³. 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.</p> <p>A full list of regulations which was harmonised and streamlined starting in 2019 is available on the Ministry’s website⁵⁴ (see also the digital booklet for the 2020-2021 regulations at https://vefbirting.prentmetoddi.is/raduneyti/stjorn_fiskveida_2020-21/94/).</p>			

⁵² <https://www.althingi.is/lagas/149a/1992036.html>

⁵³ <http://www.fiskistofa.is/english/about-the-directorate/>

⁵⁴ <https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2020/09/01/Stjorn-fiskveida-2020-2021-Log-og-reglugerdir/>

The primary legislative instrument relating to fisheries management in Iceland and the basis for the ITQ system is the Fisheries Management Act No.116/2006⁵⁵.

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 1996⁵⁶). Provisions of the Act on a Special Fee for Illegal Marine Catch⁵⁷ 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 2019⁵⁸ and 2020⁵⁹.

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 Resources⁶⁰.

The weight registration document for each vessel is transmitted to the Fisheries Directorate who record it on their Catch Registration System (the Fisheries Directorate and Landing Ports database GAFL). The Directorate also receives the e-logbook information. During the 2021 remote audit, Fiskistofa confirmed that starting in September 2020 smaller Icelandic vessels 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 298/2020⁶¹. The App also called Afladagbókina or catch diary⁶² 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.

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.

⁵⁵ <https://www.ecolex.org/details/legislation/fisheries-management-act-1990-lex-faoc003455/>

⁵⁶ <https://www.althingi.is/lagas/149a/1996057.html>

⁵⁷ <https://www.althingi.is/lagas/149a/1992037.html>

⁵⁸ <http://www.fiskistofa.is/umfiskistofu/frettir/aflasamsetning-a-botnvorpu-og-dragnotarveidum>

⁵⁹ <http://www.fiskistofa.is/umfiskistofu/frettir/aflasamsetning-i-thorskanetum-og-botnvorpu>

⁶⁰ <https://www.stjornartidindi.is/Advert.aspx?RecordID=884be309-64a5-4367-9e4d-f5e7216b6f40>

⁶¹ <https://www.reglugerdir.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887>

⁶² <http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla>

⁶³ <https://www.mbl.is/200milur/frettir/2020/08/31/oll-aflaskranning-rafraen-fra-og-med-morgundeginum/>

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 Directorate's 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 a later time post original posting of the information.

A December 2018 report from the Icelandic National Audit Office (NAO)⁶⁴ 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 2021 remote audit, Fiskistofa confirmed that they worked on this issue by increasing surveillance. As a result, two more cases were detected in 2020. The results of this surveillance are published online to show the violations and deter other potential violators⁶⁵.

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 990/2020⁶⁶ 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.

Furthermore, Fiskistofa supervised re-weighing 81 times during the 2019/2020 fishing season. 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 strengthen confidence in the Agency's oversight, and increase efficiency and transparency in the operations of the Directorate of Fisheries.⁶⁷

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.reglugerdir.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)⁶⁸.

⁶⁴ <https://rikisendurskodun.is/wp-content/uploads/2019/01/Eftirlit-Fiskistofu-Stjornsysluuttek.pdf>

⁶⁵ <http://www.fiskistofa.is/umfiskistofu/frettir/hlutfall-kaelimidils-mai-til-agust>

⁶⁶ <https://www.reglugerdir.is/reglugerdir/efst-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/22140>

⁶⁷ http://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf

⁶⁸ <https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2019/09/13/Stjorn-fiskveida-2019-2020-Log-og-reglugerdir/>

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.⁶⁹

All scientific advice is available online⁷⁰. Harvest control rules are scrutinised on request by an independent scientific body (ICES) with reports being published online⁷¹.

Up-to-date maps of fisheries closures are available on-line on the Fisheries Directorate website⁷². Temporary/sudden closures (general 2-3 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 (Fisheries Directorate pers. com. site visit January 2021). 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. Regulation regarding the short-term closures was changed in 2020, and the trigger limit was increased for cod and haddock (but not for ling or other species), which led to significant decrease in the number of closures. An updated table as provided by the MFRI is shown below.

Table 7. Short term closures in Iceland for the years 2018-2020.

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

For 2020, two closures were triggered by bottom trawl gear, one by longline and 8 by handline gear.

Directorate Inspections at Sea

Days spent by Fisheries Directorate inspectors at sea inspecting vessels is shown in the table below.

Table 8. Directorate inspector days on fishing vessels in 2017-2018 (Source: Directorate of Fisheries, January 2021 remote audit).

Season	Fishery type: Bottom Trawl	Fishery type: Longline	Fishery type: Gillnet (include lumpfish and cod)	Other Gears (e.g. pelagic gears used to catch herring)?
2015/16 season days	553	Not Available	81 (60 days cod, 21 days lumpsucker)	Not Available
2016/17 season days	780	230	117 (60 days cod, 57 lumpsucker)	195

⁶⁹ <http://www.fiskistofa.is/>

⁷⁰ <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/lin.27.5a.pdf>

⁷¹ <https://www.government.is/news/article/2018/05/15/Haddock/>

⁷² <http://www.fiskistofa.is/fiskveidistjorn/veidibann/reglugerdarlokunir/>

2017/2018 sea- son days	570	202	154 (41-113)	156
2018/2019 sea- son days	674	190	155 (59- 36- (greenland halibut 60)	102
2019/2020 sea- son days	468	92	85 (44-37-4)	127

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 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.

In 2020, 164 cases were suspected of violations. The table below contains information on the number of cases by category.

Table 9. Fiskistofa suspected violations in 2020. Source: Fiskistofa 2020 Annual Report⁷³.

Suspected violation	No.
Veiðar án leyfis / Fishing without a permit	14
Brottkast / offences	11
Vigtun afla / weighing of catch	24
þar af vigtun vigtarleyfishafa of which the weighing by the weighing licensee	9
Framhjálföldun / landing	6
Afladagbók / logbook	40
Vanskil afladagbókar / submitting logbook late	470
Veiðar án aflaheimilda / Fishing with insufficient catch quotas	6
Mál vegna umframafli / Cases due to excess power	1321
Lax og silungsveiði / salmon and trout fishing	24
Undirmálfiskur / bottom fish fishing	4
Röng tilgreining tegunda / Incorrect identification of species	3
Grásleppuveiðar / Greenland halibut fishing	13
Strandveiðar / coastal fishing	42
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

Error! Reference source not found. contains information regarding the penalties for suspected violations. The information does not show whether the decision of the Directorate of Fisheries has been repealed or amended by a ruling of the industry and the Consumer Innovation Council. The information in the tables cannot be compared with each other. One case could deal with several types of offenses. This can result in penalties and correction of catch registration. In addition, several violations by the same party may have been merged into one case.

⁷³ http://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf

The Directorate of Fisheries sent 470 letters due to catch logbooks not being returned on time and 1,321 cases arose due to fishing in excess of catch quotas, which then must be rectified by purchasing additional quota to balance the books or no further fishing is permitted.

Table 10. Fiskistofa penalties and follow up for suspected violations in 2020. Source: Fiskistofa 2020 Annual Report⁷⁴.

Penalties for suspected violations	No.
Mál kærð til lögreglu / Cases reported to the police	13
Áminningar / reminders	28
vegna brota gegn reglum um veiðar/ for violations of fishing rules	8
vegna brota gegn reglum um vigtun og skráningu afla / for violations of the rules on weighing and registration of catches	4
vegna brota gegn reglum um afladagbók / for violations of the rules on catch logbooks	5
framhjálföldun / for landing	4
brottkast / discards	4
ófullnægjandi flokkun undirmáls (aflaskráning einnig leiðrétt) / inadequate sub-classification of catches (catch registration also corrected)	3
Svipting veiðileyfis/ Revocation of fishing license	11
vegna brota gegn reglum um veiðar / for violations of fishing rules	4
vegna brota gegn reglum um afladagbók /for violations of the rules on catch logbooks	5
vegna brottkasts / due to discard	2
Ófullnægjandi flokkun undirmáls (aflaskráning einnig leiðrétt) /Insufficient sub-category classification (catch registration also corrected)	1
Hindrun eftirlits / Obstruction of control	1
Afturköllun vigarleyfis / Revocation of weighing license	1
Afturköllun framkvæmdaleyfis í eða við veiðivatn / Revocation of a construction permit in or near a fishing lake	1
Mál sent öðru stjórnvaldi / Case sent to another authority	4
Ekki tilefni til beitingar viðurlaga eða leiðbeina / No need for sanctions or guidance	40
Leiðrétting aflaskráningar (auk leiðréttingar ófullnægjandi flokkunar undirmáls) / Correction of catch registration (in addition to correction of inadequate sub-classification of subheadings)	12
Leiðbeiningarbréf / Letter of instruction	119
Innheimtumál / Collection issues	
Ítrekunarbréf vegna ógreiddra veiðigjalda á árinu 2020: / Recurring letter regarding unpaid fishing fees in the year 2020:	181
Veiðileyfissviptingar: / Fishing license revocations:	26
Álagning gjalds vegna ólögðs sjávarafli: / Imposition of a fee for illegal fishing	1323

Enforcement by the ICG

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

⁷⁴ http://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf

surrounding the reporting of vessel position (manually or using VMS systems) and the reporting of catch on entering or leaving Icelandic waters, among others.

During the remote audit in January 2021 the ICG reported that surveillance in 2020 was challenging due to the COVID 19 pandemic. These restrictions were lessened for a while during the summer, but for the majority of the year there were some kind of restrictions imposed. To meet the situation the ICG patrol vessels increased their visibility, using their boats to monitor the fisheries close to the fishing vessels. In spite of the Coast Guard efforts the pandemic has had its impact. Fewer inspections and boardings of vessels resulted in less measuring of fish, which was reflected in fewer Short Time Closures in 2020 (see Table 7) and none based on Fisheries inspections by ICG. The overall number of inspections since 1988 is shown below.

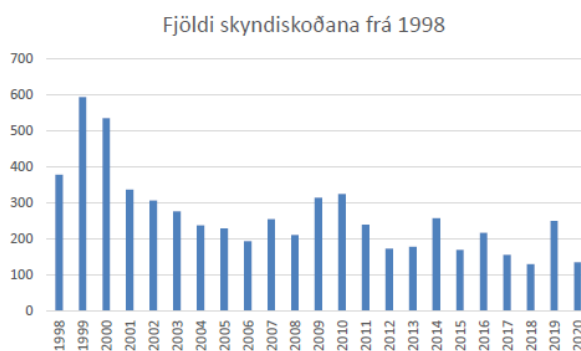


Figure 9. Overall number of ICG inspection from 1988 to 2020. Source: provided by the ICG during the remote audit, January 2021.

Also, we show here below a figure for the amount of air surveillance performed in 2020.

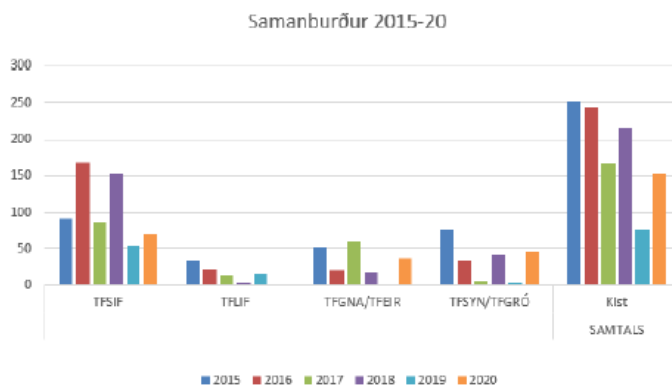


Figure 10. Air surveillance by four different Icelandic assets from 2015 to 2020. Samtals is the total. Source: provided by the ICG during the remote audit, January 2021.

Also, three foreign flag vessels were inspected the ICG in 2020, one longliner and one jigger vessels from the Faroese, and one Norwegian longliner, all within Icelandic EEZ. No capelin fisheries quota was issued within the IEEZ in 2020. As a result, no NOR, FRO or GRO flagged vessels were fishing for that stock and consequently did not require inspection by the ICG. In terms of overall infringements, 15 reports of apparent infringements were reported in 2020, 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 2020, were: Lögskráningar /Crew registry, Réttindi /License, Veiðar /Fisheries, Veiðileyfi /Fishing permit, Vanmönnum /Manning, Farþegafjöldi /Passengers, Merkingar /Markings and Fjarskiptalög / Communications. These are shown below compared to historical data up to 2015.

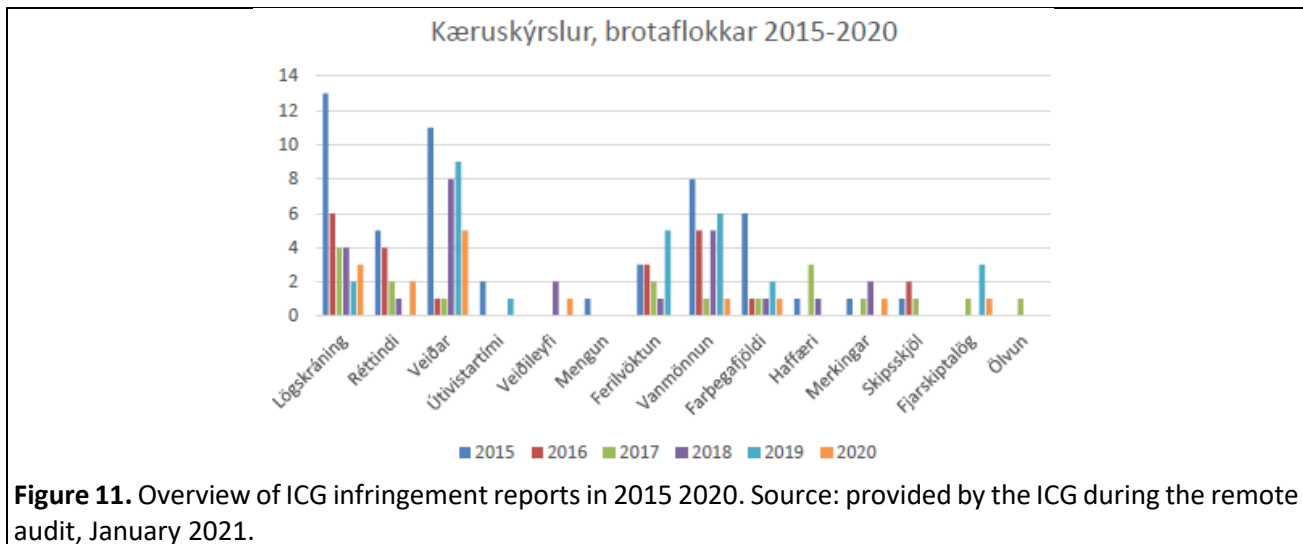


Figure 11. Overview of ICG infringement reports in 2015 2020. Source: provided by the ICG during the remote audit, January 2021.

Clause 2.2 – Concordance between actual Catch and allowable Catch

Supporting Clauses:	2.2.1, 2.2.2, 2.2.3, 2.2.4 and sub-clauses		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>Concordance between the Total Allowable Catch (TAC) and actual total catch from the stock under consideration shall be ensured through monitoring, control, enforcement, documentation and correction and verification activities. Accordingly, all participating companies engaged in fishing operations shall take responsibility and operate in compliance with the relevant rules and regulations.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
Landings must be recorded in logbooks at sea and these are verified and standardised through physical weighing at accredited weigh stations in landings ports throughout Iceland. Registered weights for each landing are sent to the Fisheries Directorate, recorded on their catch registration database (GAFL), and the appropriate amount is subtracted from the vessels quota. ITQ transfers are also monitored to ensure that vessels either have or source sufficient quota to cover the entirety of their catch within 3 days of landing. Compliance is checked through at-sea and on-land monitoring by the Coast Guard and Fisheries Directorate inspectors with enforcement action taken where non-compliance occurs (detailed in clause 2.1.1). Due to flexibility measures and to facilitate adherence to the discard ban catches in recent years have been consistently higher than the TAC set by the Ministry.			
EVIDENCE			
Catches and landings in Iceland are monitored and recorded in a number of complementary ways. Logbooks, either electronic (e-logs) or standard paper based, depending on the vessel, record landings at sea and these are verified and standardised through physical weighing at accredited weigh stations in landings ports throughout Iceland.			
Logbooks are compulsory as required by Regulation No.746/2016 ⁷⁵ . These must be electronic (e-logs) except for smaller vessels which are permitted to still use paper logbooks. 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:			
<ul style="list-style-type: none"> • 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. 			
The e-logs in use are developed and serviced by TrackWell, an Icelandic electronic systems service company; which also provide satellite Vessel Monitoring Systems (VMS) and electronic reporting systems. These			

⁷⁵ <https://www.stjornartidindi.is/Advert.aspx?RecordID=42a16a67-60a7-4ae7-ad7c-0f53fc254654>

systems generate mandatory reports to the Directorate, with data on catches and landings available in near real-time providing a valuable management reporting system for fleet management. The vessel logbook system requires that the operator of a vessel reports information for each haul of the fishing gear to the Directorate including; haul number, date, time, latitude, longitude, catch by species, zone, water depth, seafloor, wind direction, wind speed, gear used, as well as other information. There are also other elements of the system which allow fishing companies to compile the data from their vessel(s) to facilitate better targeting of fishing activity in terms of area, species or size class of product dependent on the market demands at the time and also to ensure better traceability of product. Information is fed from a secure central server to a shared database that is accessible by both the Directorate (for management/ enforcement purposes) and the MFRI (for scientific purposes).

Logbooks are verified at sea by Fisheries Directorate inspectors and by the Coastguard and also on land by inspectors and through physical weighing at accredited weigh stations in landings ports.

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)⁶⁰.

The Minister of Fisheries and Agriculture decides on the TAC of the ling stock for each fishing year (Sept – Aug) in accordance to law (Fisheries Management Act 116), based on HCR and the advice mentioned below. Before catch is allocated, proportions of the TAC of some species is removed for various reasons such as for the coastal fisheries which any small boat in possession of a licence may access, for research purposes or for chartered angling vessels.

Adherence to the advice, including the rule, is shown in Table 11 and Figure 12. For the last decade, both before and after the introduction of the harvest rule in 2017, quotas have been set according to the scientific advice with minor exceptions. Since the introduction of the HCR in the fishing year 2017– 2018, the scientific advice has been according to the rule. Most years, the predicted catch by other nations (Faroese and Norway) has been taken into account when setting the National TAC. The actual catch can deviate from the TAC, up to about 15% in both directions. A likely cause is the year-to-year flexibility that is permitted. Over time, this levels out – the sum of catches is 98.7% of the recommended TAC over the last 10 years. The deviations is to a large extent due to transfers between years, and also between species (Figure 12). A ling quota can be used to cover catches of other species (negative transfers) or quotas of other species can be used to cover catches of ling (positive transfers).

Table 11. Recommended TAC, quotas and reported catches for Icelandic ling.

Fiskveiðiár Fishing year	Tillaga Rec. TAC	Aflamark National TAC	Afli Íslendinga Catches Iceland	Afli annarra þjóða Catches other	Afli alls Total catch
2010/11	7500	7500	9327	768	10095
2011/12	8800	9000	10074	1059	11133
2012/13	12000	11500	11196	1249	12445
2013/14	14000	13500	11717	1683	13400
2014/15	14300	13800	11112	1311	12423
2015/16	16200	15000	9773	1456	11229
2016/17	9343	8143	7291	1135	8426
2017/18	8598 ¹⁾	7598	6948	1625	8573
2018/19	6255 ¹⁾	5200	6927	1101	8028
2019/20	6599 ¹⁾				
2020/21	5700 ¹⁾				

¹⁾ 18% aflaregla. 18% harvest control rule

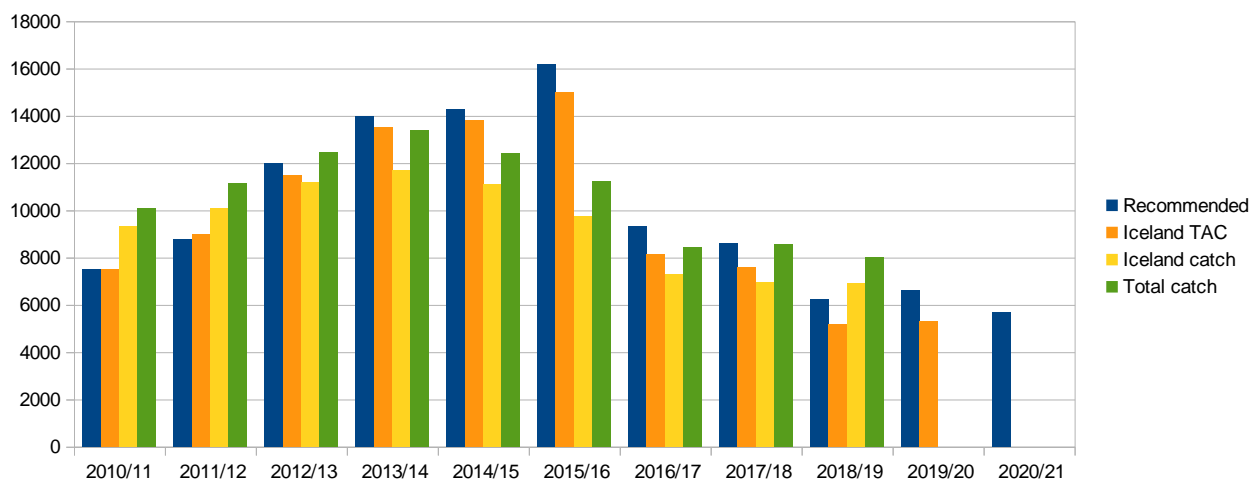


Figure 12. Recommended, decided and realized catches.

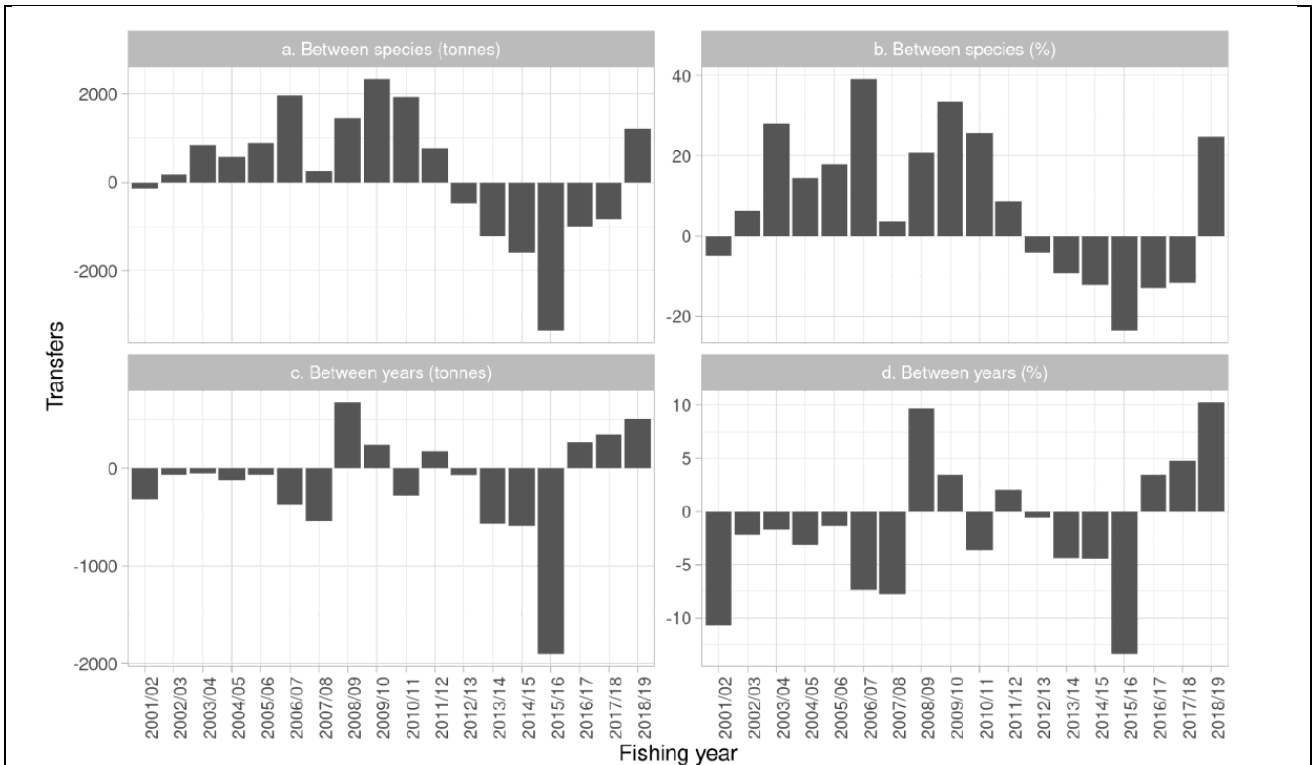


Figure 13. Net transfer of quota to and from ling in the Icelandic ITQ system by fishing year. Between species (upper): Positive values indicate a transfer of other species to ling, but negative values indicate a transfer of ling quota to other species. Between years (lower): Transfer of quota from given quota year to the next quota year.

The MFRI advises the Minister of Industry and Innovation on the exploitation of the Icelandic stocks in June each year; ICES also provide advice. Both ICES and the MFRI advise on research and harvesting policy in general. The recommendation given by the MFRI is peer reviewed by the Advisory Committee (ACOM) of ICES every year.

Clause 2.3 – Monitoring and Control

Clause 2.3.1 – Vessel registration and catch quotas

Supporting Clauses:	2.3.1.1, 2.3.1.2, 2.3.1.3, 2.3.1.4		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>Allocated catch quotas by species to registered vessels are assigned in such a way that the combined quotas conform to the currently effective decision on TAC. Accordingly, information on the size and composition of the fleet of fishing vessels shall be available and documented, and the catch quota of each vessel or vessel group for each fish species and fishing year shall be recorded in the official central database in a transparent manner.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>As the share of the TAC allocated to vessels is based on the number of shares for that particular species that the vessel owns the overall value of quota allocated cannot in the first instance exceed the TAC set by the Icelandic authorities (i.e. the currently effective decision on TAC). Note that within fishing seasons additional inter-annual, inter-species and/or inter-vessel transfers may cause the amount a particular vessel is allowed to catch to increase or decrease.</p>			
EVIDENCE			
<p>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.</p> <p>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.</p> <p>Catches by vessel are monitored and recorded in near real-time in a central database maintained by the Fisheries Directorate⁷⁶. The official weight of the catch is subtracted from that vessels individual quota share for a particular species.</p> <p>Should a vessel not have sufficient quota to cover its landings it may:</p> <ul style="list-style-type: none"> • rent in quota, • transfer quota between species based on the cod equivalent values of each species, • land the catch and keep 20% of the value of the overage (to cover for fuel/crew costs) while forfeiting the remainder 80% to scientific research or, • transfer a limited amount to the following fishing season where it is taken off that vessels individual quota share for that species. <p>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:</p>			

⁷⁶ <http://www.fiskistofa.is/veidar/aflaheimildir/aflahlutdeildalisti/>

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.

Coastal fishing

A total of 677 boats were licensed for coastal fishing in 2020 which is an increase of 48 licenses between years. Permit for coastal fishing are subject to conditions subject to the total allowable catch per day (650 kg cod equivalent) and the duration fishing trips (14 hours a day). The Directorate of Fisheries monitors by respecting these conditions, electronically⁷⁷. Starting 2020 these smaller vessels have been using an app or e-logbook to record and submit all their catch and bycatch⁷⁸. Each inshore fishing boat is authorized to engage in inshore fishing for 12 fishing days within each month.

⁷⁷ http://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf

⁷⁸ <http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skranningu-afla>

Clause 2.3.2 – Fishing vessel monitoring and control systems

Supporting Clauses:	2.3.2.1, 2.3.2.2, 2.3.2.3, 2.3.2.4, 2.3.2.5, 2.3.2.6, 2.3.2.7, 2.3.2.8, 2.3.2.9, 2.3.2.10, 2.3.2.11, 2.3.2.12, 2.3.2.13, 2.3.2.14, 2.3.2.15, 2.3.2.16, 2.3.2.17		
Important Note:	Clause 2.3.2.17 represents a new Clause in IRFM Standard v2.0 and is scored separately in Appendix 2 .		
Clause Guidance:	<i>A program for the monitoring and control of fishing vessel activities shall be operated and enforcement shall be in place to prevent fishing by unauthorised vessels. Closed areas shall be monitored, the fishing gear and fishing logbooks shall be subject to inspection, as well as the composition of the catch and its handling onboard the fishing vessels. Catch amounts by species and fishing area shall be estimated and continually recorded in fishing logbooks on-board the fishing vessels. Discarding of catch from the stock under consideration shall be prohibited, those that may occur shall be monitored and all catches shall be landed in authorised fishing ports where harbour officials and fisheries inspectors shall monitor the correct weighing and registration of the catch. Accordingly, vessels must comply with all relevant National Fishery Management measures.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input checked="" type="checkbox"/>	High <input type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input checked="" type="checkbox"/> None <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>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. 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.</p> <p>Discarding is monitored, by comparing the catches of vessels fishing in the vicinity of each other and, where unusual activity is detected, implementing closer surveillance of the vessel/s involved.</p> <p>Data related to landings are processed in the Directorate’s database and catches are subtracted from vessels’ quotas. Deviations where they occur can sometimes be rectified using the flexibility within the system (e.g. by using inter-annual, inter-vessel or inter-species transfers to cover catches of a species for which the vessel did not already have quota). Excess catches which are not corrected using these flexibility measures can result in a revocation of fishing licenses and fines.</p> <p>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, resulting in a Minor Non-conformance against supporting clause 2.3.2.4. Following the issuance of this non-conformance, and in accordance with rules of the IRF Programme, the Client has submitted a Corrective Action Plan (CAP) to address the non-conformance raised within a defined period. Updates on corrective action are presented here.</p>			
EVIDENCE			
<p>The Icelandic Coast Guard administers the VMS for all Icelandic vessels and for all foreign vessels (including fishing vessels) that enter Icelandic waters as part of an integrated monitoring, control and surveillance system. The purposes of the system are numerous, and it incorporates several related services including</p>			

maritime traffic control, marine search and rescue, fisheries enforcement, coastal radio and border control in a single Operations Centre⁷⁹. The Directorate of Fisheries produce a risk analysis for the Coast Guard, enabling a strategic, risk-led approach to surveillance and best use of available resources over the large area monitored. The fisheries MCS system in Iceland has at its core the effective use of available technology meaning relatively small staff numbers can achieve extensive monitoring of the Icelandic fishing industry.

The integrated system uses all available data such as identification of the vessel, its movements, IUU lists, notifications, reports, fishing licenses, permits, port State control reports, etc. and has proved to be effective in combating and eliminating IUU fishing in the EEZ and the North Atlantic Ocean. Bilateral tracking agreements are in place with Greenland, Faroe Islands, Norway and Russia whose vessels must follow automatic procedures and report catches daily.

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). The assessment team has visited the Operation Centre and witnessed these systems in use.

The VHF and AIS systems have a range of 30 – 60 nautical miles while the satellite-based VMSs can be used anywhere in the world. The use of complementary systems ensures that the limitations that arise when any one system is used in a standalone capacity are mitigated. These electronic MCS systems are further backed up by more traditional methods of surveillance such as patrol vessels and aircraft; indeed, the use of electronic systems in the effective targeting of traditional surveillance methods increases the efficiency of these systems. Recently satellite imagery has been added to the list of surveillance methods (80 images are taken each month) which can be used for example in detection of the uncommon occurrence of vessels not using VMS.

Starting in 2020 (as communicated during the remote audit conference call), the ICG started using drones, initially to monitor coastal and salmon fisheries. Through the HD cameras on board they can monitor the activities of the coastal fleet including gillnetters, and compare catches between nearby boats to check for discards. This is done in the context of risk assessment, especially for areas where road access is problematic. The use of drone is intended as a preventative measure to discourage potential violators, and for monitoring purposes.

Emphasis is placed on data analysis including the use of VMS data in conjunction with other sources (e.g. IUU vessel lists, vessel registries, fishing licences, permits, port State control reports). The schematic below outlines the main inputs which make up the integrated MCS system in Iceland.

⁷⁹ http://www.lhg.is/media/LHG80/Landhelgisgasla_Islands_enska2_.pdf

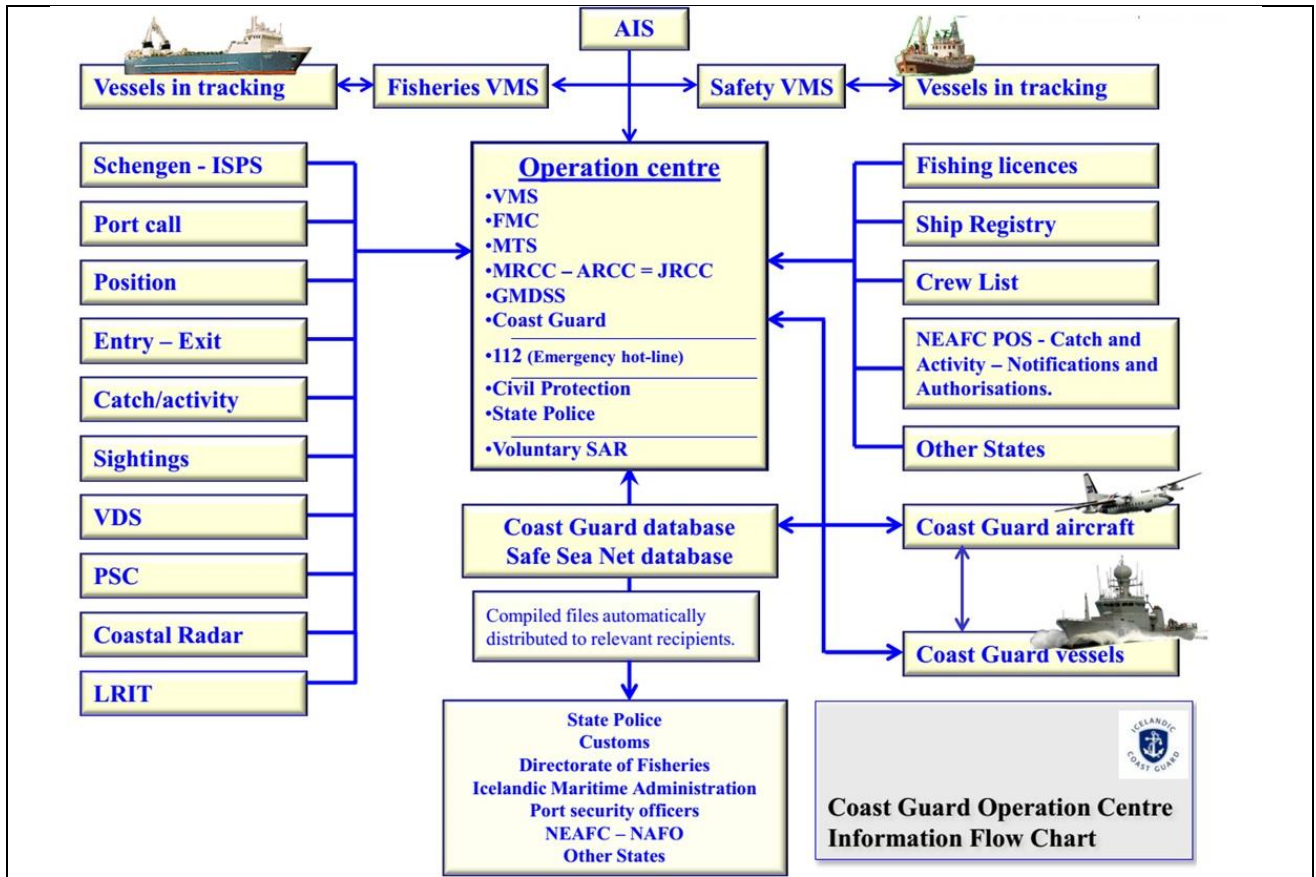


Figure 14. Schematic outlining the inputs which make up the integrated Monitoring, Control and Surveillance (MCS) system in Iceland (Source: presentation entitled Iceland’s application for membership of the EU. Chapter 13, 28 February Icelandic Coast Guard ERS/VMS/AIS⁸⁰).

The Coastguard conduct unannounced at-sea vessel boarding’s in order to inspect gear, catch and catch records including logbooks as well as to perform inspections of mandatory safety equipment. The Coast Guard is currently investigating additional means to enhance detection of discarding to enhance the confidence of current discard estimates.

Inspectors of the Fisheries Directorate also accompany fishing vessels at sea during which they check fishing methods and catches, including gear configuration, mesh sizes, validity of fishing permits, correct recording in logbooks, the weighing and recording of catches as well as the species and size composition of the catch. The catch of vessels that are permitted to fully process catches on board is converted into a live weight based on the measured utilisation of the catch. The inspectors check that samples taken to monitor this process are correctly taken and accurately reflect the processing utilisation^{81 82}. It is a legal requirement that vessels give inspectors of the Fisheries Directorate and the Coast Guard access to their logbooks (see Article 8 of regulation on logbooks No. 746/2016)⁸³.

⁸⁰ <https://slideplayer.com/slide/4644333/>

⁸¹ The Icelandic Directorate of Fisheries – Responsibilities and main tasks. Page 8.

http://www.fiskistofa.is/media/utgefid_efni/DOF.pdf

⁸² Fiskistofa Annual Report, 2017. Maritime surveillance chapter. <http://www.fiskistofa.is/umfiskistofu/arsskyrsla-2013/eftirlit-a-sio/>

⁸³ <https://www.stjornartidindi.is/Advert.aspx?RecordID=42a16a67-60a7-4ae7-ad7c-0f53fc254654>

Clause 2.3.2.4 – Minor Non Conformance

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. During the 2021 remote audit, 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 298/2020⁸⁴. The App also called Afladagbókina or catch diary^{85 86} 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.

Status: Open, Corrective Actions in place to be reviewed annually in subsequent audits. Corrective actions are deemed to be on track.

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.

Short term closures

Closures can be short-term (sudden closures) or long-term (regulatory closures)⁸⁷ and are primarily monitored and enforced by the Icelandic Coast Guard using the VMS system⁸⁸. Vessels fishing in proximity to closed areas are monitored at the Coast Guard Operation Centre and vessels are directly contacted if they approach or encroach on prohibited areas; this is the first point at which the Coast Guard operator may issue a warning to the vessel and decide to escalate if necessary.

Data on Fiskistofa and ICG enforcement activities, including short term closures for the past year has been provided in Clause 2.1.

Discards

Discarding of commercial species is prohibited by law in Iceland (Article 2 of the Act Concerning the Treatment of Commercial Marine Fish, No. 57/1996) and this includes ling, although its discards are considered to be negligible, as discussed in earlier clauses. This means that if vessels do not have sufficient quota to cover the species they have caught they are required to attain quota through the quota transfer system. Consequently, if vessels do not have sufficient catch quotas for their probable catches they must suspend all fishing activities. Discarding is subject to penalty⁸⁹ (400,000 to 8,000,000 ISK or about 3,000 to 60,000 EUR). As noted in previous clauses, catches are monitored and should the composition of the catch (species, size) or its quality differ from other vessels fishing in the vicinity, the Fisheries Directorate has powers to place the vessel under closer surveillance by placing an inspector on board for one day or fishing trip. The vessel must pay the Directorate's costs (e.g. inspector wages) if this occurs more than once in a fishing year (Article 13 of Act No. 57/1996).

⁸⁴ <https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21887>

⁸⁵ <http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla>

⁸⁶ https://www.mbl.is/200milur/frettir/2020/08/31/oll_aflaskraning_rafraen_fra_og_med_morgundeginum/

⁸⁷ <http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Krokaaflamarksbatar>

⁸⁸ http://www.lhg.is/media/LHG80/Landhelgisgasla_Islands_enska2_.pdf

⁸⁹ <https://www.althingi.is/altext/pdf/131/s/0982.pdf>

The discard ban 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 Fisheries Commission Project or 'VS fund', under the auspices of the Ministry). The maximum of 20% return on VS catches means that there are limited incentives to land it; however, having the VS catch provisions within the fisheries management system allows the flexibility for vessels to land small catches which are outside their specific quota, preventing discards, improving the treatment of the fishery resource and promoting responsible fishing practices.

A discard project has been established by the Fisheries Directorate, in collaboration with the MFRI, to examine and evaluate discarded fish under a specific length and with a specific fishing gear. The project focuses on cod and haddock. The results of the research are published in Fiskistofa's annual report⁹⁰.

VS catches for the main Icelandic species are presented below.

Table 12. Season 2019/2020, VS catches⁹¹. Source Fiskistofa.

Species	Catch per season				Total ungutted fish (kg)
	1.9.2019 - 30.11.2019	1.12.2019- 29.2.2020	1.3.2020- 31.5.2020	1.6.2020- 31.8.202	
Porskur / cod	178.916	177.601	498.802	224.56	1.079.879
Ýsa/ haddock	61.934	162.666	226.355	127.595	578.550
Ufsi / saithe	666	1.853	34.069	4.31	40.898
Karfi/gullkarfi / redfish	1.574	295	18.162	12.121	32.152
Langa / link	4.562	4.453	18.533	10.185	37.733
Keila / tusk	8.768	1.396	3.313	1.45	14.927
Steinbítur / Atlantic wolffish	3	13	4.134	716	4.866
Skötuselur / anglerfish	0	2	3	0	5
Aðrar tegundir / other species	49.881	17.631	50.318	101.288	219.118
Total	306.304	365.91	853.689	482.225	2.008.128

Landings

All Icelandic catches from Icelandic waters must be landed and weighed in registered Icelandic ports. Exceptions are made for special circumstances e.g. serious engine failure in which case the Fisheries Directorate may authorise landings abroad (Article 5 of Act No. 57/1996).

Separation by species (if not already done on board), weighing and recording of the catch must occur within two hours of landing. Weighing is undertaken on official port scales certified by the Fisheries Directorate and operated by individuals authorised by the Directorate.

As required by Article 10 of Regulation No. 745/2016, each landing generates a weighing receipt^{92,93} recording:

- Vessel name, registration number and district number;
- Landing port and date of landing;

⁹⁰ <http://www.fiskistofa.is/umfiskistofu/arsskyrsla-2016/>

⁹¹ <http://www.fiskistofa.is/veidar/aflastada/vs-afli/vsafli.jsp>

⁹² <https://www.fmis.is/blank>

⁹³ <http://www.unuftp.is/static/fellows/document/pan09prf.pdf>

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

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. Monitoring of weighing license holders is risk-based with the aim of directing surveillance where it is most needed. Assessment of risk is based on various factors such as the quantity weighed, number of weighings, the number of vessels that land with the licensee concerned, etc. Recently, attention has been focussed on the percentage of ice measured during weighing of catches by weighing licensees. After gross weighing on the port scale, it is permissible to send catch for re-weighing in fish processing companies or on a fish market which has been authorized for re-weighing catch. The catch is then either balanced or sampled according to certain rules, ice is separated, and the net weight of the fish is found.

During the 2021 remote audit, Fiskistofa confirmed that they worked on this issue by increasing surveillance. As a result, two more cases were detected in 2020. The results of this surveillance are published online to show the violations and deter other potential violators⁹⁴.

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 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.

Furthermore, Fiskistofa supervised re-weighing 81 times during the 2019/2020 fishing season. 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.⁹⁵

Deviations and flexibility measures

As noted in clause 2.1, data related to landings are processed in the Directorate's database and catches are subtracted from vessels' quotas. The system is designed such that reports are received in near real-time so that the Directorate can act quickly if vessels are approaching the end of their quotas. In addition, vessels are aware or can easily check online their current quota status for a particular species. All processors purchasing

⁹⁴ <http://www.fiskistofa.is/umfiskistofu/frettir/hlutfall-kaelimidils-mai-til-agust>

⁹⁵ http://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf

fish, be it directly or at auction, are obliged to submit monthly reports to the Directorate. In addition, the fish auction reports all sales of fish directly to the Directorate.

Deviations where they occur can sometimes be rectified using the flexibility within the system (e.g. by using inter-annual, inter-vessel or inter-species transfers to cover catches of a species for which the vessel did not already have quota). Excess catches which are not corrected using these flexibility measures can result in a revocation of fishing licenses and fines⁹⁶.

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.

Gear loss and marking

There are a number of initiatives and regulations in place to avoid the loss of fishing gear such as longline and gillnet and subsequent ghost fishing of lost and abandoned gear. Where the Fishing Directorate finds and recovers lost or abandoned gear they recover the cost of recovery from the gears' owner. The Coastguard also reports any buoys it feels might represent lost or abandoned fishing gear to the Directorate. All regulations relating to fishing gear may be found in the various Articles of Fisheries Management 2020/2021 Laws and regulations⁹⁷. During the November 2018 site visits and the current remote audit in 2021, the directorate confirmed that gear loss (e.g. longlines, gillnets) and as such ghost fishing is not considered an issue in Iceland, in part because of the ITQ system, and that reporting lost gear is compulsory. Another important factor that contributes to low levels of lost fishing gear is the high price of that gear. This means that fishers are careful to avoid losing their gear. In the case of trawls the majority of vessels carry special grapples onboard that allow them to retrieve lost gear even when both towing warps have parted, which is a rare situation. The Icelandic ITQ system allows for a slower paced fishery than would be expected if there was only an overall TAC with all boats fishing against it. The system allows fishers to target their efforts in optimum weather conditions leading to decreased rates of lost fishing gear.

⁹⁶ <http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/#Vidurlog>

⁹⁷ https://vefbirting.prentmetoddi.is/raduneyti/stjorn_fiskveida_2020-21/94/

Clause 2.3.3 – Catches are subtracted from relevant quotas

Supporting Clauses:	2.3.3.1, 2.3.3.2, 2.3.3.3, 2.3.3.4, 2.3.3.5		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>Landed catches shall be subtracted from the relevant quotas (allowable catch) of the vessel or vessel group. Limited allowance may be made for the use of quota for one species to count against landings of another species, with the objective of providing the necessary minimum flexibility and discouraging discards. Transfer of quota between vessels shall take effect only after it has been authorised and recorded to the official central data base and information on each vessels catch quota and quota use shall be updated regularly and made public and accessible to all on the official website, thus ensuring transparency.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/> None <input checked="" type="checkbox"/>
SUMMARY EVIDENCE			
<p>Landed catches are subtracted from the relevant quotas (allowable catch) of the vessel or vessel group. Vessels must weigh catch within two hours of landing. The official weighed catch for each vessel is then submitted by the Port Authority to the Fisheries Directorate’s catch registration system and deducted from the vessel’s quota. Comparison of the official weighed catch is made with the vessels logbook as part of this process. Transfers of quota to meet any shortfall are also monitored to ensure any additional quota required is secured. Processed at sea catch is also monitored, including its conversion to live weights which are then deducted from the vessel’s quota.</p> <p>Some flexibility occurs in the quota management system so that the species composition of catches may be matched with the quota portfolio available to individual fishing vessels and to discourage discarding. This includes provision for some limited quota transfer between different species using ‘cod-equivalents’.</p>			
EVIDENCE			
<p>As noted in clause 2.1, information from fresh fish landings is collected through the portside official weighing system which is carried out by official staff and calibrated systems. Vessels must weigh catch within two hours of landing on the quay. The system is developed to standardise weights and tares for ice and tubs (a standard tub is used throughout Iceland for fresh fish and has a capacity of 280-300 kg). The weight registration document for each vessel is transmitted to the Directorate which also receives the e-logbook information. These two sets of information are then compared, and the appropriate reduction is made to the vessel quota. Any transfer under the ITQ system for each vessel is also monitored to ensure that any additional quota requirements are rented from other vessels within a 3-day period as required by law (Act No. 57/1996). The reporting system is near real time (circa. 24 hours).</p> <p>The officially weighed catches are the official catch of record on which subsequent deductions from vessels’ quota is based with e-log information being used as a secondary source to ensure accuracy.</p> <p>Processed at sea catch is 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.</p> <p>Cod equivalents</p> <p>The determination of cod equivalent coefficients is based on Article 19. Act no. 116/2006 on fisheries management:</p>			

The Ministry shall calculate the cod equivalent before 15 July each year for each species that is subject to a decision on fisheries management, cf. Article 20, and take into account a twelve-month period beginning on 1 May of the previous year and ending on 30 April. Cod equivalents shall be calculated as the proportion of the value of individual species that are subject to a decision on the management of fishing of the value of gutted cod. The value calculation shall be based on the total catch volume and the total value of these species according to information from the Directorate of Fisheries. When fish is sold fresh abroad, 88% of its sales value shall be used. In the case of demersal fish, with the exception of redfish, gutted fish shall be used.

The following factors are in accordance with the decisions of the Ministry of Fisheries on the value ratios of individual species and apply to the relevant fishing year. The cod equivalent coefficients of several species are based on calendar years, e.g. 2001/2002 = 2002, 2000/2001 = 2001 etc. This applies to Norwegian-Icelandic herring, Arctic cod, blue whiting, redfish and shrimp in the Flemish Basin. Figures for cod equivalents are available at <http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/thorskigildisstudlar/>.

All transfers of quota must be authorised by the Fisheries Directorate. The Directorate of Fisheries must be notified of the transfer of quota and must receive this no later than 15 days after the end of the fishing season. Application forms for the transfer of quota are available online⁹⁸ and must be transmitted directly to the Directorate for authorisation of the transfer. Information on the catch quota, including quota transfers, of each vessel or vessel group, is recorded in the official central database (GAFL) (see evidence presented in clause 2.3.1.3).

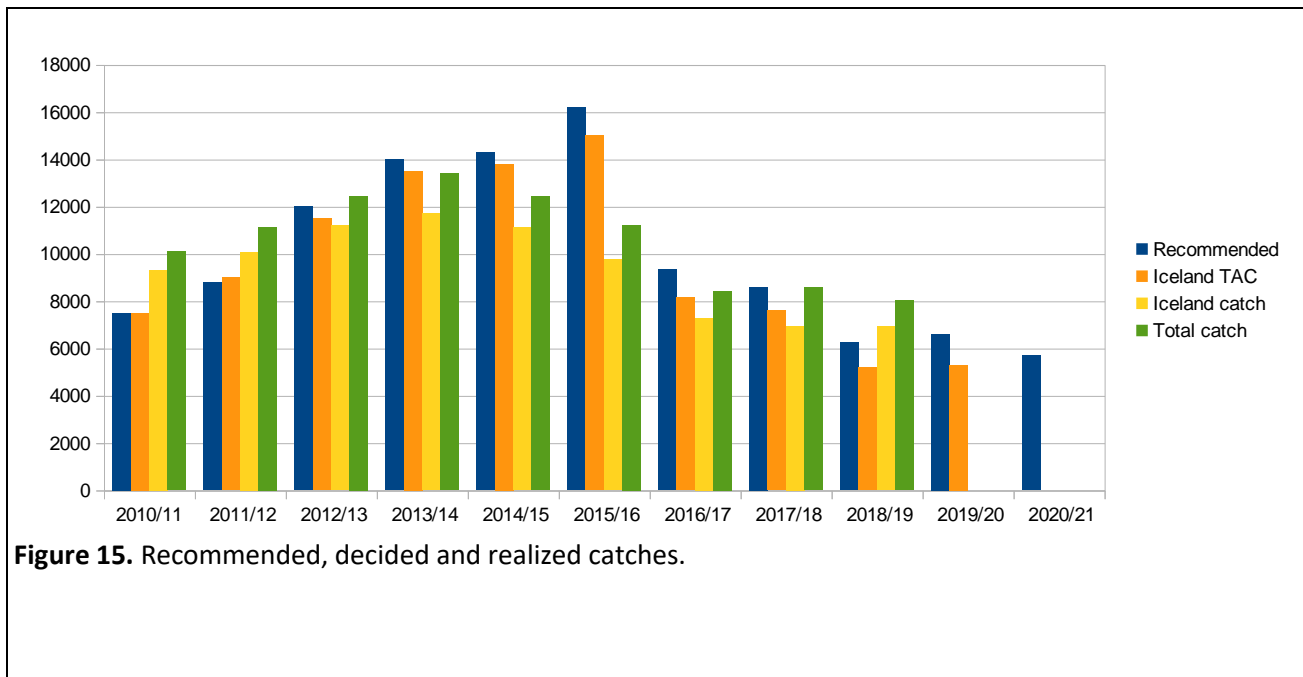
⁹⁸ <http://www.fiskistofa.is/eydublod/flutningurveidiheimilda/>

Clause 2.3.4 – Rules are enforced

Supporting Clauses:	2.3.4.1		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	Surveillance and enforcement of rules are carried out by the Icelandic Coastguard, the Marine Research Institute and the Fisheries Directorate. There are various penalties for serious infractions depending on the nature of the infraction and the number of times the offender has contravened the regulations.		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
Rules are enforced by the Icelandic Coast Guard and Fiskistofa. The overall level of compliance appears to be adequate.			
EVIDENCE			
<p>There is a clearly established legal framework which sets out rules and regulations relating to fishing activity within Icelandic waters and gives powers to the Ministry, the Fisheries Directorate, the Coast Guard and the MFRI to monitor fishing activities and enforce these rules. The penalties for violation of the laws and regulations have been described in clause 2.1 and range from the issue of reprimands by the Directorate of Fisheries and the suspension of commercial fishing permits to confiscation of gear and catch, fines and, in cases of serious or repeated deliberate violation, imprisonment for up to six years (for example, Articles 24 and 25 of Act No. 116/2006⁵⁵; Articles 15-17 of Act No. 79/1997^{Error! Bookmark not defined.}; Chapter 4 of Act no. 57/1996⁵⁶).</p> <p>Rules are enforced by the Icelandic Coast Guard and Fiskistofa. The overall level of compliance appears to be adequate. Please refer to the information, tables and figures provided under clause 2.1.</p>			

Clause 2.3.5 – Analysis is carried out

Supporting Clauses:	2.3.5.1, 2.3.5.2, 2.3.5.3		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>Analysis shall be carried out with the aim of detecting any deviations that may occur of the actual total catch from the Total Allowable Catch (TAC). Measures are available and are adopted when indicated. Anyone purchasing and/or selling catches shall be obligated to present reports to the appropriate authorities, containing information on the purchase, sale and other disposition of fish catches.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
Analysis shall be carried out with the aim of detecting any deviations that may occur of the actual total catch from the Total Allowable Catch (TAC). Measures are available and are adopted when indicated.			
EVIDENCE			
<p>Given the fact that all catches are recorded on the central database any deviations between actual total catch and the TAC for a particular species are easily detectable. Note that deviations may be attributable to the legitimate inter-species, inter-vessel or inter-annual quota transfers but, in any case, where there are anomalies analysis is carried out to determine the root cause of the deviation. Reasons for deviations include the following:</p> <ul style="list-style-type: none"> • Transfer of quotas between years, which is legal within bounds. • Transfer of quotas between species is possible to some extent, but quotas of other species cannot be used to cover cod catches. • The smallest boats have a different system for limiting catches, which is essentially an effort control system. Predicted catches in that system were accounted for when setting the general TAC in the ITQ system, but the catches tended to exceed predictions. The current effort control system for the small boats that started in 2009, includes TAC constraint so catches should not exceed TAC by large amount (1-2%). • There are some fisheries outside the general quota system, see Clause 1.1.3 • Catches that would be illegal to sell (for example undersized fish) shall still be landed and sold, but the vessel gets only a minor part of the payment. The rest goes to a fund to support research. The amount is only partially subtracted from the quota. • The Faroes and Norway have some small fishing rights in Icelandic waters which in some, but not all years have been accounted for when setting the national quota. <p>For the last decade, both before and after the introduction of the harvest rule in 2017, ling quotas have been set according to the scientific advice with minor exceptions, as shown in the Figure below. Since the introduction of the HCR in the fishing year 2017– 2018, the scientific advice has been according to the rule. Most years, the predicted catch by other nations (Faroes and Norway) has been taken into account when setting the National TAC. The actual catch can deviate from the TAC, up to about 15% in both directions. A likely cause is the year-to-year flexibility that is permitted. Over time, this levels out – the sum of catches is 98.7% of the recommended TAC over the last 10 years. The deviations is to a large extent due to transfers between years, and also between species. A ling quota can be used to cover catches of other species (negative transfers) or quotas of other species can be used to cover catches of ling (positive transfers).</p>			



7.3. Section 3: Ecosystem Considerations

Clause 3.1 – Guiding Principle

Supporting Clauses:	3.1.1, 3.1.2		
Important Note:	<p>Clause 3.1.1: Text added (Bold) in IRFM Standard v2.0: <i>Adverse impacts of the fishery on the ecosystem shall be considered and appropriately assessed and effectively addressed, consistent with the precautionary approach</i>⁹⁹.</p> <p>Clause 3.1.1 (minor change) – consistency with precautionary approach specifically addressed below.</p>		
Clause Guidance:	<p><i>Adverse impacts of the fishery on the ecosystem (e.g. bycatch, ETP species interactions, habitat and foodweb interactions etc.) shall be considered, appropriately assessed and effectively addressed. Those impacts that are likely to have serious consequences shall be addressed. This may take the form of an immediate management response or further analysis of the identified risk.</i></p>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>Since the Icelandic groundfish fishery of which common ling is part of is multispecies in nature with vessels simultaneously targeting numerous species, habitat and bycatch effects are generally attributed to the fishery as a whole rather than to any species in particular. Most commercially fished species in Iceland, target or non target, are now part of the ITQ system and as such they are retained and accounted for within the catch accounting system operated by Fiskistofa. Discarding is prohibited. There are vulnerable and /or Endangered, Threatened and Protected (ETP) species occurring in Icelandic waters according to OSPAR.</p> <p>E-logbooks recording of all marine mammals and seabirds catches (by species and numbers) is a legal requirement (Reg. 126/2014). A smartphone App has been deployed by the Directorate of Fisheries to make both reporting and identification of bycatch easier for small boat operators in the fishery. Interactions between fishing gears and the seabed are highly dependent on gear type with towed bottom gears such as demersal trawls and dredges having a greater impact than static gear such as longlines, set nets or pots.</p> <p>It is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs; coldwater corals and hydrothermal vents), from significant adverse impact from bottom contacting gear. Large areas within the Icelandic EEZ are closed, either temporarily or permanently, to fishing for a variety of reasons; these include the protection of juveniles, spawning fish and VMEs. Cumulatively, a large portion of Icelandic shelf area within which fishing activities occur is closed to bottom trawling.</p>			
EVIDENCE			

99 In this context refer to 2009 FAO Guidelines for Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries, Article 31: Adverse impacts of the fishery on the ecosystem should be appropriately addressed. Much greater scientific uncertainty is to be expected in assessing possible adverse ecosystem impacts of fisheries than in assessing the state of target stocks. This issue can be addressed by taking a "risk assessment/risk management approach". For the purpose of development of ecolabelling schemes, the most probable adverse impacts should be considered, taking into account available scientific information, and traditional, fisher or community knowledge provided that its validity can be objectively verified. Those impacts that are likely to have serious consequences should be addressed. This may take the form of an immediate management response or further analysis of the identified risk....

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 ling full assessment¹⁰⁰ (i.e. the previous audit). A status update on each of these species is provided below.

Status of bycatch and associated species in the common ling target and non-target fisheries as identified during the full assessment from historic average catches for each relevant gear type. All data and information is derived from the MFRI Advice page¹⁰¹ for each individual species.

PORSKUR – COD (*Gadus morhua*)¹⁰²

Estimated spawning stock biomass (SSB) has increased in recent years and has not been larger in almost 60 years. Harvest rate has declined and is at its lowest value in the assessment period. Recruitment since 1988 (mean = 140) is lower than the average recruitment in the period 1955–1985 (mean = 205). The increase in SSB is therefore primarily the result of lower harvest rate. Sizes of the year classes 2014 and 2015 are near the long-term average but year class 2016 is small.

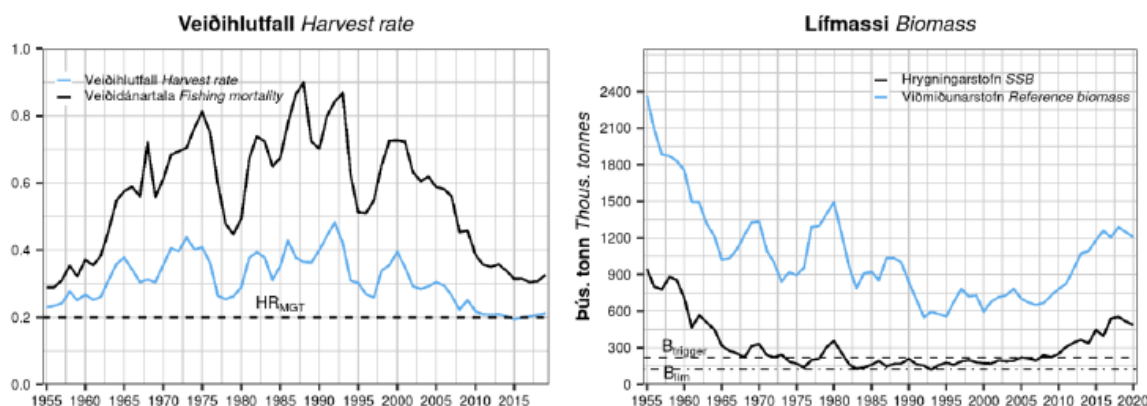


Figure 16. Icelandic cod harvest rate and biomass.

ÝSA – HADDOCK (*Melanogrammus aeglefinus*)¹⁰³

The spawning-stock biomass (SSB) has decreased since 2008, but stabilized above MSY Btrigger in recent years. The harvest rate is currently estimated above HRMGT = HRMSY. Recruitment is highly variable and has increased since 2015.

¹⁰⁰ <https://www.responsiblefisheries.is/media/1/form-11.2-icel-ling-initial-assessment-final-report-and-determination-1.pdf>

¹⁰¹ <https://www.hafogvatn.is/en/harvesting-advice>

¹⁰² <https://www.hafogvatn.is/static/extras/images/01-cod1206996.pdf>

¹⁰³ <https://www.hafogvatn.is/en/moya/extras/categories/radgjof/ysa>

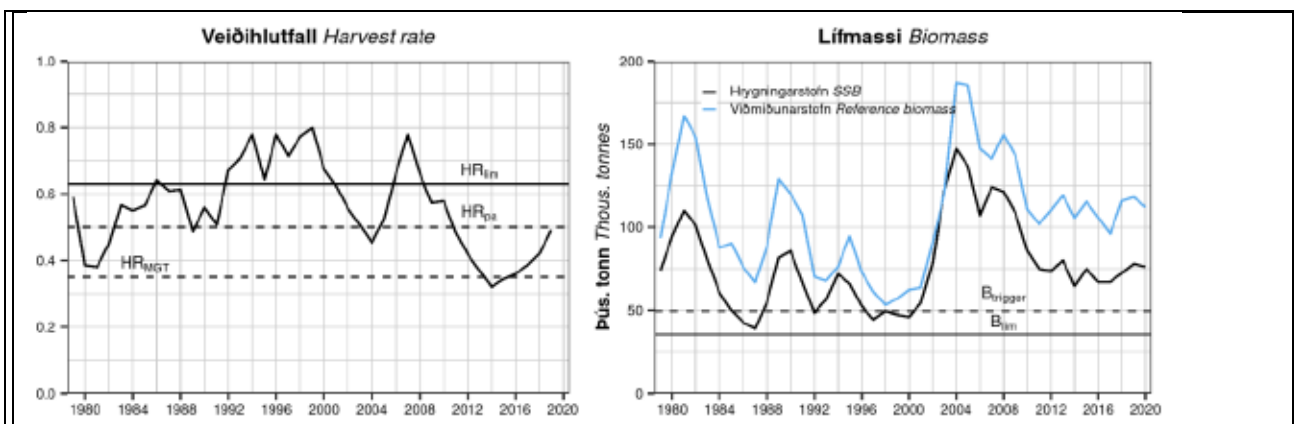


Figure 17. Icelandic haddock harvest rate and biomass.

UFSI – SAITHE (*Pollachius virens*)¹⁰⁴

The spawning-stock biomass (SSB) is currently at the time-series maximum. The harvest rate has declined from 2009 and is presently estimated below HR_{MGT}. Recruitment in the last decade has been high. The reference biomass has increased since 2015 due to the large 2012 year class. Year classes 2013 and 2014 are estimated to be above average but year class 2015 small.

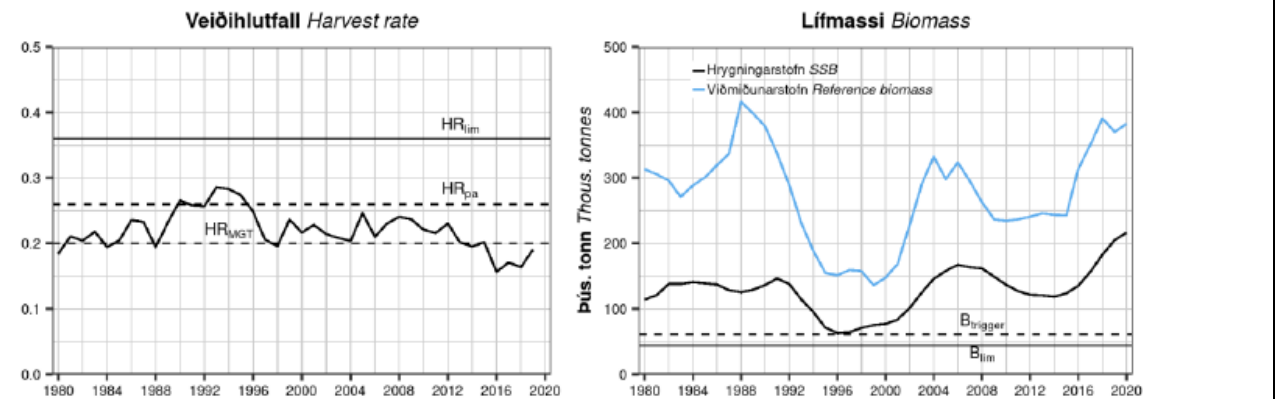


Figure 18. Icelandic saithe harvest rate and biomass.

GULLKARFI – GOLDEN REDFISH (*Sebastes norvegicus*)¹⁰⁵

Spawning-stock biomass (SSB) steadily increased from 2002–2015 and then showed a decreasing trend but remains well above MSY B_{trigger}. Fishing mortality has decreased in the past two decades but is above F_{MSY}. The 2009–2013 year classes are estimated to be record lows in the time series.

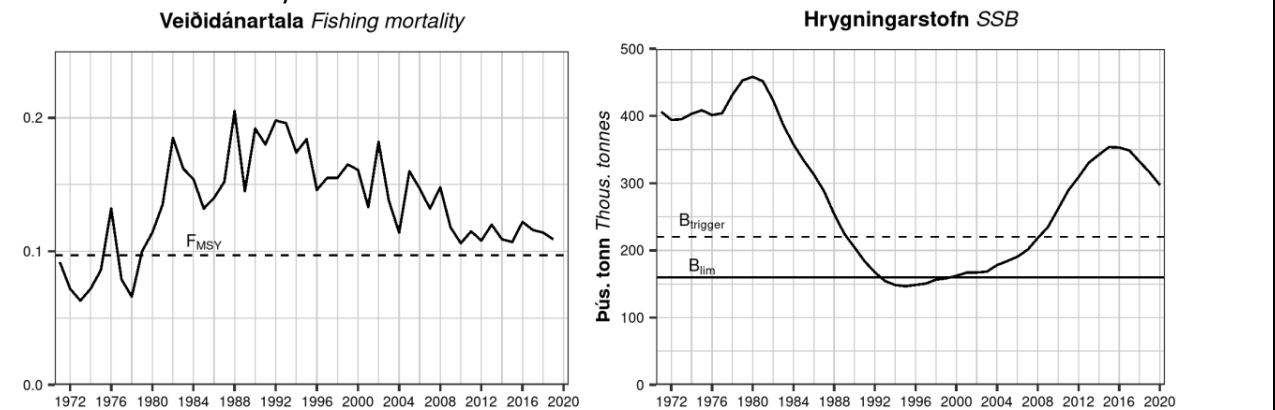


Figure 19. Icelandic golden redfish harvest rate and biomass.

¹⁰⁴ <https://www.hafogvatn.is/en/moya/extras/categories/radgjof/ufsi>

¹⁰⁵ <https://www.hafogvatn.is/en/moya/extras/categories/radgjof/karfi>

DJÚPKARFI – DEMERSAL BEAKED REDFISH (*Sebastes mentella*)¹⁰⁶

The IS-SMH biomass index has been variable since 2012. Since 2007, survey estimates have consistently shown very low estimates for juveniles (≤ 30 cm). The biomass index shows some stability in recent years although recruitment is very limited and cause for caution. Catches in the previous 5 years have generally been in agreement with advice and TAC.

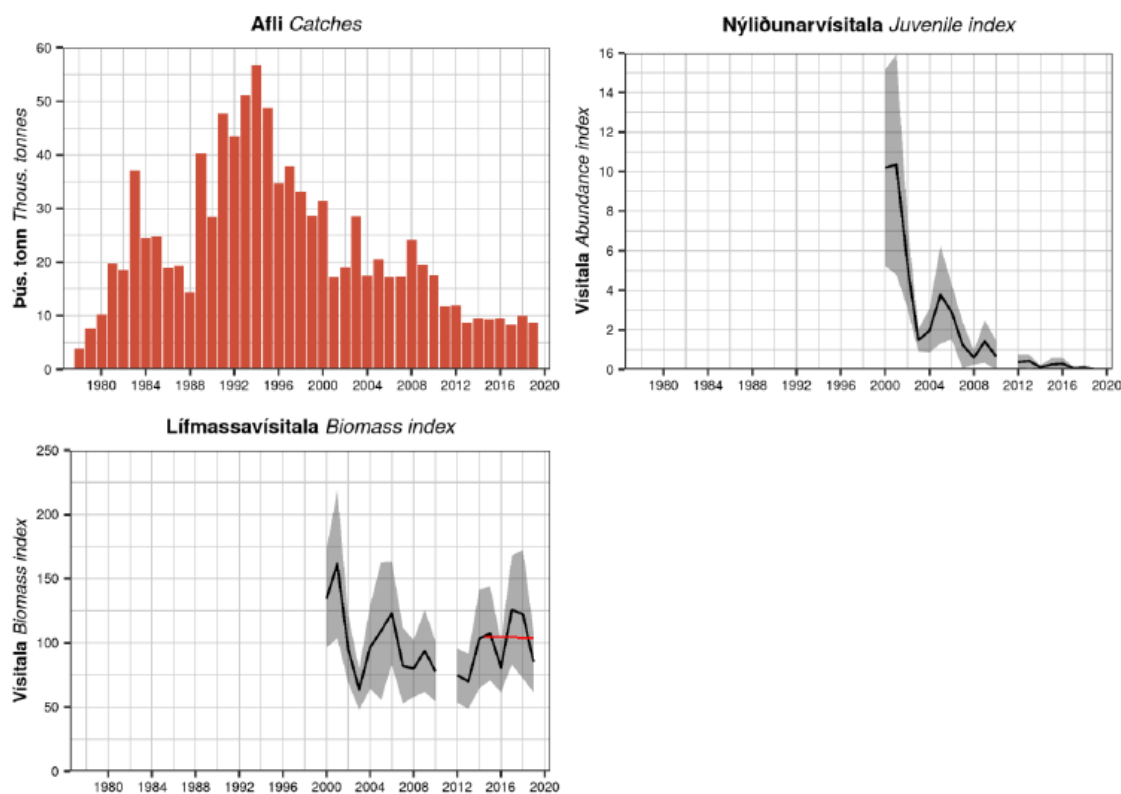


Figure 20. Icelandic demersal beaked redfish biomass. Red horizontal lines indicate average biomass indices for 2015–2017 and for 2018–2019 used in the advice calculations.

GRÁLÚÐA – GREENLAND HALIBUT (*Reinhardtius hippoglossoides*)¹⁰⁷

The stock biomass is stable and is above MSY Btrigger. Fishing mortality is estimated to be above FMSY.

¹⁰⁶ <https://www.hafogvatn.is/static/extras/images/61-demersalsmentella1206848.pdf>

¹⁰⁷ <https://www.hafogvatn.is/static/extras/images/22-greenlandhalibut1206853.pdf>

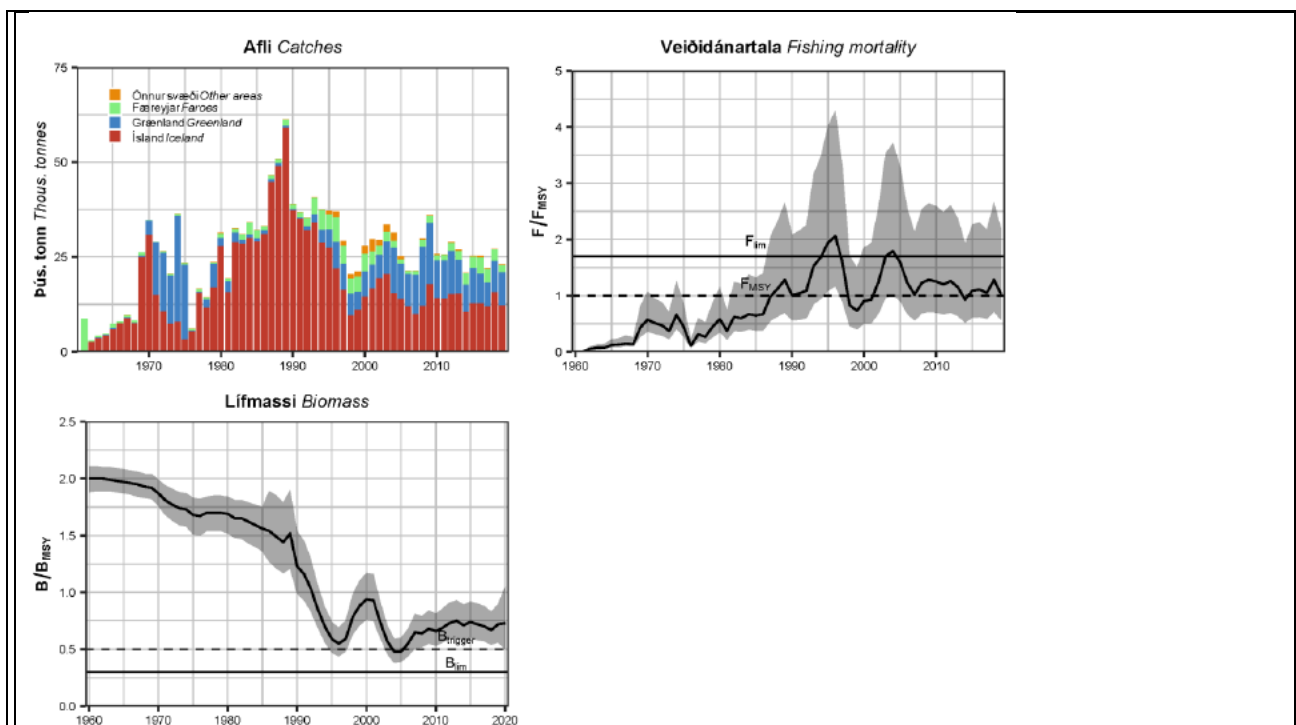


Figure 21. Greenland halibut harvest rate and biomass.

STEINBÍTUR–ATLANTIC WOLFFISH (*Anarhichas lupus*)¹⁰⁸

Harvestable biomass declined from 2006–2013 but has increased since then and is now close to the highest level in the assessment history. Fishing mortality has been below FMSY since 2013. Recruitment has been low since 2006, as compared to the two preceding decades.

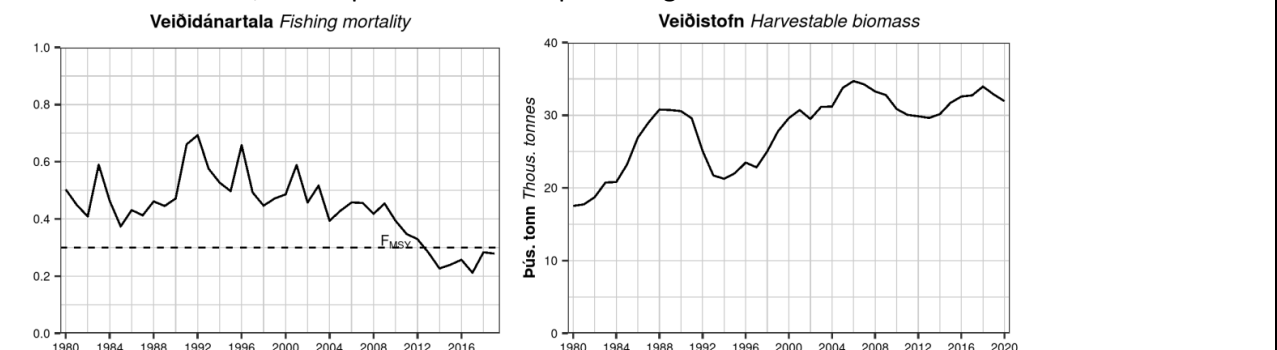


Figure 22. Atlantic wolffish harvest rate and biomass.

GULLLAX – GREATER SILVER SMELT (*Argentina silus*)¹⁰⁹

The spawning-stock biomass (SSB) is estimated at historical high level and has increased continuously since 2012. Fishing mortality has decreased significantly since 2013 and is now well below FMSY. Recruitment shows an increasing trend since 2006.

¹⁰⁸ <https://www.hafogvatn.is/static/extras/images/09-atlanticwolffish1206916.pdf>

¹⁰⁹ <https://www.hafogvatn.is/static/extras/images/19-greatersilversmelt1206861.pdf>

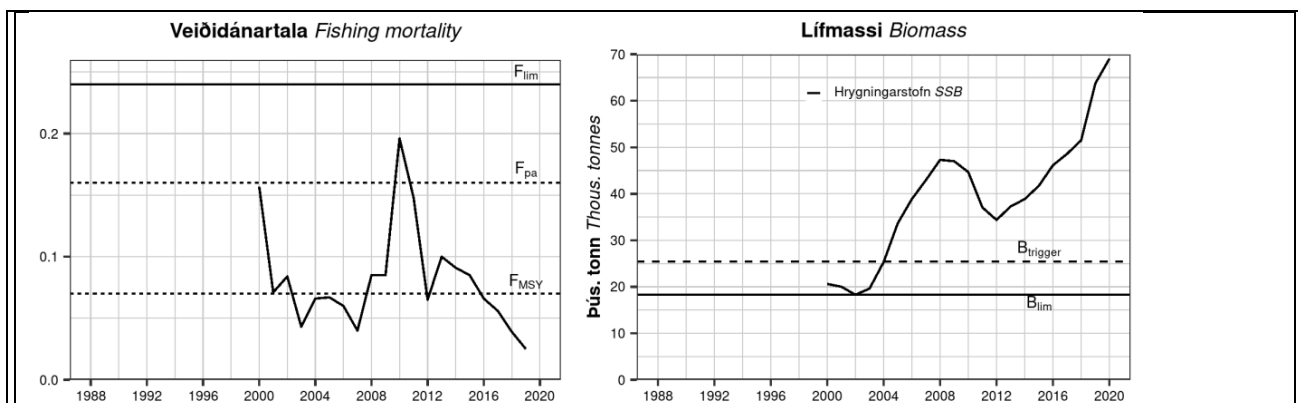


Figure 23. Greater silver smelt harvest rate and biomass.

SKARKOLI – PLAICE (*Pleuronectes platessa*)¹¹⁰

The harvestable biomass steadily increased from 2000–2015 and has been stable since then. Fishing mortality has declined since 1997 and has been around FMSY since 2011. Recruitment has been stable since 1994.

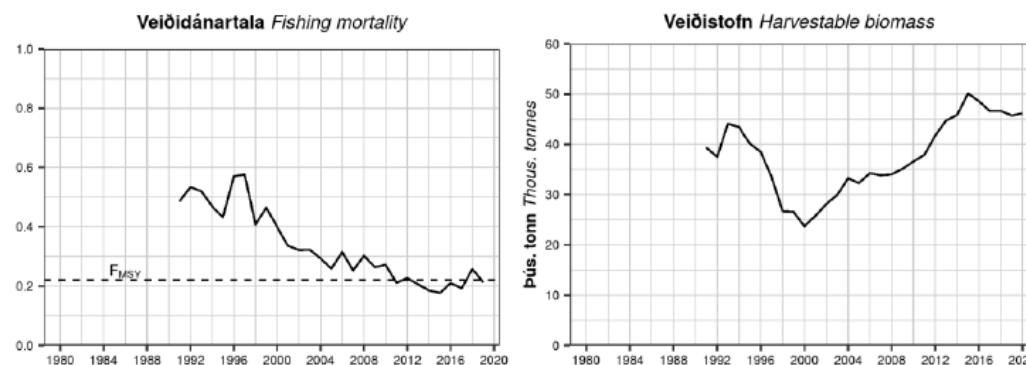


Figure 24. Plaice harvest rate and biomass.

HUMAR – NORWAY LOBSTER (*Nephrops norvegicus*)¹¹¹

Stock abundance is estimated to have declined by 27% from 2016–2020. The harvest rate has declined from 1.9% in 2016 to 0.4% in 2020. Burrow density in 2020 (0.065 burrows/m²) is one of the lowest reported for other functional units within ICES. The stock is assumed to be below any candidate value for Blim. MFRI advised a monitoring fishery of no more than 143 tonnes in 2021 for sampling and mapping of distribution. MFRI furthermore advises that Norway lobster fishing areas in Jökuldjúp and Lónsdjúp should be closed for all Norway lobster fishing. To reduce fishing disturbance on Norway lobster grounds, MFRI also advised that areas in Breiðamerkurdjúp, Hornafjarðardjúp and Lónsdjúp remain to be closed for bottom trawling other than Norway lobster trawling. Since 2014/15 catches have been within advice and within the National TAC. The harvest rate is now nominal (i.e. 0.4%).

¹¹⁰ <https://www.hafogvatn.is/static/extras/images/23-plaice1206904.pdf>

¹¹¹ <https://www.hafogvatn.is/static/extras/images/040-humar1235184.pdf>

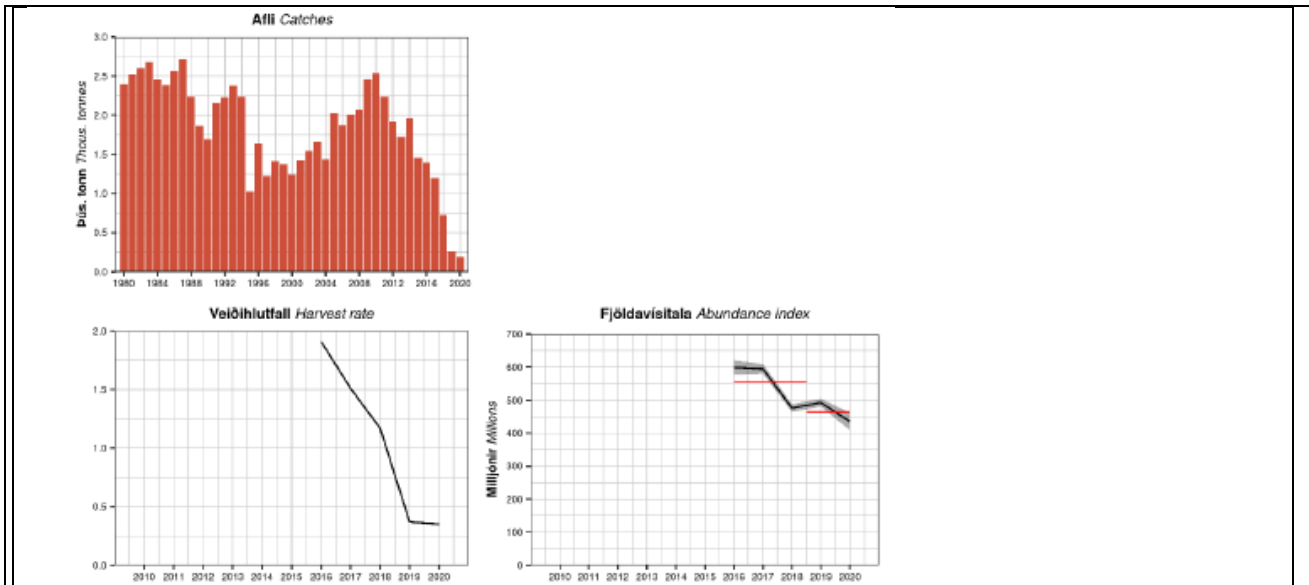


Figure 25. Norway lobster harvest rate and biomass.

ÞYKKVALÚRA – LEMON SOLE (*Microstomus kitt*)¹¹²

The IS-SMB biomass index has been variable and decreasing from the maximum in 2006. Fproxy has been highly variable for two decades. IS-SMB recruitment index is close to average but has decreased from the maximum in 2010–2013.

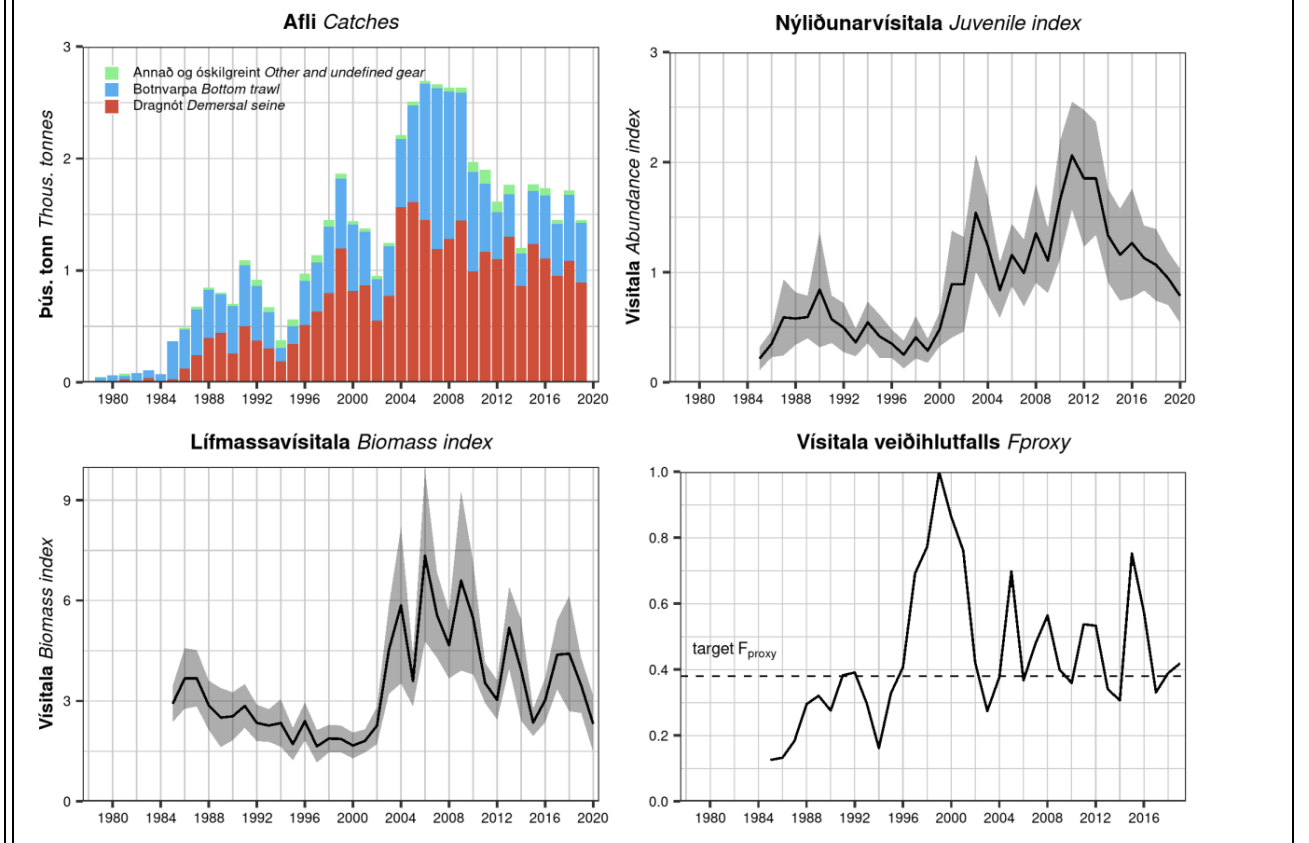


Figure 26. Lemon sole harvest rate and biomass.

¹¹² <https://www.hafogvatn.is/static/extras/images/24-lemonsole1206924.pdf>

LANGLÚRA – WITCH (*Glyptocephalus cynoglossus*)¹¹³

IS-SMB biomass index has been high since 2004. The recruitment index has, however, declined since 2009 and reached an all-time low in 2011–2020. Fproxy has remained relatively low and stable over the last eight years.

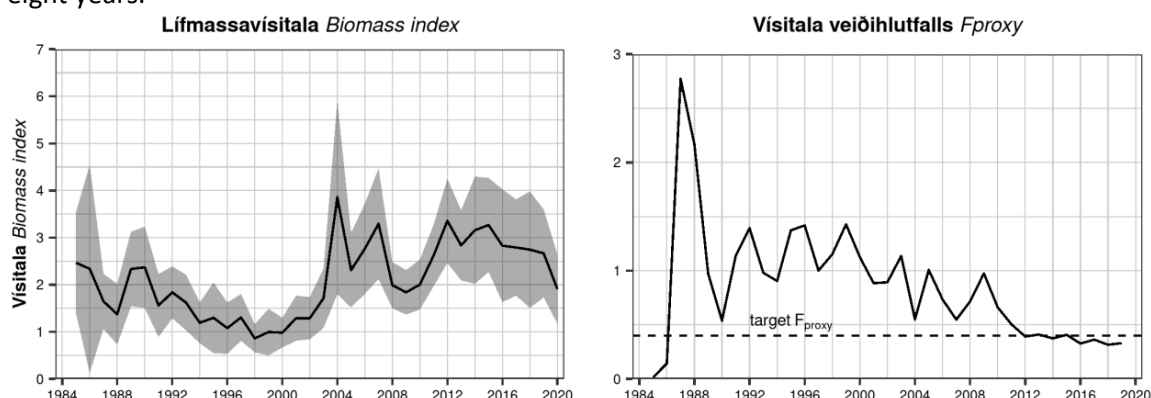


Figure 27. Witch harvest rate and biomass.

KEILA – TUSK (*Brosme brosme*)¹¹⁴

SSB has remained constant at a low level in recent years but the reference biomass (tusk ≥ 40 cm) has decreased since 2008 and is now at the lowest level in the time series. Harvest rate declined in 2010–2017, but has increased since then and is above HRMGT and close to HRLim. Recruitment in 2012–2014 was low, but has increased since then and was high in 2019 and 2020.

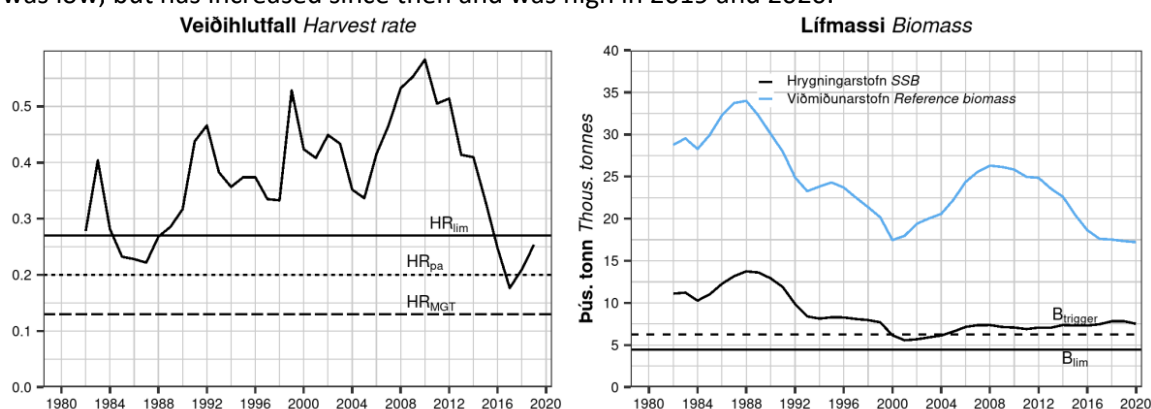


Figure 28. Tusk harvest rate and biomass.

SKÖTUSELUR – ANGLERFISH (*Lophius piscatorius*)¹¹⁵

The biomass index was high in 2005–2011 compared to previous years but has since then decreased substantially. Juvenile indices show strong recruitment for year classes 1998–2007, but poor recruitment after this period. Fproxy was stable when the stock peaked but has decreased in recent years. Catches since 2013/14 have on average been within advice and National TAC.

¹¹³ <https://www.hafogvatn.is/static/extras/images/25-witch-11206950.pdf>

¹¹⁴ <https://www.hafogvatn.is/static/extras/images/08-tusk1206956.pdf>

¹¹⁵ <https://www.hafogvatn.is/static/extras/images/14-anglerfish1206912.pdf>

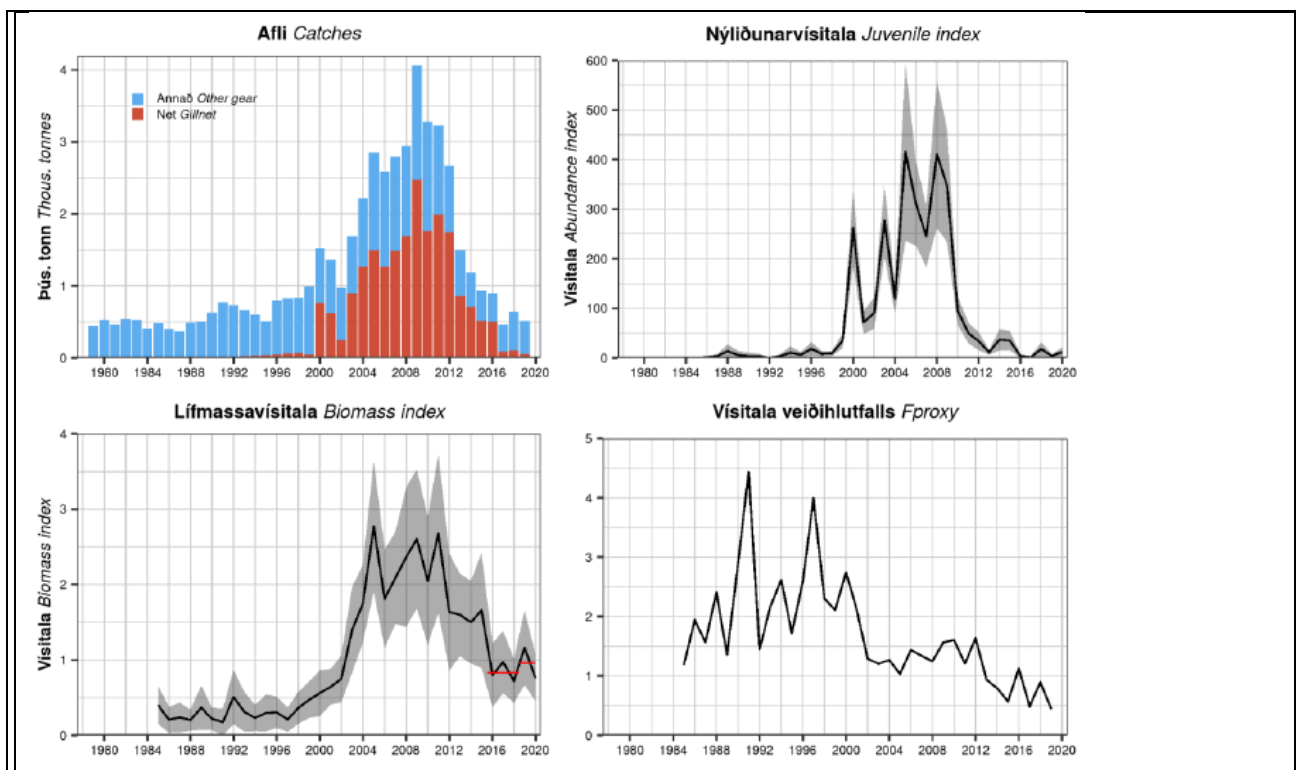
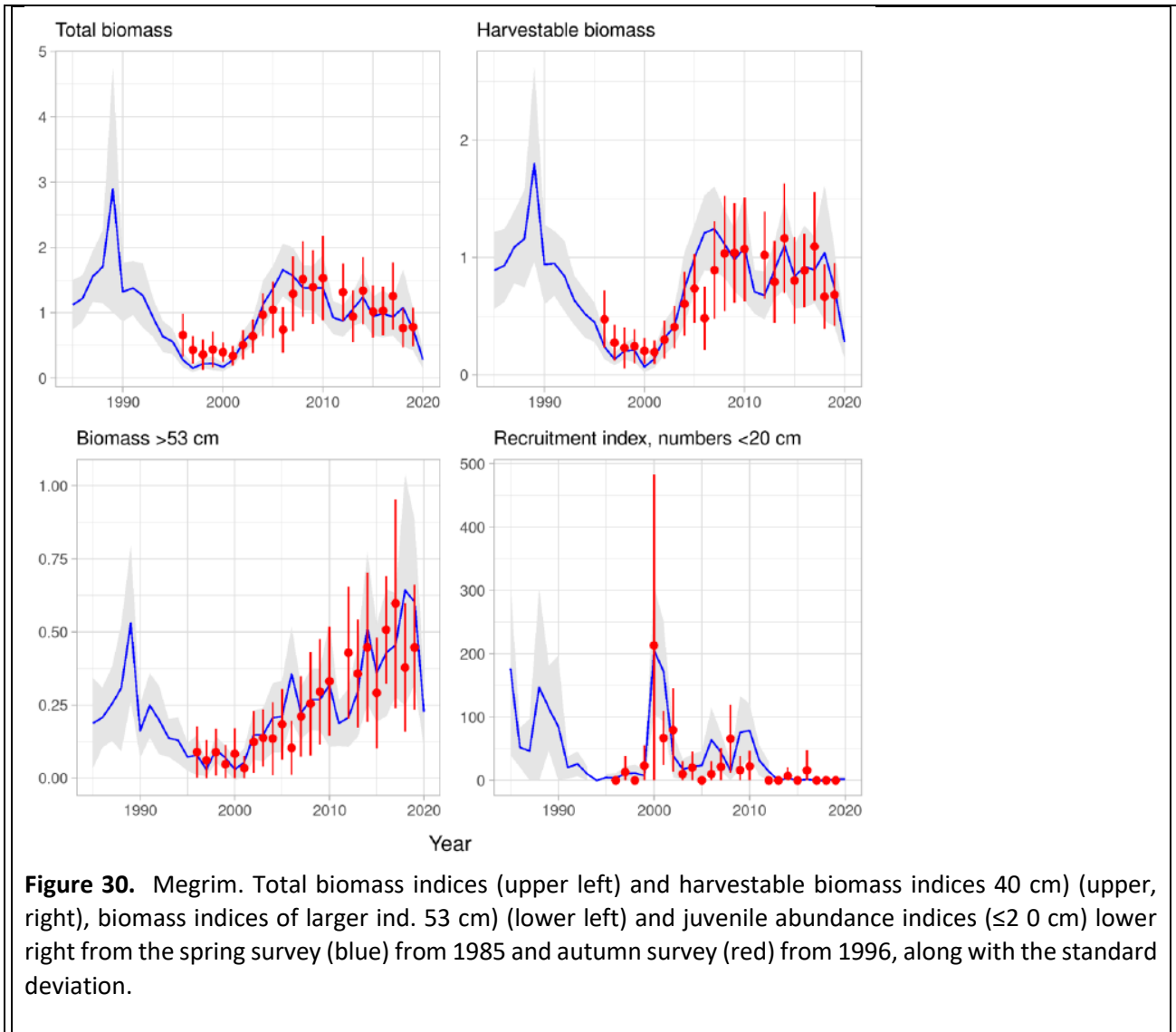


Figure 29. Anglerfish harvest rate and biomass.

STÓRKJAFTA –MEGRIM (*Lepidorhombus whiffiagonis*)¹¹⁶

IS-SMB juvenile index declined rapidly between 1989 and 1994. It stayed low until 1999, after which it increased and remained high until 2012. Since 2013 the juvenile index has remained very low. The biomass index has for the most part followed the fluctuations in the recruitment index. It remained stable in 2006-2018 but in the past two years the biomass index has declined and has not been lower since 2001. Megrím is only caught as a bycatch and usually in small quantities (average of around 400 tonnes a year in the past decade). In 2019, approximately 60% of landed megrím was fished in Nephrops trawl and 30% in bottom trawl. The MFRI is considering further management action on this stock if the decline continues.

¹¹⁶ https://www.hafogvatn.is/static/extras/images/26-megrím_tr1206921.pdf



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

Context to the ling fishery. Some of the updates below are only partially relevant to the ling fishery because although (cod) gillnets are responsible for the majority of issues relating to seabird and marine mammal bycatch, ling catches from gillnet gear in the past 5 years have generally been limited, at around 6% of total gillnet catches. However, bycatch updates from longline (main gear) and trawl gear (second most important gear for ling) are certainly more relevant to the ling fishery.

Updates from the 2021 audit and remote site visit are presented below. Below is the latest (available) reported bycatch from the fishing fleet by gear that has been provided by the MFRI. 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.

Table 13. 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

Most recent estimates of marine mammal and seabird bycatch can be found in the table below. The MFRI highlighted that these numbers are from a technical report that will be published in the spring. The estimates are stratified by area (four areas) and based on inspector records and MFRI survey data (gillnets). The estimate for common loon has extremely low precision, as it is based on one incident when 3 birds were caught. It is the only event of loon bycatch that we have observed, which suggests that bycatch is rarer than this estimate suggests. The same applies for other species that have estimates only based on 1-2 incidents.

Table 14. Estimates of annual bycatch of marine mammals and seabirds by gear type and area for the period 2016-2019. Numbers are shown raised by effort, but observed animals are shown in brackets. Source MFRI, January 2021.

Cod and Greenland halibut gillnets						
Species/Area	NW	NE	SW	SE	Total	95% CI
Harbour porpoise	222 (25)	231 (28)	207 (40)	151 (26)	811 (119)	575-1065
Harbour seal	18 (2)	0 (0)	0 (0)	0 (0)	18 (2)	0-44
Grey seal	9 (1)	0 (0)	0 (0)	0 (0)	9 (1)	0-27
Harp seal	9 (1)	58 (7)	0 (0)	0 (0)	67 (8)	25-126
Ringed seal	9 (1)	0 (0)	0 (0)	0 (0)	9 (1)	0-27
White beaked dolphin	18 (2)	0 (0)	0 (0)	0 (0)	18 (2)	0-44
Total marine mammals	285 (32)	289 (35)	207 (40)	151 (26)	930 (133)	600-1332
Common guillemot	248 (28)	41 (5)	145 (28)	0 (0)	434 (61)	297-594
Northern fulmar	0 (0)	8 (1)	104 (20)	6 (1)	118 (22)	67-187
Common loon	0 (0)	25 (3)	0 (0)	0 (0)	25 (3)	8-49
Brünnich's guillemot	9 (1)	0 (0)	10 (2)	0 (0)	19 (3)	0-52
Eider	0 (0)	16 (2)	0 (0)	0 (0)	16 (2)	0-41
Total seabirds	257 (29)	91 (11)	259 (50)	6 (1)	612 (98)	373-924
Longlines						
Species/Area	NW	NE	SW	SE	Total	95% CI

Northern gannet	267 (12)	0 (0)	200 (13)	0 (0)	467 (25)	263-693
Northern fulmar	2115 (95)	957 (57)	46 (3)	598 (10)	3716 (165)	2829-4636
Herring gull	111 (5)	0 (0)	0 (0)	0 (0)	111 (5)	44-200
Lesser black-backed gull	779 (35)	0 (0)	0 (0)	0 (0)	779 (35)	579-1002
Total seabirds	3272 (147)	957 (57)	246 (16)	598 (10)	5073 (230)	3715-6531
Demersal trawl						
Species/Area	NW	NE	SW	SE	Total	95% CI
Grey seal	17 (1)	0 (0)	0 (0)	0 (0)	17 (1)	0-50
Harp seal	17 (1)	0 (0)	0 (0)	0 (0)	17 (1)	0-50
Total marine mammals	34 (2)	0 (0)	0 (0)	0 (0)	34 (2)	0-100
Northern gannet	0 (0)	0 (0)	21 (1)	0 (0)	21 (1)	0-62
Total seabirds	0 (0)	0 (0)	21 (1)	0 (0)	21 (1)	0-62

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 and down to about 750 animals in 2014-2015¹¹⁷. Of the updated numbers provided in the tables above by the MFRI during the remote site visits in January 2020 we note that the estimated bycatch of harbour porpoise between 2016 and 2019 are comparable to those of 2014 and 2015. Furthermore, a harbour porpoise status update from NAMMCO is provided below.

Harbour Porpoises (*Phocoena phocoena*)

Harbour porpoises are classified as Least Concern in the IUCN Red List¹¹⁸ (population trend unknown, last assessed in 2020). They are also classified as Least Concern in the Icelandic National Redlist (based on a 2016 assessment)¹¹⁹. Annual estimates of harbour porpoise by-catch have decreased in recent years as gillnet effort has decreased (see table below), from a high of 7,300 animals in 2003 to about 1600 animals in 2009–2013¹²⁰ and down to about 750 animals in 2014-2015.

The latest Report of the NAMMCO Scientific Committee Working Group on Harbour Porpoise (19-22 March 2019)¹²¹ reported the following about the Icelandic harbour porpoise population.

¹¹⁷ See Figure 55 of the February 2020 IRFM Icelandic Cod Re-Assessment Report available at <https://www.responsiblefisheries.is/certification/certified-fisheries/cod>

¹¹⁸ <https://www.iucnredlist.org/species/17027/50369903>

¹¹⁹ <https://www.ni.is/node/27406>

¹²⁰ 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>

¹²¹ https://nammco.no/wp-content/uploads/2019/02/final-report_hpwg-2019.pdf

The assessment for Iceland made during the Tromsø WS was discussed. Although there are indications that the Icelandic population is part of a larger North Atlantic one, for pragmatic reasons a separate assessment was carried out. There was a significant effort in the 1990s to collect samples for analysis of biological parameters and payments are still being offered to fishermen for genetic samples from by-caught animals. Analysis of all sampling efforts is planned to be finalised at the end of 2019. One absolute abundance estimate from a harbour porpoise survey in 2007 is available (although should be treated with caution since the aerial survey covered an unknown fraction of the area of distribution). Two relative abundance estimates from genetic close-kin analysis were also used in the assessment. The WG agreed it was not clear whether it was appropriate to use close-kin genetic analysis and that appropriate expertise to provide a sufficiently competent review of this as an approach for estimating abundance was lacking.

Direct hunting of harbour porpoises is not widespread in Iceland but there is significant by-catch, particularly in the gillnet fishery for lumpfish (primarily) and the cod gillnet fisheries. Efforts to reliably estimate the extent of this by-catch are ongoing. The WG reran the population model with some changes and agreed that although there was sufficient information available to run the same model for Iceland as used for Greenland, it would require more time.

After reviewing the assessment and noting the recent decline in by-catch, the WG agreed that there was no specific cause for concern for harbour porpoises in Iceland. However, they also concluded that the lack of time and expertise meant they were not in a position to provide management advice on sustainable removals.

Seals and white beaked dolphin

The updated bycatch data on seals and white beaked dolphin is similar to or less in numbers to the data from 2014-16 analysed in the Full Assessment report. The yearly removals are considered to be small at 9-18 individuals from gillnets gear and 17 individuals (grey seals) from bottom trawl, and unlikely to have any effects to any of these species. The bycatch of harp seal was estimated at 67 individuals annually and 17 individuals in bottom trawls, also considered to be unlikely to negatively affect the population, considering that the species is classified as Least Concern on the IUCN Redlist (2015 assessment, population trend increasing and estimated globally at 4,5 million mature individuals)¹²². There is no updated information on these species' population abundance from the MFRI Advice website as of the spring of 2021, but we note the study highlighted below.

Punt et. al. 2020¹²³ published a Management Strategy Evaluation(MSE) study applied, for illustrative purposes, to export fisheries in Iceland that impact harbor porpoises (*Phocoena phocoena*), harbor seals (*Phoca vitulina*), and grey seals (*Halichoerus grypus*). Several management strategies were evaluated. The cod fishery is the largest source of human-caused mortality of harbor porpoises in Iceland, but the porpoise population is assessed to be above maximum net productivity level (MNPL) currently and is predicted to continue to increase despite current levels of human-caused mortality. In contrast, the major source of mortality for the two seal species is bycatch in the lumpfish fishery. Harbor seals, in particular, are declining, and unless the impacts of the lumpfish (*Cyclopterus lumpus*) fishery are reduced, this downward trend is predicted to continue.

Seals hunting prohibition

¹²² <https://www.iucnredlist.org/species/41671/45231087#population>

¹²³ <https://cdnscepub.com/doi/full/10.1139/cjfas-2019-0386>

At the end of December 2019, a new regulation no. 1100/2019 on the prohibition of seal hunting was published. The regulation applies to prohibition hunting for all seal species in Iceland. The regulation states that seal hunting is not permitted in Icelandic for all areas (in the sea, rivers and lakes) except in special circumstances that may be licensed by the Directorate of fisheries¹²⁴.

Pingers testing

The MFRI has been conducting pinger/acoustic device testing in gillnet fisheries for several years now, with mixed results. The last device tested in 2019-2020 showed promise, and publication on the results and possible larger scale trials are planned in 2021 (MFRI, personal communication, 12 January 2021).

Seabirds

For seabirds, the highest estimated bycatch numbers between 2016 and 2019 are those of common guillemot (gillnet), Northern fulmar, longline and gillnet), lesser black backed gull and northern gannet (both caught with gillnets).

Table 15. Estimates of annual bycatch removal of seabirds species.

Species	Cod gillnets	Longline	Otter trawl	Iceland Institute of Natural History (INH) Red List Classification	Population estimated in INH's 2018 Red List	Annual bycatch % removal of estimated population*
Northern fulmar (<i>Fulmarus glacialis</i>)	118	3716	0	Endangered	1.2 million pairs	0.14%
Common guillemot (<i>Uria aalge</i>)	434	0	0	Vulnerable	693,000 pairs	0.03%
Northern gannet (<i>Morus bassanus</i>)	0	467	21	Vulnerable	37,000 pairs	0.66%
Brünnich's guillemot (<i>Uria lomvia</i>)	19	0	0	Endangered	327,000 pairs	0.003%
Herring gull (<i>Larus argentatus</i>)	0	111	0	Near Threatened	5,000–10,000 pairs	0.74%
Lesser black-backed gull (<i>Larus fuscus</i>)	0	779	0	Data Missing	42,000 pairs	0.93%
Common loon (<i>Gavia immer</i>)	25	0	0	Vulnerable	279 pairs ¹²⁵	4.48%
Common eider (<i>Somateria mollissima</i>)	16	0	0	Vulnerable	850,000 birds	0.001%

For all birds but common loon the removals are considered quite limited and unlikely to significantly hinder recovery of these seabirds.

¹²⁴ http://www.fiskistofa.is/media/arsskyrslur/Arsskyrsla_Fiskistofu_2020.pdf

¹²⁵ Presumably the population is now 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-Sléttu, near Mývatn and in Veiðivötn. Source: <https://www.ni.is/node/27141>

Common Loon

Last assessed in 2018, this species is categorised as Least Concern in the IUCN Red List with a stable global population trend. Wetlands International (2016) estimated the population at 612,000-640,000 individuals. In Europe the breeding population is estimated at 700-1,300 pairs, which equates to 1,400-2,600 mature individuals (BirdLife International 2015).¹²⁶

Because this population is quite small, even very small removals can have negative effects, especially if those happen year after year. However, given that ling made up an average of 6% of all the Icelandic gillnet catches in the past between 2016 and 2020, the direct contribution of common loon bycatch in the gillnet fisheries responsible for ling catches can be calculated as (6% of the 4.48% removal) 0.27%. This value is considered here to be not significant (based on the updated bycatch dataset submitted by the MFRI), even when considering the small *G. immer* population.

Updates on sharks and rays, Atlantic halibut and whale species

Subsequent from the fishery assessment in 2019¹²⁷ analysis of ETP species we note that the MFRI provided the following update information relating to fisheries effects.

Sharks and rays

A total of five leafscale gulper sharks have been landed for the last 10 years, all caught in demersal trawl. They are occasionally caught in the trawl fisheries south of the country. Leafscale gulper sharks are usually only found in waters deeper than operated in the main Icelandic commercial fisheries. More leafscale gulper sharks than average have been caught in the MFRI annual autumn survey over the last 5 years or so, as shown below.

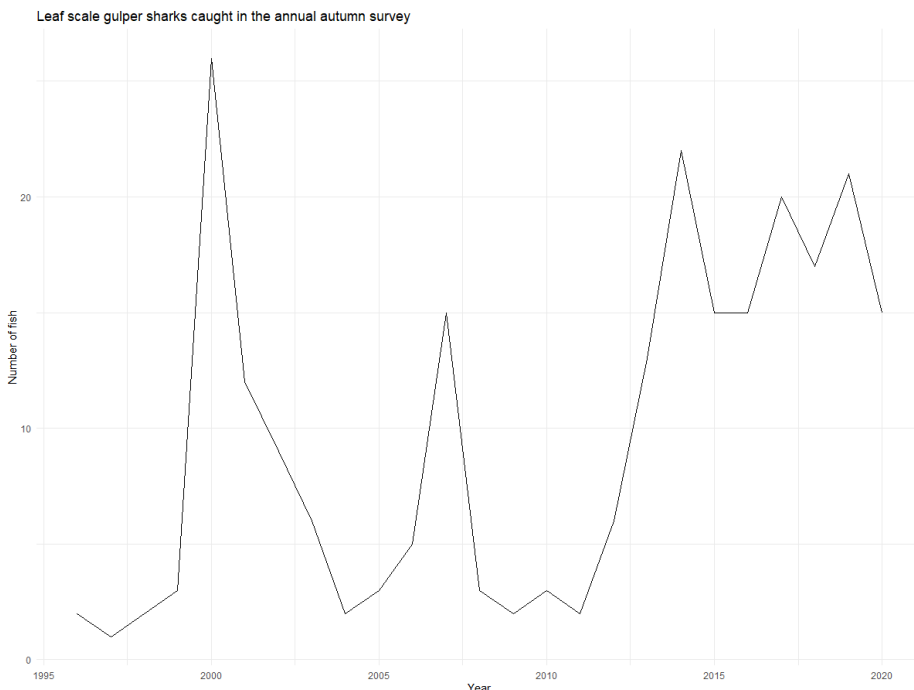


Figure 31. Leaf scale gulper shark caught in the annual autumn survey. Source: MFRI, January 2021.

¹²⁶ <https://www.iucnredlist.org/species/22697842/132607418#population>

¹²⁷ <https://www.responsiblefisheries.is/media/1/form-11.2-iceling-initial-assessment-final-report-and-determination-1.pdf>

No basking sharks have been reported or recorded in these fisheries over the last 10 years and the same can be said for surveys and inspector trips.

Grey skate (*Dipturus flossada / batis*)

Landed catch for the past 5 years has ranged between 127-203 tonnes annually. The population of *D. batis* in Icelandic waters seems to be increasing for the last 10 years or so, despite some bycatch in the longline and trawl, as shown in the figure below.

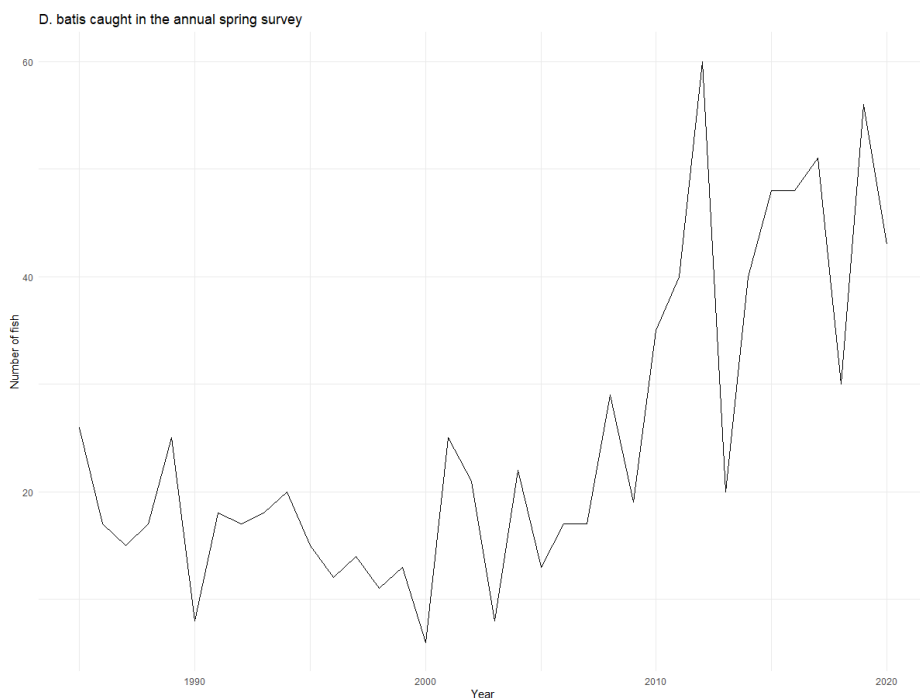


Figure 32. Grey skate caught in the annual spring survey. Source: MFRI, January 2021.

Dogfish, porbeagle and Greenland shark

Regulation 456/2017 states that there is a ban on fishing for Porbeagle sharks, Basking shark and spiny dogfish. Any incidental catches of these species are to be landed and sold on an approved auction market for marine products according to the provisions of Act no. 37/1992, on a special fee for illegal fishing, with subsequent amendments.¹²⁸ This is the same mechanism adopted (i.e. VS catches) for Atlantic halibut catches, for which directed fishing is banned. Catches of banned species are sold and 80% of the value goes to a MFRI research fund and only 20% to the fishermen. These VS catches measures are meant to facilitate the landing of every species, discourage potential targeting and avoid discarding.

For these species there is very limited information available and commercial catches are only of a few tonnes per year, per species. They are occasionally caught in both the commercial fishery and surveys, but not in enough quantity to discern any trends.

Atlantic halibut¹²⁹

IS-SMB recruitment and biomass indices decreased rapidly between 1985 and 1990 and have remained low since. However, the biomass index is currently higher than in 2008-2014 when it was at a historically low level, as shown below. Catches have been extremely small in the past decade.

¹²⁸ <https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/0456-2017>

¹²⁹ <https://www.hafogvatn.is/static/extras/images/21-atlantichalibut-11206952.pdf>

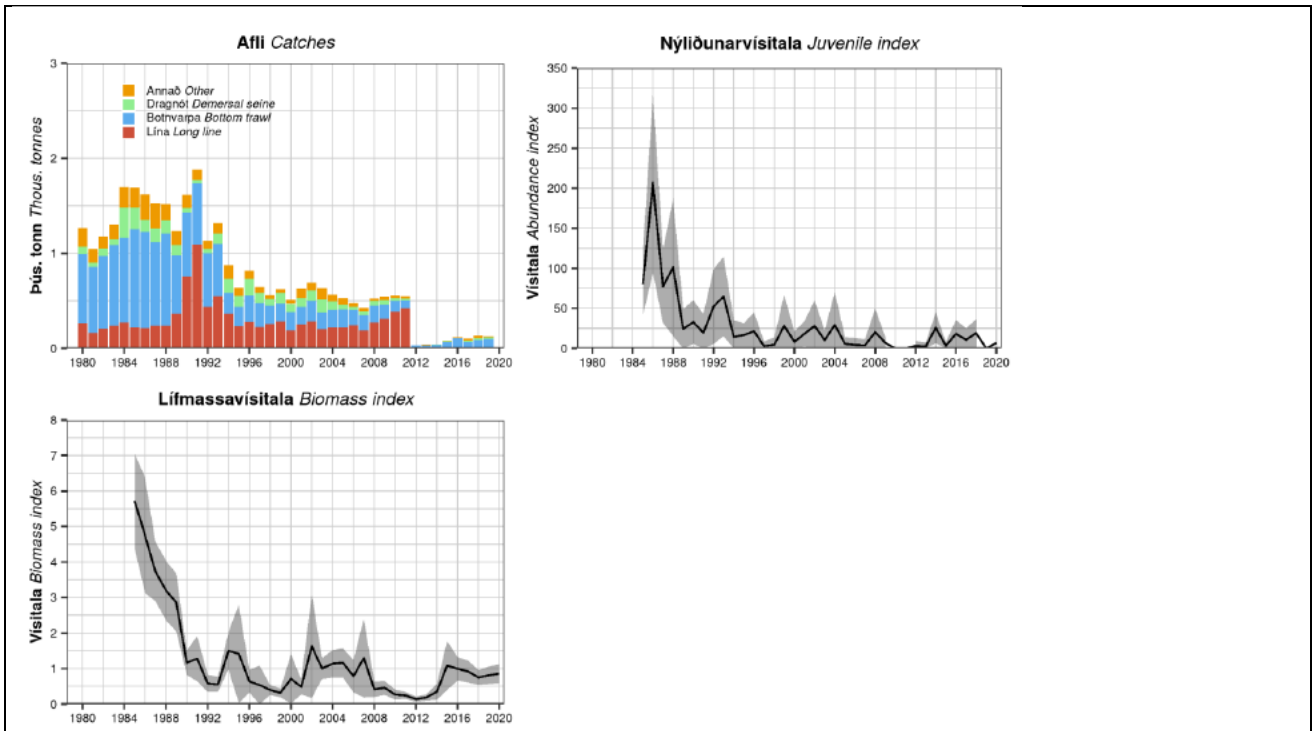


Figure 33. Catch by gear type, IS-SMB juvenile (≤ 30 cm) and biomass (≥ 40 cm) indices. Grey areas represent 95% CI.

Blue whales and Northern right whales

The MFRI reported that no Blue whales and Northern right whales have been observed or reported. Northern right whales are extremely rarely seen in Icelandic waters, with the last sighting reported in 2018, the first one in a long time.

Habitat effect of the fishery - updates

Trawl effort spatial extent

The ICES 2020 Icelandic ecosystem overview report¹³⁰ indicates that 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.

Using vessel monitoring system (VMS) and logbook data ICES estimates that mobile bottom trawls used by commercial fisheries in the 12 m+ vessel category have been deployed over approximately 132,485 km² of the ecoregion in 2018, corresponding to ca. 17.5 % of the ecoregion’s spatial extent. A map of spatial distribution of bottom trawl effort is shown below.

¹³⁰ https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/EcosystemOverview_IcelandicWaters_2020.pdf

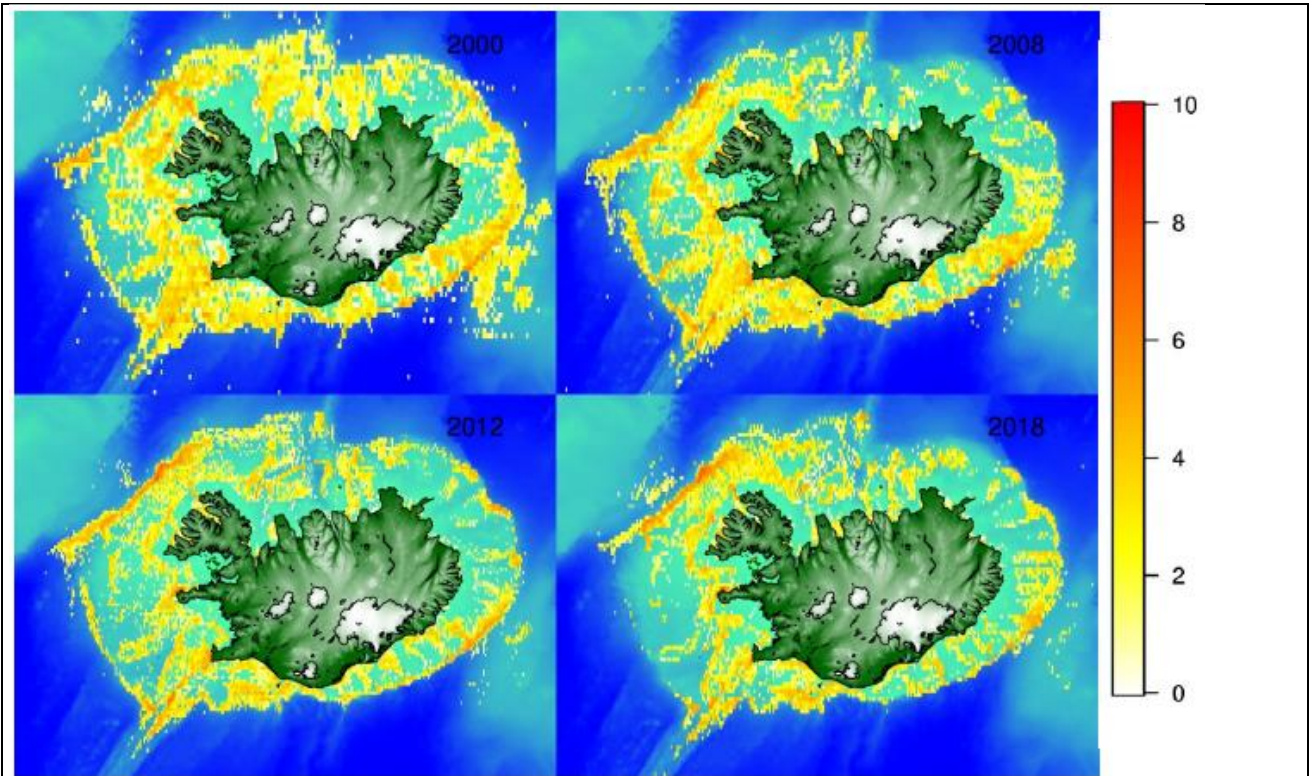


Figure 34. Spatial distribution of bottom-trawl effort (1000 kW hr) based on logbooks from trawl fishery targeting demersal fish, shrimp, and Norway lobster in 2000, 2008, 2012, and 2018.

Bottom trawling closures

Around Iceland, there are several permanent closures for bottom trawl gear, as well as many other seasonal closures for trawl and other gears. Closures act as protection from physical impacts of bottom trawl on habitats. The most recent closures are shown below.

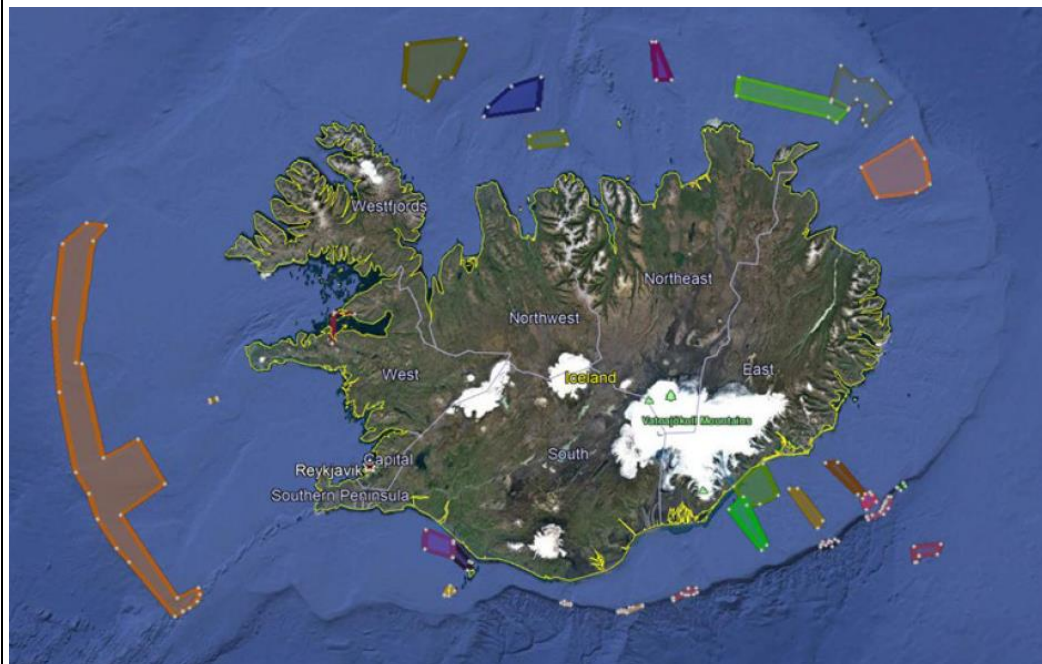


Figure 35. Permanent closures around Iceland. Source: 2020 ICES Icelandic Waters ecoregion – Fisheries overviews¹³¹.

¹³¹ https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/FisheriesOverview_IcelandicWaters_2020.pdf

Habitat mapping

The MFRI communicated that some habitat mapping activities were conducted in 2019 with underwater cameras and corals were registered (report will soon be available). No new closures have been implemented.

An overview report for the first years of the habitat mapping project (2009-2012) progress is found here: <https://www.hafogvatn.is/static/research/files/1608027337-hv2020-31.pdf> . Also, a report on benthic by-catch in the annual groundfish survey 2015-2018 was recently published¹³². In this report the authors indicate that in 2015 the Marine and Freshwater Research Institute initiated the process of registering benthos bycatch in the annual autumn groundfish survey. The aim was to start long-term monitoring series of benthos around Iceland that could over time provide information on eventual changes in the benthic ecosystem, on biomass, species distribution and detect invasive species. The benthos is collected from the catch, identified, counted, weighted and registered. Basic information on the distribution, density and diversity of benthos in deep waters are sparse, therefore this information is very important for further research and for advisory activities relating to vulnerable species or ecosystems. Since this project started in Iceland, a total of 6,900-9,990 specimens of benthic animals have been identified annually to about 600 species. Furthermore, over 3000 photos have been taken of vast amount of these species.

The sampling and identification methods of benthos bycatch in the arctic region have been standardized as much as possible. Registering of benthic bycatch is a part of the annual ecosystem survey in the Barents Sea and these are recorded in some extent in other regions of the arctic. A joint effort to increase the recordings of benthos in the arctic was initiated in 2015. Benthic taxonomists in the arctic have participated in various surveys where the benthic bycatch has been recorded. Since 2015, the AVS fund in Iceland has supported the participation of foreign taxonomists in this process during the autumn groundfish survey. The results of these cruises are shown below.

¹³² <https://www.hafogvatn.is/static/research/files/hv2019-41.pdf>

Table 16. Total number of specimens of benthic animals in each division and their number within each subgroup within the divisions in the cruises from 2016 to 2018.

Fylking	Botndýrahópur	A11-2016	A13-2017	A12-2018	
Annelida	Liðormar	193	234	299	
	Polychaeta	191	232	299	
	Echiura	2	2	0	
Arthropoda/Crustacea/	Liðdýr / Krabbadýr	436	1728	1701	
	Cirripedia	1	50	19	
	Amphipoda	98	128	75	
	Decapoda	104	1169	1358	
	Isopoda	29	111	35	
	Pycnogonida	204	275	214	
Tunicata	Möttuldýr	71	56	103	
Cnidaria	Holdýr	1046	1463	2203	
	Actinaria	284	312	1196	
	Antipatharia	3	2	1	
Mollusca	Scleractinia	15	5	13	
	Lindýr	401	381	368	
	Aplachophora	1	0	6	
	Bivalvia	77	99	95	
	Gastropoda	237	88	194	
	Cephalopoda	85	184	70	
	Polyplachophora	1	10	1	
Platyhelminthes	Scaphopoda	0	0	2	
	Flatomar	1	0	0	
Nemertea	Ranaormar	0	1	7	
Porifera	Svampar	2273	3819	1467	
	Desmospongiae	2198	3783	1406	
	Hexactinellida	5	9	15	
	Calcarea	0	0	1	
	ógreint	70	27	45	
Sipuncula	Sæbelgir	5	3	5	
Priapulida	Bjúgormar	0	1	0	
Turbellaria	Iðormar	2	0	0	
	Zoantharia	16	145	6	
	Alcyoancea	236	333	590	
	Pennatulacea	461	612	313	
	Hydrozoa	31	54	84	
	Echinodermata	Skrápdýr	2315	2182	2596
		Asteroidea	495	699	876
		Crinoidea	444	131	218
		Echinoidea	274	281	373
		Holothuroidea	79	111	283
Hemichordata	Ophiuroidea	723	960	846	
	Kragaormar	1	0	0	
Brachiopoda	Armætflur	168	96	68	
Bryozoa	Mosadýr	11	13	23	

Furthermore, from 2016 to 2018, a total of 49 species of corals and fungi were registered that are considered fragile or indicators for fragile ecosystems (see next table). These were stone corals, coral trees, soft corals, sea feathers and sponges. Mixed methods have been used to obtain information on these species and their

distribution, from by-catches in fishing gear to special research with underwater cameras and type forecast models. The presence of a species does not necessarily mean that there is a fragile ecosystem. Density, quantity or biomass must be assessed and often further research is needed to confirm that there are certain ecosystems in a given area.

Table 17. Corals and fungi registered during the MFRI trawl survey between 2016 and 2018.

Viðkvæm vistkerfi - búsvæði	Tegundir skráðar í hausralli
Kaldsjávarkóralrif	<i>Lophelia pertusa (Desmopyllum pertusum)</i> , <i>Madrepora oculata</i> <i>Solenosmilia variabilis</i>
Kóralgarðar	Svartkóralar <i>Bathypathes</i> sp. <i>Stauropathes arctica</i> Hornkóralar-kóraltré <i>Acanthogorgia armata</i> <i>Acanella arbuscula</i> <i>Keratoisis</i> sp. <i>Paragorgia arborea</i> <i>Paramuricea</i> sp. <i>Radicipes</i> sp. Mjúkir kóralar <i>Anthomastus</i> sp.(p). – <i>Heteropolypus sol</i> * – <i>Pseudoanthomastus</i> sp.* Blómkálskóralar: <i>Duva florida</i> <i>Drifa glomerata</i> <i>Pseudodrifa cf. groenlandicus</i> ** <i>Gersemia</i> spp. Blúndukóral/hydrokóral Stylasteridae spp. Steinkóralar <i>Stephanocyathus moseleyanus</i> <i>Stephanocyathus nobilis</i> ** <i>Flabellum alabastrum</i> <i>Javania cailleti</i>
Djúpsvampabreiður	<i>Gedoa barreeti</i> <i>Geodia macandrewi</i> <i>Geodia phlegrai</i> ** <i>Geodia parva</i> **
	<i>Geodia hentscheli</i> ** <i>Geodia atlantica</i> <i>Stryphynus</i> sp. <i>Stelletta</i> spp. <i>Thenea</i> spp. Mycalidae Rossellidae <i>Pheronema carpenteri</i> <i>Phakellia</i> sp. Axinellidae <i>Polymastia</i> spp.
Sæfjaðrabreiður	<i>Anthoptilum murray</i> <i>Anthoptilum grandiflorum</i> <i>Pennatula phosphorea</i> <i>Pennatula grandis/inflata</i> ** <i>Pennatula aculeata</i> ** <i>Funiculina quadrangularis</i> <i>Haliptheris</i> sp. <i>Kophobelemnion</i> sp. Protoptilidae sp.(p). <i>Umbellula encrinus</i> <i>Umbellula</i> óþekkt tegund Virgulariidae sp.(p).

*these species are not on the list but a recent review of *Anthomastus* species shows that species analyses have been incorrect over time and therefore these species have been added to the list.

**species of the same genus that were not on the list but are found near Iceland

Records of sensitive benthic species were used in the project NovasArc – a Nordic project on vulnerable marine ecosystems and anthropogenic activities in arctic and sub - arctic waters (<https://novasarc.hafogvatn.is>). In the NovasArc project, distribution forecast maps were prepared for

sensitive species off the Faroe Islands, eastern Greenland, Iceland and Norway. The forecast maps indicate areas that could be suitable for these species based on available information on known distribution and environmental factors related to them (Buhl - Mortensen et al. 2019)¹³³. These maps were also compared to the footprint of bottom fishing and the collision between them discussed. The project was a collaborative project of the Marine Research Institute with Havstovan in the Faroe Islands and the Institute of Marine Research in Bergen, supported by the Nordic Council of Ministers NORDEN.

The 2019 NovasArc report highlighted through a risk assessment method that within the Icelandic EEZ, overlap between the fishing effort and the optimal predicted habitat was high for several VMEs, including sublittoral sea pen communities (54.8% of their optimal habitat), hard bottom sponge aggregations (51.2%), stylasterid corals (50.5%), cold-water coral reefs (50.4%), soft bottom sponge aggregations (41.6%), and hard bottom gorgonians (42.3%). However, the authors also note that historical trawl disturbance may have decrease the amount of suitable habitat for these benthic groups.

Also, a paper was published by Burgos et. al (2020)¹³⁴ based on the findings of the Novasarc work. The group that produced this publication has received an additional funding to develop this work further including management aspects in 2021.

Hydrothermal vents

The MFRI communicated that a proposal for closure of the hydrothermal vent area in Steinahóll has been submitted to the Ministry of fisheries but no action has yet been taken of their behalf.

Icelandic marine ecosystem updates

The ICES 2020 Icelandic ecosystem overview report¹³⁵ list the key signals within the environment and the ecosystem, which are re-produced here below:

- 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 brosme*, dab *Limanda 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

¹³³ <http://norden.diva-portal.org/smash/get/diva2:1304079/FULLTEXT02.pdf>

¹³⁴ <https://www.frontiersin.org/articles/10.3389/fmars.2020.00131/full>

¹³⁵ https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/EcosystemOverview_IcelandicWaters_2020.pdf

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, haddock, saithe, 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).

Foodweb considerations

Ling feed on smaller fish such as herring, flatfishes, and other codfishes, as well as benthic invertebrates. Ling are in turn predated upon by marine mammals; however, they do not represent a key prey species in Icelandic food webs.

For the current fishery there are no further updates in terms of foodweb considerations aside from the data from Sturludottir *et. al.* 2018¹³⁶ which described the results of an ecological end-to-end model built using the Atlantic framework for the Icelandic marine ecosystem, and in which Icelandic common ling (likely grouped within the classes FOC=Other codfish, FDC=Demersal commercial or FDF=other demersal fish) was found to be reasonably well connected to other key fish species as both prey and predator, and as such did not appear to be a key prey species in the Icelandic marine ecosystem, like capelin for example.

¹³⁶ <https://www.sciencedirect.com/science/article/pii/S0165783618301620>

Clause 3.2 – Specific Criteria

Clause 3.2.1 – Information gathering and advice

Supporting Clauses:	3.2.1.1, 3.2.1.2		
Important Note:	Clause 3.2.1.2 is new to IRFM Standard v2.0 and is scored separately in Appendix 2 .		
Clause Guidance:	<i>Information shall be available on fishing gear used in the fishery, including the fishing gears’ selectivity and its potential impact on the ecosystem. Stocks of non-target species commonly caught in the fisheries for the stock under consideration may be monitored and their state assessed as appropriate.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>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, which include routine monitoring and assessment efforts is available online.</p>			
EVIDENCE			
<p>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.</p> <p>Fish size regulations</p> <p>The minimum reference size for common ling is 40 cm. As discarding is prohibited it is mandatory to land all specimens below these lengths.</p> <p>Mesh size regulations.</p> <p>The mesh size in the codend in the Icelandic trawl fishery was increased from 120 mm to 155 mm in 1977. Since 1998 the minimum codend mesh size allowed is 135 mm^{137 138}, provided that a so-called Polish cover (a net protecting the belly of the fishing net) is not used. In the Nephrops fishery, the use of two large (200 mm) mesh escape panels is mandatory (<i>Reg. 543/2002 on mesh sizes and trawls for fishing of demersal species, shrimp and nephrops</i>)¹³⁹.</p> <p>Mesh size and gear restrictions are mandated to protect both juvenile stocks (trawl mesh size 135 mm with separator panel) and spawners (gill net mesh size 8 inches/203 mm)¹⁴⁰. Shrimp (Pandalus) fisheries are associated with by-catches of juvenile finfish species. To minimise such by-catch, the use of sorting grids is mandatory.</p>			

¹³⁷ <https://www.reglugerd.is/reglugerdir/allar/nr/543-2002>

¹³⁸ <https://www.icefish.is/news101/better-redfish-selectivity-with-four-panel-codend>

¹³⁹ <https://www.reglugerd.is/reglugerdir/allar/nr/543-2002>

¹⁴⁰

<http://www.ices.dk/sites/pub/publication%20reports/forms/marine.aspx?rootfolder=/sites/pub/publication+reports/expert+group+report/acom/2011/nwwg&folderctid=0x0120005daf18eb10daa049bbb066544d790785&view=%7B5c7a53f9-446e-486e-93af-841fc20c1773%7D>

Additionally, longliners in Iceland use protective devices to shield baited hooks as gears are shot in order to prevent encounters with seabirds. Fishermen tend to use automatic gas guns and night settings (i.e. haul gear at night minimizing seabird interactions). Night setting of longlines is generally done in the winter period but to a lesser degree in the summer when sunlight can be present all day and night in certain areas of Iceland. Bird hunting and exploitation of wild bird is controlled under Regulation 456 issued in 1994¹⁴¹.

The MRI routinely conducts selectivity experiments to assess the performance of the main fishing gears and to assess ways in which selectivity might be improved.

T90 trawl net configuration

T90 is a regular net that has been turned 90° and along with lines on the codend ensures that the mesh stays open during trawling. The effect of trawling on fish size and on different quality parameters of cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*) was evaluated¹⁴² in 2010 using two trawls in a double rig fitted with a traditional and a T90 codend, respectively. The catch was assessed according to fish size, mortality, external damage, initial white muscle pH and development of rigor mortis. Results showed there was no difference between the two types of nets in terms of catch volume, but significantly slightly bigger fish were caught with T90 than with the traditional trawl net ($p < 0.05$). Haddock caught with the traditional trawl net had more external injuries related to the trawl gear than haddock caught with the T90 gear ($p < 0.05$). The T90 net is being used by HB Grandi trawl vessels, as well as by other trawl vessels in Iceland (Ingimundur Ingim, Fleet Manager, HB Grandi, per. comm. 2018). Furthermore, common use of “T90 bottom trawls” (30% lesser net) with pelagic doors (not dragged on the bottom), has resulted in considerable fuel savings without sacrificing fishing efficiency¹⁴³.

Longline gear capture efficiency

A study by the Institute of Marine Research, Norway and the MFRI, on the effects of hook and bait sizes on size selectivity and capture efficiency in Icelandic longline fisheries was also published in 2017¹⁴⁴. The authors looked at the main species caught by longliners in Iceland, cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), tusk (*Brosme brosme*), ling (*Molva molva*) and wolffish (*Anarhichas lupus*). The study showed that increasing hook size lowered capture efficiency for all species, but had only a minor effect on size selectivity. It also demonstrated that hook size and bait size affect the profitability of longline fisheries, in that smaller hooks improve capture efficiency, while larger baits increase catches of large fish and reduce those of undersized fish.

Stocks of non-target species commonly caught in the common ling fisheries are monitored and their state assessed as appropriate.

A comprehensive list of species is assessed as associated species catch, bycatch and ETP species interacting with the fishery under assessment (including marine mammals and seabirds) in Clause 3.1. *Please refer to the previous clause for an assessment on their status.*

As of 2021, the MFRI provide advice for 45 fish stocks in Iceland¹⁴⁵ plus additional as advice on harvest and management of different marine mammals (e.g. whales harvest, seals management, bycatch of marine mammals and seabirds).

¹⁴¹ <https://www.stjornartidindi.is/Advert.aspx?RecordID=8bd54700-a433-413f-83ed-48cd60438a4b>

¹⁴² <https://link.springer.com/article/10.1007/s12562-010-0254-2>

¹⁴³ <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/fisheries-management/>

¹⁴⁴ <https://www.sciencedirect.com/science/article/abs/pii/S0165783617300541>

¹⁴⁵ <https://www.hafogvatn.is/en/harvesting-advice>

The status of species commonly bycaught or associated with the ling fishery has been assessed in clause 3.1.

Additional species/stocks monitored by the Directorate of Fisheries

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... Records for over 50 species can be retrieved on their website.¹⁴⁶

¹⁴⁶ <http://www.fiskistofa.is/veidar/aflastada/aflastodulisti/>

Clause 3.2.2 – By-catch and discards

Supporting Clauses:	3.2.2.1, 3.2.2.2, 3.2.2.3, 3.2.2.4, 3.2.2.5		
Important Note:	Clause 3.2.2.4 and Clause 3.2.2.5 are new to IRFM Standard v2.0 and are scored separately in Appendix 2 .		
Clause Guidance:	<i>Discarding, including discarding of catches from non-target commercial stocks, is prohibited. Where relevant, appropriate steps shall be taken to avoid, minimize or mitigate encounters with seabirds and marine mammals. Accordingly, non-target catches, including discards, of stocks other than the “stock under consideration” should not threaten these non-target stocks with serious risk of extinction; if serious risks of extinction arise, effective remedial action shall be taken.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>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. Discarding violations are subject to penalty ranging from ISK 400K to 8M. Non-target catches, including discards, of stocks associated to the common ling fishery, do not threaten these non-target stocks with serious risk of extinction or comparable irreversible risks. Most of these stocks are actively managed by the MFRI. Key bycatch risks relate to seabird bycatch in longline gear and gillnets, and marine mammal bycatch in gillnets. There are technical measures/mechanisms in place in Icelandic longliners to mitigate adverse impacts on seabirds. These include the use of acoustic cannons, balloons towed at the end of the vessel to scare-off of diving birds, and night settings to minimise interactions with seabirds. There have been extensive trials with pingers in gillnet gear and research is continuing.</p>			
EVIDENCE			
Discards			
<p>Since 1996, discarding in Icelandic fisheries is prohibited and subject to penalty¹⁴⁷ (400K to 8M ISK).</p> <ul style="list-style-type: none"> ▶ According to section 2 of Act no. 57/1996, concerning the treatment of commercial marine stocks, discard of catches is prohibited ▶ Minor exceptions: <ol style="list-style-type: none"> (1) Non-value catches (e.g starfish, jellyfish etc..) (2) Heads and other refuse from working or processing <p>In a practical sense, if vessels do not have sufficient quota to cover the species they have caught they are required to attain quota through the quota transfer system. Consequently, if vessels do not have sufficient catch quotas for their probable catches they must suspend all fishing activities; this means that under the ITQ system, the discard policy primarily affects the composition of landings and not the aggregate volume¹⁴⁸.</p> <p>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).</p>			

¹⁴⁷ Act concerning the Treatment of Commercial Marine Stocks No. 57-1996: <https://www.althingi.is/altext/pdf/131/s/0982.pdf>

¹⁴⁸

<http://www.nwwac.org/fileupload/Image/Iceland%20fisheries%20director%202007%20presentation%20re%20discards%20to%20EU%20delegation.ppt>

Article 9 [Regulation no. 698/2012](#) on fishing for commercial fishing year 2012/2013 states that:

"The master may decide that part of the catch is not calculated on the vessel's catch quota. This authorization is limited to 0.5% of pelagic catch and 5% of other catches by the relevant vessels during the fishing year and is subject to the following conditions:

- a. The catch is kept separately from the other catch of the ship and it is weighed and registered separately.
- b. The catch is sold at auction in an approved auction market for seafood, and its proceeds flow to the Fisheries Fund, cf. law no. 37/1992, with subsequent amendments.
- c. The license is divided into four three-month periods during the fishing year. Unused sources may not be transferred between the periods¹⁴⁹.

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. However, having the VS catch provisions within the fisheries management system allows the flexibility for vessels to land small catches which are outside their specific quota, and preventing discard. VS catches of ling are shown in Table 12.

Associated catches and bycatch

Non-target catches, including discards, of stocks associated to the common ling fishery do not threaten these non-target stocks with serious risk of extinction or comparable irreversible risks. Most of these stocks are actively managed by the MFRI.

Minimising seabirds interactions and bycatch in longline gear

The Directorate of Fisheries require longliners to take all reasonable measures to avoid seabirds taking bait or catch because it is an offence in Iceland to catch a seabird with hooks (Reg. 456, 1994).

There are technical measures/mechanisms in place in Icelandic longliners to mitigate adverse impacts on seabirds. These include the use of acoustic cannons, balloons towed at the end of the vessel to scare-off diving birds, and night settings to minimise interactions with seabirds. Setting longlines at night (between the end of nautical twilight and before nautical dawn) is effective at reducing incidental mortality of seabirds because the majority of vulnerable seabirds are diurnal foragers. The Directorate also highlighted, during the site visits, that laser lights are being used widely as a deterrent.

However, during the winter months, some measures are rarely necessary as the lines are shot and hauled in the dark (when it's dark at night and through most of/all of the day) and when few if any diving birds are active.¹⁵⁰ This, however, being an advantage in winter, becomes a challenge in the summer when daylight hours exceed hours of darkness.

Visir HF, a specialised longline fishing company in Iceland (with about 5% of the cod and 6% of the haddock quota in 2018) stated that it is in the interest of skippers to avoid catching seabirds because when seabirds get hooked, they float and pull up the longlines, decreasing the effectiveness of the gear from catching demersal fish. Furthermore, they reported that every hook in a longline (average 40,000 hooks per longline) has an iron sink to help the longline sink fast to the bottom, further decreasing the risk of diving birds catching on to hooks. Visir HF has reported that similar gear modifications and practices are in use across Iceland (i.e. night setting, bird scaring balloons, acoustic cannons, weighted longlines).

¹⁴⁹ <http://www.fiskistofa.is/veidar/aflastada/vs-afli/vsafli.jsp>

¹⁵⁰ https://abcbirds.org/wp-content/uploads/2015/05/ABC_Analysis_of_MSC_Certification_on_Seabird_Bycatch_Pt_2_Fishery_Analyses.pdf

Information from Birdlife International communications point to available advice for demersal longline, pelagic longline and trawl fisheries - ACAP (the Agreement on the Conservation of Albatrosses and Petrels), which has established best practice mitigation advice for reducing seabird bycatch, reviewed every 18-24 months by experts. It is based on published literature and it is the key resource for assessing the efficacy of bycatch mitigation measures^{151 152}.

Based on ACAP advice, the key technical bycatch reduction measures for longlines are: line weighting, bird-scaring lines and night-setting. In comparison, Iceland uses night settings, trailing balloons instead of bird scaring lines (at least to some degree), and some form of weighted lines.

While night settings and acoustic cannons appear to be widely used in Iceland, based on information from the site visits meetings, it is not clear if weighted longlines are set up in the same way consistent with 2017 ACAP Advice, and if/to what degree tori lines are used across the industry. However, variants of scare lines, i.e. trailing balloons and laser lights have been reported to be in use in Icelandic fisheries (Directorate, Visir HF, pers. comm, Nov. 2018).

All of these measures are implemented voluntarily by industry. Currently, there are no regulations in Iceland that direct on the use of explicit bycatch reduction devices/methods within longline fisheries and these are used on a voluntary basis.

Marine mammals bycatch reduction devices trials

Acoustic porpoise deterrents (pingers) were tested for the first time in the Icelandic cod gillnet fishery in April of 2017, but their use showed no reduction in porpoise bycatch, as 7 porpoises got caught in nets with pingers, while 5 porpoises got caught in control nets nearby. Another type of porpoise deterrents (PALs) were tested in the cod gillnet fishery in April of 2018 and like the pingers, showed no reduction in porpoise bycatch as 12 porpoises were caught in nets with the devices, while 11 porpoises got caught in the control nets. Almost all the bycaught porpoises in the PAL sets (eleven out of twelve) were large adult males, while the gender ratio was six males and five females in the control sets. Interestingly, eight of the twelve porpoises caught in the PAL sets were found right by the PAL device, suggesting possible attraction of adult males towards the PAL devices¹⁵³. Further trials with pingers were done in April 2019¹⁵⁴. The MFRI also highlighted in 2021, during the remote audit, that they were trying different pinger frequencies and some of them of these appeared to be better than older one tried in previous years.

Regarding gillnet bycatch of seabirds, current annual takes (2016-2019) based on rough MFRI estimates appear to be very limited (i.e. 0.51% and lower) for species including northern fulmar, common guillemot, northern gannet, Atlantic puffin, razorbill, common eider, cormorants and great black backed gull, with the potential exception of common loon, where catch rates were estimated at less than 5% (for the entire gillnet fishery – mostly targeting and catching cod).

Several of the species listed on the OSPAR list of threatened and declining species are known bycatch species in the Icelandic fishery. These species are leafscale gulper shark, basking shark, porbeagle, spiny dogfish, and common skate. Landings of these species are small or incidental.

¹⁵¹ <https://acap.aq/en/bycatch-mitigation/mitigation-advice/3242-acap-2017-review-and-best-practice-advice-for-reducing-the-impact-of-pelagic-longline-fisheries-on-seabirds/file>

¹⁵² [https://www.iattc.org/Meetings/Meetings2018/SAC-09/BYC-08/PDFs/Docs/_Spanish/BYC-08-INF-J\(b\)-ENO_ACAP-Review-and-best-practice-advice-for-reducing-the-impact-of-pelagic-longline-fisheries-on-seabirds.pdf](https://www.iattc.org/Meetings/Meetings2018/SAC-09/BYC-08/PDFs/Docs/_Spanish/BYC-08-INF-J(b)-ENO_ACAP-Review-and-best-practice-advice-for-reducing-the-impact-of-pelagic-longline-fisheries-on-seabirds.pdf)

¹⁵³

<http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/HAPISG/2019/ICES%20WGBYC%20Report%202019.pdf>

¹⁵⁴ https://nammco.no/wp-content/uploads/2019/04/2018-iceland_progress_report_final2.pdf

Suitable steps are considered to avoid, minimize or mitigate encounters with endangered, threatened and protected species, as appropriate and relevant in the context of the unit of certification. Most of these steps include the ban on direct harvest. For a number of sharks and rays, other marine mammal and seabird species, the take is not considered to be significant and as such, specific steps to mitigate encounters with endangered, threatened and protected species may not strictly be necessary. Detailed information has been provided under clause 3.1, including information on seabirds and marine mammals listed in the Icelandic INH Red list¹⁵⁵. **Please refer to that for further details, including non-conformance details.**

Gear loss and marking

There are a number of initiatives and regulations in place to avoid the loss of fishing gear and subsequent ghost fishing of lost and abandoned gear. Where the Fishing Directorate finds and recovers lost or abandoned gear they recover the cost of recovery from the gears' owner. The Coastguard also reports any buoys it feels might represent lost or abandoned fishing gear to the Directorate. All regulations relating to fishing gear may be found in the various Articles of Fisheries Management 2020/2021 Laws and regulations¹⁵⁶. During the November 2018 site visits and the current remote audit in 2021, the directorate confirmed that gear loss (e.g. longlines, gillnets) and as such ghost fishing is not considered an issue in Iceland, in part because of the ITQ system, and that reporting lost gear is compulsory. Another important factor that contributes to low levels of lost fishing gear is the high price of that gear. This means that fishers are careful to avoid losing their gear. In the case of trawls the majority of vessels carry special grapples onboard that allow them to retrieve lost gear even when both towing warps have parted, which is a rare situation. The Icelandic ITQ system allows for a slower paced fishery than would be expected if there was only an overall TAC with all boats fishing against it. The system allows fishers to target their efforts in optimum weather conditions leading to decreased rates of lost fishing gear.

¹⁵⁵ <https://en.ni.is/node/27837>

¹⁵⁶ https://vefbirting.prentmetoddi.is/raduneyti/stjorn_fiskveida_2020-21/94/

Clause 3.2.3 – Habitat Considerations

Supporting Clauses:	3.2.3.1, 3.2.3.2, 3.2.3.3, 3.2.3.4		
Important Note:	No changes to Clauses in IRFM Standard v2.0.		
Clause Guidance:	<i>If studies show that the spawning or nursery areas or other essential habitats in the fishing area are at risk and highly vulnerable to negative impacts of particular fishing gear, such impacts shall be limited in range relative to the full spatial range of the habitat or else action is taken to avoid, minimise or mitigate such impacts. Management measures must take into account and protect through closures significant continuous stony coral areas, identified through scientific and formal methods. Known thermal vents shall be protected through area closures to fishing activities with gear that has significant bottom impact during normal operation.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
			None <input checked="" type="checkbox"/>

SUMMARY EVIDENCE

Fishing with trawls is prohibited in large areas near the coast which serve as spawning and nursery areas. Large areas within the Icelandic EEZ are closed for fishing, either temporarily or permanently. These closures are aimed at protecting juveniles and spawning fish and protecting vulnerable marine ecosystems.

EVIDENCE

Large areas within the Icelandic EEZ are closed for fishing, either temporarily or permanently. There are many large closures for bottom trawl gear around Iceland (please see below). Collectively, these closures are aimed at protecting juveniles and spawning fish and protecting vulnerable marine ecosystems from gear interactions. The large, long and narrow trawl closures in the South West of Iceland were originally designed to protect golden redfish juveniles, and were originally set up in the early 1990s¹⁵⁷. The most recent closures are shown below.

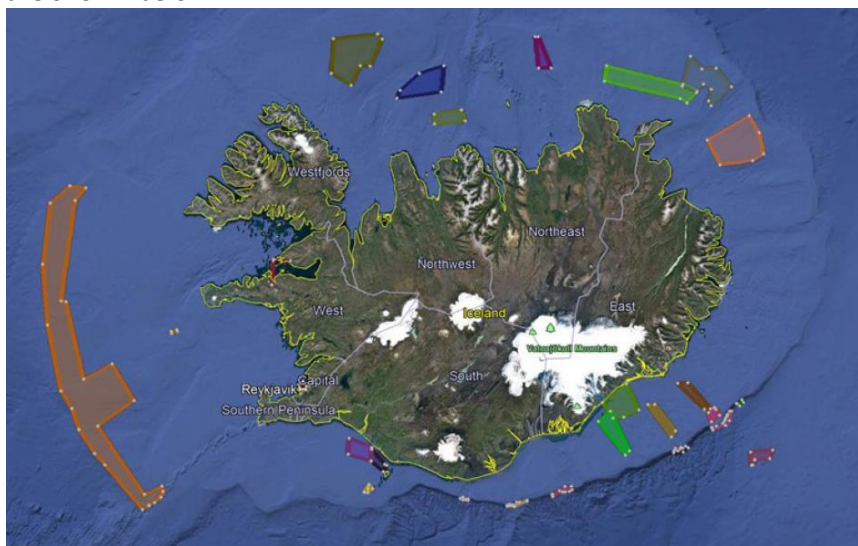


Figure 36. Permanent closures around Iceland. Source: 2020 ICES Icelandic Waters ecoregion – Fisheries overviews¹⁵⁸.

¹⁵⁷ <https://www.hafogvatn.is/static/research/files/fjolrit-133pdf>

¹⁵⁸ https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/FisheriesOverview_IcelandicWaters_2020.pdf

Furthermore, the use of bottom trawl and pelagic trawl is not permitted inside a 12-mile limit measured from low-water line along the northern coast of Iceland. Similar restrictions are implemented elsewhere based on engine size and size of vessels¹⁵⁹.

Off Northwest and North coast of Iceland, fishing by bottom trawl, midwater trawl and Danish seine is not allowed within 12 miles from a line drawn across the mouth of fjords and bays. Off the East, South and West coast, bottom trawling is permitted according to vessel size and engine power, with larger vessels (over 42 m) not having access within 12 miles, but the smaller vessels (less than 29 m) in some areas up to 4 miles. These openings are both area - and time based¹⁶⁰. The ships are divided into 3 groups depending on their length and power. Group 1 are the largest ships. The green area represents the temporal allowance for fishing. In addition to closures that are permanent or regular, there is a system for protecting juveniles by closing areas temporarily on short notice. These are triggered when finding too much juveniles in catches. The short-term closure monitoring (and issuing of) was transferred to Fiskistofa in the fall of 2020. Regulation regarding the short-term closures was changed in 2020 (from 25% to 50% of juveniles in catches for cod and haddock, but not for ling or other species), which led to significant decrease in the number of closures. An updated table as provided by the MFRI is shown below.

Table 18. Short term closures in Iceland for the years 2018-2020.

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

For 2020, two closures were triggered by bottom trawl gear, one by longline and 8 by handline gear.

NovasArc funding

A paper was published by Burgos et. al (2020)¹⁶¹ based on the findings of the NovasArc work relating to habitat mapping in the Icelandic ecoregion. The group that produced this publication has received an additional funding to develop this work further including management aspects in 2021.

Hydrothermal vents

The MFRI communicated that a proposal for closure of the hydrothermal vent area in Steinahóll has been submitted to the Ministry of fisheries but no action has yet been taken of their behalf.

Cold water coral closures

No new coral closures were implemented in Iceland during 2020 aside from the existing 10 closures in the South East coast of Iceland (MFRI, pers, comm. 2021).

¹⁵⁹ <https://www.government.is/news/article/?newsid=e747dac7-fb88-11e7-9423-005056bc4d74>

¹⁶⁰ <https://www.reglugerd.is/reglugerdir/eftir-raduneytum/domsmalaraduneyti/nr/1154>

¹⁶¹ <https://www.frontiersin.org/articles/10.3389/fmars.2020.00131/full>

Clause 3.2.4 – Foodweb Considerations

Supporting Clauses:	3.2.4.1		
Important Note:	Old Clause “3.2.4 Considerations” has been split into “3.2.4 Foodweb Considerations” and “3.2.5 Precautionary Considerations” in IRFM Standard v2.0 – Clause 3.2.4 Foodweb Considerations addressed separately here.		
Clause Guidance:	<i>If the stock under consideration is a key prey species in the ecosystem, the harvesting policy and management measures shall be directed to avoid severe adverse impacts on dependent predators.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>In the waters to the north and east of Iceland, available information suggests the existence of a simple bottom-up controlled food chain from phytoplankton through <i>Calanus spp.</i>, capelin and to cod. Less is known about the structure of the more complex southern part of the ecosystem. Icelandic ling 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, so it is not necessary that harvesting policy and management measures are specifically directed to avoid severe adverse impacts on dependent predators.</p>			
EVIDENCE			
<p>Ling feed on smaller fish such as herring, flatfishes, and other codfishes, as well as benthic invertebrates. Ling are in turn predated upon by marine mammals; however, they do not represent a key prey species in Icelandic food webs.</p> <p>For the current fishery there are no further updates in terms of foodweb considerations aside from the data from Sturludottir <i>et. al.</i> 2018 ¹⁶² which described the results of an ecological end-to-end model built using the Atlantic framework for the Icelandic marine ecosystem, and in which Icelandic common ling (likely grouped within the classes FOC=Other codfish, FDC=Demersal commercial or FDF=other demersal fish) was found to be reasonably well connected to other key fish species as both prey and predator, and as such did not appear to be a key prey species in the Icelandic marine ecosystem, like capelin for example.</p>			

¹⁶² <https://www.sciencedirect.com/science/article/pii/S0165783618301620>

Clause 3.2.5 – Precautionary Considerations

Supporting Clauses:	3.2.5.1		
Important Note:	<p>Old Clause “3.2.4 Considerations” has been split into “3.2.4 Foodweb Considerations” and “3.2.5 Precautionary Considerations” in IRFM Standard v2.0 – Clause 3.2.5 Precautionary Considerations addressed separately here.</p> <p>Clause 3.2.5.1: Text added (Bold) in IRFM Standard v2.0: <i>“Management plans shall be developed and implemented in a timely fashion for avoiding, minimizing or mitigating any ecosystem issues properly identified. These shall be based on risk analysis and scientific advice, consistent with the precautionary approach, as being of serious concern in the fishery in question.”</i></p> <p>Clause 3.2.5.1 (minor change) – consistency with precautionary approach specifically addressed below.</p>		
Clause Guidance:	<i>Management plans shall be developed and implemented in a timely fashion for avoiding, minimizing or mitigating any ecosystem issues properly identified. These shall be based on risk analysis and scientific advice, consistent with the precautionary approach, as being of serious concern in the fishery in question.</i>		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>
SUMMARY EVIDENCE			
<p>Measures to minimize or mitigate ecosystem issues identified include technical measures such as the use of night settings, trailing balloons, scare lines and weighted lines in longline fisheries, the trial of bycatch reduction devices in gillnet fisheries, the use of flying doors and rock hoppers on bottom trawlers, and real time, temporary and permanent areal closures, and, where appropriate, the specific consideration of predation in some stock assessments as is the case in the assessment of capelin which considers the cod-capelin predator-prey relationship.</p>			
EVIDENCE			
<p>Icelandic government policy aims to protect vulnerable marine ecosystems from significant adverse impact from bottom contacting gear and legislation exists to provide for the prohibition of fishing activities with bottom-contacting gear in areas where vulnerable ecosystems occur. MFRI Advice includes a specific section on the ecosystem impacts of Icelandic fisheries¹⁶³. The document identifies the major regional pressures for the ecoregion (Figure below).</p>			

¹⁶³ https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/EcosystemOverview_IcelandicWaters_2020.pdf

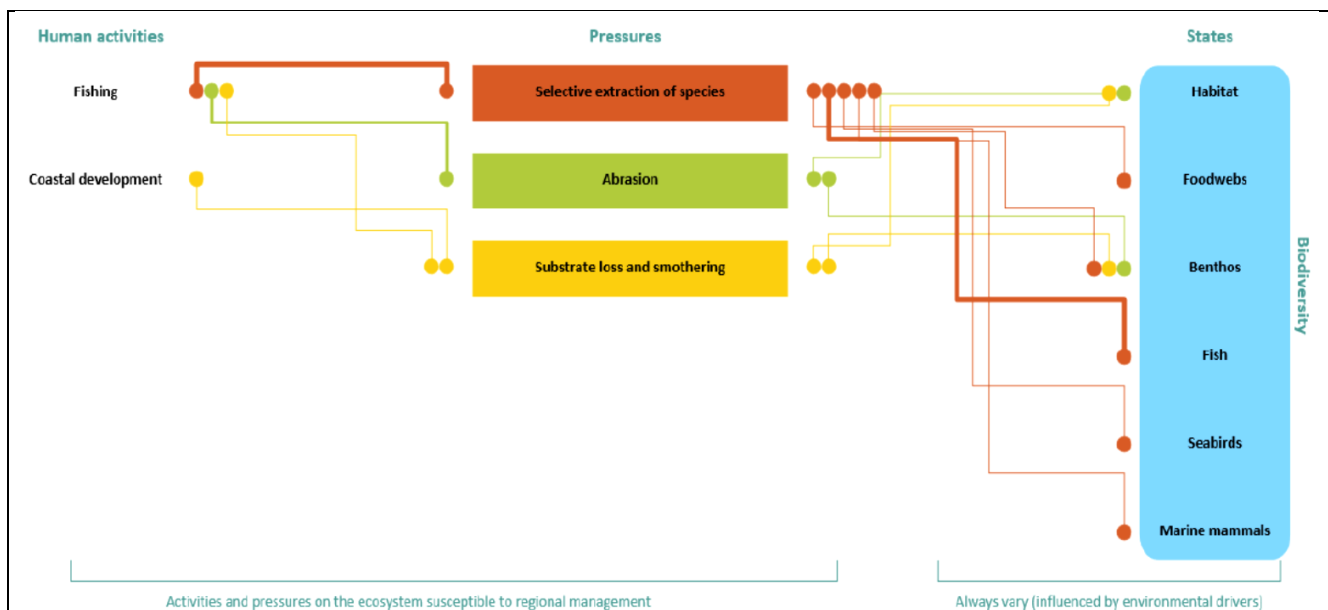


Figure 37. Icelandic Waters ecoregion overview with the major regional pressures, human activities, and state of the ecosystem components. The width of lines indicates the relative importance of individual links (the scaled strength of pressures should be understood as a relevant strength between the human activities listed and not as an assessment of the actual pressure on the ecosystem).

Measures to minimize or mitigate ecosystem issues identified include technical measures such as the use of night settings, trailing balloons, scare lines and weighted lines in longline fisheries, the trial of bycatch reduction devices in gillnet fisheries, the use of flying pelagic doors¹⁶⁴ and rock hoppers on bottom trawlers, and real time, temporary and permanent areal closures (see clause 3.2.3.1 for details), and, where appropriate, the specific consideration of predation in some stock assessments as is the case in the assessment of capelin which considers the cod-capelin predator-prey relationship.

The management measures in place that are relevant to ecosystem effects are as follows. The fisheries are managed by a catch quota system. The annual quota is allocated to individual vessels or vessel groups so that the sum of quotas for individual vessels and vessel groups equals the TAC according to the HCR. Within the system there are various measures to make the fisheries economically viable, together with measures to coordinate catch composition and the TAC and to reduce discard, which is prohibited by law. The use of bottom trawl and pelagic trawl is not permitted inside 12 nm along the northern coast of Iceland. Similar restrictions are implemented elsewhere based on engine size and size of vessels. In many areas special rules regarding fishing gear apply such as mandatory use of a sorting grid when fishing for shrimp to avoid juveniles and small fish or bycatch grids when fishing for pelagic species in certain areas. Overall, these management measures are designed to ensure the Icelandic marine ecosystem remains healthy and productive and to allow for the future conservation and sustainable harvest of fish stocks.

¹⁶⁴ <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/fisheries-management/>

8 Performance specific to agreed corrective action plans

During the full assessment audit¹⁶⁵ 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 NCs for this 1st Surveillance is shown below. No new non-conformances were identified during the 1st Surveillance.

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:	<p>The recording of marine mammals and seabirds by number and species is required by Icelandic regulation¹⁶⁶. 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 <i>et al.</i> 2015¹⁶⁷ and the March 2018 MFRI report titled: “Bycatch of Seabirds and Marine Mammals in lumpsucker gillnets 2014-2017”.</p> <p>Pallson <i>et al.</i> 2015 highlighted the fact that their bycatch estimates were based on limited data that needed to be increased and improved with a functioning reporting system for the fishery and better follow up.</p> <p>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 2017¹⁶⁸.</p> <p>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”.</p> <p>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.</p>
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.

¹⁶⁵ <https://www.responsiblefisheries.is/media/1/form-11.2-iceling-initial-assessment-final-report-and-determination-1.pdf>

¹⁶⁶ <https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/18967>

¹⁶⁷ <https://www.hafogvatn.is/static/research/files/fjolrit-178.pdf>

¹⁶⁸ <https://www.hafogvatn.is/static/files/skjol/techreport-bycatch-of-birds-and-marine-mammals-lumpsucker-en-final-draft.pdf>

The Client submitted the following CAP in February 2019

To whom it may concern

ÁTVINNUVEGA-OG
NÝSKÖPUNARRÁÐUNEYTIÐ

Ministry of Industries and Innovation

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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.																																																																								
Progress at 1st Surveillance (2021)	<p>During the 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 298/2020¹⁶⁹. The App was designed and trialled between 2018 and 2020. The App also called Afladagbókina or catch diary¹⁷⁰ ¹⁷¹automatically records the location of the boat during fishing and the captains then records the catch, its condition and by-catch, in a very simple way. The app replaces paper logbooks in the small boat sector, with an electronic catch recording system. It is expected that this app will make the recording of bycatch easier for the fleet.</p> <p>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).</p> <p>Bycatch of marine mammals and seabirds by gear type in 2016-2019 as reported by the fishing fleet. Source MFRI, January 2021.</p> <table border="1"> <thead> <tr> <th colspan="6">Cod and Greenland halibut gillnets</th> </tr> <tr> <th>Species</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Harbour porpoise</td> <td>52</td> <td>45</td> <td>48</td> <td>26</td> <td>171</td> </tr> <tr> <td>White beaked dolphin</td> <td>1</td> <td>0</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>Harbour seal</td> <td>11</td> <td>12</td> <td>7</td> <td>8</td> <td>38</td> </tr> <tr> <td>Grey seal</td> <td>4</td> <td>1</td> <td>1</td> <td>1</td> <td>7</td> </tr> <tr> <td>Harp seal</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>Ringed seal</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>Humpback whale</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>Northern bottlenose whale</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>Risso's dolphin</td> <td>0</td> <td>0</td> <td>7</td> <td>0</td> <td>7</td> </tr> <tr> <td>Total marine mammals</td> <td>71</td> <td>58</td> <td>64</td> <td>37</td> <td>230</td> </tr> </tbody> </table>	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
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¹⁷⁰ <http://www.fiskistofa.is/umfiskistofu/frettir/afladagbokin-smaforrit-fyrir-rafraena-skraningu-afla>

¹⁷¹ https://www.mbl.is/200milur/frettir/2020/08/31/oll_aflaskranning_rafraen_fra_og_med_morgundeginum/

	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 1st Surveillance (2021) Corrective Evidence	<p>The Assessment Team has determined that the information supplied is sufficient to meet the original CAP deliverable for year 1 and 2. The non-conformance remains open and on track towards appropriate closure.</p> <p>The 2nd surveillance activities will review evidence that the corrective actions highlighted above have been carried out.</p>					

The Assessment Team has also issued a number of formal Recommendations for the client to consider.

Recommendations

Recommendation 1. Relevant to clauses 3.1.1 and 3.1.2.

Several Icelandic FMPs state that it is the policy of the Icelandic government to protect vulnerable marine ecosystems (VMEs). Currently, there are explicit conservation measures for cold water corals and

hydrothermal vents but not for deep sea sponge aggregations or sea pen fields. Therefore, the assessment team recommends that more formal conservation plans/measures be formulated for these VMEs.

Recommendation 2. Relevant to numerous clauses relating to catches conforming to recommended levels.

Due to the fact that there are a variety of ways to allowably overshoot TACs, the assessment team recommends that;

- 4. any TACs set according to established HCRs are regarded as “preliminary”;
- 5. that likely over/undershoots are quantified as far as possible, and;
- 6. that in future evaluations of HCRs, the difference between preliminary TAC and final catch is included in simulations.

In this way it might be ensured that the rule leading to the “preliminary TAC” considers that this TAC is likely to be modified (due to the degree of flexibility allowable within the ITQ system), and that any such modifications are tolerable for the stock.

It is noted that the issues highlighted in these recommendations will be reviewed in subsequent surveillance audits, and that some of these have the potential to develop into non-conformances if the issues worsen.

9 Unclosed, new non-conformances and new corrective action plans

There are no new non-conformances or corrective actions assigned as part of this audit.

10 Future Surveillance Actions

Future surveillance actions are detailed below.

Table 19. Key future surveillance actions.

Clause No.	Surveillance Action
2.3.2.4	The 2 nd surveillance activities will review evidence that the corrective actions are being carried out in a timely manner. This will consist of up to date information on the implementation of the new App/catch diary deployed in September 2020 in the small boat sector, and bycatch data recorded in such system.

11 Client signed acceptance of the action plan

Not applicable, but see Section 8 for the existing action plans.

Recommendation and Determination

The assessment team recommends that the management system of the applicant fisheries, the Icelandic common ling (*Molva molva*) commercial fisheries under state management by the Icelandic Ministry of Industries and Innovation, fished with longlines, demersal otter trawls (also known as bottom trawls), gillnets, Nephrops trawls, Danish seine nets, hook-and-line by small vessels and gears from other Icelandic fisheries also legally landing common ling within Iceland's 200 nautical miles Exclusive Economic Zone (EEZ), be granted continued certification.

Accordingly, continued certification is granted.

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Reglugerd. 2016. Regulation 745/2016 on weighing and registration of marine catch. The Ministry of Industry and Innovation. Accessed 21 March 2021.	https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunar-raduneyti/nr/0745-2016
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Reglugerd. 2018. Regulation on halibut hunting no. 470/2012. Ministry of Fisheries and Agriculture.	https://www.reglugerd.is/reglugerdir/eftirraduneytum/atvinnuvega--og-nyskopunar-raduneyti/nr/18302
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Reglugerd. 2019. Regulation on mesh sizes and equipment no. 543/2002. Ministry of Justice. Accessed 24 January 2021.	https://www.reglugerd.is/reglugerdir/allar/nr/543-2002
Results of a working group for auditing a regulatory framework for the use of fishing gear, fishing grounds and protection areas in Icelandic waters - final report to the Minister of Fisheries and Agriculture. 2018	https://www.stjornarradid.is/lisalib/get-file.aspx?itemid=0b53db18-ba77-11e8-942c-005056bc530c
Stjornartidind. 2019. Regulation 1070/2015. Ministry of Justice. Accessed 21 March 2021.	http://www.reglugerd.is/reglugerdir/eftirraduneytum/atvinnuvega--og-nyskopunar-raduneyti/nr/19883
Stjornartidind. 2019. Regulation No. 923/2010 on monkfish fishing. Ministry of Justice. Accessed 21 March 2021.	https://www.stjornartidindi.is/Advert.aspx?RecordID=437308e0-8ad1-4009-98cb-10266317ed3e
Stjornartidind. 2019. Regulation on weighing and registration of marine catch No. 745/2016. Ministry of Justice.	https://www.stjornartidindi.is/Advert.aspx?RecordID=884be309-64a5-4367-9e4d-f5e7216b6f40
Stjornartidindi. 2016. Regulation on logbooks No. 746/2016. Accessed 21 March 2021.	https://www.stjornartidindi.is/Advert.aspx?RecordID=42a16a67-60a7-4ae7-ad7c-0f53fc254654
Stjornartidindi. 2018. Regulation 674/2018. Accessed 24 January 2021.	https://www.stjornartidindi.is/Advert.aspx?RecordID=4819cdde-0a89-4f80-b21a-46bb071dd15f
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UN. 2018. Chronological lists of ratifications of, accessions and successions to the Convention and the related Agreements. United Nations.	https://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm

<p>UNU. 2009. A MODEL OF TRACEABILITY OF FISH PRODUCTS FOR THE DOMESTIC MARKET IN CHINA BASED ON TRACEABILITY STUDIES IN ICELAND AND CHINA. Mechanical Engineering Institute, Dalian Fisheries University</p>	<p>http://www.unuftp.is/static/fellows/document/pan09prf.pdf</p>
<p>UST. 2001. Regulation on hydrothermal vents nr. 249/2001.</p>	<p>https://www.ust.is/library/Skrar/Einstaklingar/Fridlyst-svaedi/Auglysingar/hverastrytur_eyjafirdi_249_2001.pdf</p>
<p>UST. 2007. Regulation on hydrothermal vents nr. 510/2007.</p>	<p>https://www.ust.is/library/Skrar/Einstaklingar/Fridlyst-svaedi/Auglysingar/Hverastrytur_Arnarnesnofum_kort.pdf</p>
<p>Vefbirting. 2020. Icelandic fisheries all regulations 2020-2021 season. Accessed 20th Febraury 2021.</p>	<p>https://vefbirting.prentme-toddi.is/raduneyti/stjorn_fiskveida_2020-21/66/</p>
<p>Vonin. 2019. Storm - Semi Pelagic Trawl Door. Vónin // Bakkavegur 66 // FO-530 Fuglafjørður // Faroe Islands</p>	<p>https://www.vonin.com/en/fishing/rawl-doors/semi-pelagic-trawl-doors/storm-semi-pelagic-trawl-door/</p>

Appendix 1

Based on the technical expertise required to carry out the above fishery assessment, Global Trust Certification is pleased to confirm the Surveillance Assessment team members for the fishery as follows.

Vito Romito (Lead 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 SAI Global 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 (now NSF International/Global Trust Certification) 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.

Dankert Skagen, (Assessor)

Dankert has recently retired from the Institute of Marine Research (IMR), Bergen, where he worked for 22 years. His responsibilities included stock assessment, multispecies work, in particular in the North Sea, work connected to the introduction of the precautionary approach in fisheries and recently, on development of harvest control rules and management strategies. He was leader of the IMR research program for population dynamics and multispecies investigations in 1996-97 and for the development of new assessment tools for North-East arctic cod in 1998-99 and the assessment package TASACS in 2007-08. In addition, he has developed several programs for simulating harvest control rules that are commonly used in fisheries management today. Within ICES, he has participated in a wide range of working groups and been chairman of several of them, including the Study Group of Management Strategies. He was chairman of the Resource Management Committee for 3 years and member of ACFM for 7 years.

Appendix 2 – New Clauses in ICE RFM Standard v2.0

15.1. Clause 1.1.5

Clause 1.1.5	Transparency in the fisheries management and related decision-making process shall be ensured.			
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
SUMMARY EVIDENCE				
Management arrangements and decision-making processes are organized in such a way so as to ensure transparency.				
EVIDENCE				
<p>Icelandic fisheries management arrangements and decision-making processes are organized in a very transparent manner. The roles, functions and responsibilities of the Ministry of Fisheries and Agriculture, Directorate of Fisheries, Coastguard and MFRI are all set out clearly on their respective websites. Additionally, Iceland’s small population ensures short chains of communication that in turn ensure that key issues affecting the fishing community are well understood by all affected parties. The Minister is required by legislation to consult the MFRI before the setting of TAC. There is a consultation forum of utilised fish stock that has the aim of discussing current strategy and harvesting based on MRI’s advice and propose necessary changes. Scientific evaluations, including stock assessment and scientific advice are published online on ICES and MFRI¹⁷² websites once they are ready. There are regular meetings between fishery managers and industry representatives, at the individual level, committees, seminars and conferences where all aspects of fisheries management are discussed. Industry are well represented by a number of industry bodies such NASBO¹⁷³ and Fisheries Iceland¹⁷⁴.</p> <p>Information on the catch quota of each vessel for each fish species, including quota transfers between vessels, and remaining quota for the season for each vessel is recorded in the official central database. The publicly accessible nature of information relating to ownership of quota ensures transparency and accountability within the management system. Finally, where disputes arise that necessitate legal intervention these are reviewed in public through the Icelandic civil law legal system, including its district and supreme courts, and all findings are published on the internet.</p> <p>It is the determination of the Assessment Team that management arrangements and decision making processes are organized in such a way that transparency is ensured; therefore the Icelandic common ling fisheries are in full compliance with Clause 1.1.5 of Revision 2.0 of the IRFF Responsible Fisheries Management Standard.</p>				
Non-Conformance Number (if relevant)				NA

172

<https://www.hafogvatn.is/en/harvesting-advice>

173

<http://smabatar.is/sida/7.shtml>

174

<http://www.sfs.is/>

15.2 Clause 1.1.6

Clause 1.1.6	Fisheries shall be regulated in such a way as to avoid the risk of conflict among fishers using different vessels gear and fishing methods. Where conflict arises appropriate venues and means shall be available for conflict resolution.			
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
SUMMARY EVIDENCE				
Fisheries are regulated in such a way as to avoid the risk of conflict among fishers using different vessels gear and fishing methods. Where conflict arises appropriate legal venues and means are available for conflict resolution.				
EVIDENCE				
<p>Vessels fishing using longline gear use lights and AIS transmitters on their buoys. These serve to make the location of set longlines more visible to other fleet sectors such as bottom trawlers thereby reducing gear conflict. There also strict rules on the marking of gillnets, pots and traps (see supporting evidence for Clause 2.3.2.17). Other measures such as spatial separation of fishing activities including the exclusion of bottom trawlers from fishing within 12nm of the coast further reduce the changes of conflicts between fleet sectors arising.</p> <p>Iceland’s small population and relatively small fishing community ensures short chains of communication that ensure conflicts can generally be resolved before they arise. There are regular meetings between fishery managers and industry representatives where all aspects of fisheries are discussed.</p> <p>The Icelandic civil law legal system has strong foundations and long tradition. Its district courts and the supreme court deals with all disputes that arise within the system. Disputes are reviewed in public and all findings are published on the internet.</p> <p>It is the determination of the Assessment Team that fisheries are regulated in such a way as to avoid the risk of conflict among fishers using different vessels gear and fishing methods and that where conflicts do arise appropriate venues and means are available for conflict resolution; therefore the Icelandic ling fisheries are in full compliance with Clause 1.1.6 of Revision 2.0 of the IRFF Responsible Fisheries Management Standard.</p>				
Non-Conformance Number (if relevant)				NA

15.3 Clause 2.1.2

Clause 2.1.2	Laws and regulations concerning conservation and management measures shall be publicly available and effectively disseminated.			
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
SUMMARY EVIDENCE				
Laws and regulations concerning conservation and management measures are publicly available on the Directorate of Fisheries and Ministry of Industries and Innovation websites and are effectively disseminated through an online law gazette and via radio.				
EVIDENCE				
Laws and regulations concerning conservation and management measures are publicly available on the Directorate of Fisheries ¹⁷⁵ and Ministry of Industries and Innovation ¹⁷⁶ websites. The latest 2020 fishing laws are made available in a booklet form by the Icelandic authorities and effectively disseminated through an online law gazette ¹⁷⁷ and via radio.				
Furthermore, Icelandic Acts, laws and regulations are readily accessible at the official gazette https://www.stjornartidindi.is/ or at http://www.althingi.is/lagasafn/ (for Acts/Laws) or https://www.reglugerd.is/ (for Regulations). Further information on access to Icelandic Acts and Regulations is available here ¹⁷⁸ .				
Additionally all advice to managers relating to the status of commercial stocks which underpins decisions on TACs and other regulations is available ¹⁷⁹ . Harvest control rules are scrutinised on request by an independent scientific body (ICES) with reports being published online.				
It is the determination of the Assessment Team that laws and regulations concerning conservation and management measures are publicly available and effectively disseminated; therefore the Icelandic ling fisheries are in full compliance with Clause 2.1.2 of Revision 2.0 of the IRFF Responsible Fisheries Management Standard.				
Non-Conformance Number (if relevant)				NA

¹⁷⁵ <http://www.fiskistofa.is/fiskveidistjorn/stjornfiskveida/>

¹⁷⁶ <https://www.government.is/ministries/ministry-of-industries-and-innovation/>

¹⁷⁷ https://vefbirting.prentmetoddi.is/raduneyti/stjorn_fiskveida_2020-21/94/

¹⁷⁸ <https://www.stjornarradid.is/gogn/log-og-reglugerdir/>

¹⁷⁹ <https://www.hafogvatn.is/en/harvesting-advice>

15.4 Clause 2.3.2.17

Clause 2.3.2.17	In cases of passive fishing gear left unattended at sea, there shall be regulation that requires fishing gear to be marked so that the owner can be identified, where relevant.¹⁸⁰			
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>
SUMMARY EVIDENCE				
<p>According to IRFF Standard Revision 2.0: <i>“This clause is applicable to gillnets, traps and pots.”</i> In cases of gillnets, traps and pots left unattended at sea, there are regulations requiring that they are marked so that the owner can be identified.</p>				
EVIDENCE				
<p>In Iceland there are specific gear marking regulations for anchored bottom set nets targeting cod (which are responsible for a small percentage of ling catch). These provisions are contained in Regulation No. 115 of 13 February 2006¹⁸¹. Article 4 states that all anchors for set nets must be marked with the district registration and number of the boat. Buoys must be fixed at both ends of the nets and buoys must be marked clearly with district registrations and the number of the boat. Article 5 states that the buoy attached at the west end of the nets must be marked with a net-ring (a floating ring approximately 20 cm in diameter). If nets are set in an area where bottom trawling also occurs the west end buoy must be marked with one white blinking light.</p> <p>Other regulations with specific requirements for gear marking include:</p> <ul style="list-style-type: none"> ▪ 202/2016, Lumpfish-fishing (Articles 7 and 11)¹⁸² ▪ 1012/2013, on fishing whelk in traps (Paragraph 5)¹⁸³ ▪ 1070/2015 the fishing of crabs in the inner Faxaflói (Paragraph 4)¹⁸⁴ ▪ 923/2010, Monkfish-fishing (Paragraph 4)¹⁸⁵ ▪ 449/2013 Regulation of equipment and nets fishing for trout (Paragraph 6)¹⁸⁶ <p>Note: Acts/Laws and Regulations referenced herein may be accessed (in Icelandic) by searching by Act/Law/Regulation No./Year (e.g. 116/2006) at the official gazette https://www.stjornartidindi.is/ (Acts/Laws and Regulations) or at http://www.althingi.is/lagasafn/ (for Acts/Laws) or https://www.reglugerd.is/ (for Regulations). The latest regulation for 2020-2021 are available at https://vefbirting.prentmetoddi.is/raduneyti/stjorn_fiskveida_2020-21/94/.</p> <p>It is the determination of the Assessment Team that in cases of gillnets, traps and pots left unattended at sea, there are regulations requiring that they are marked so that the owner can be identified; therefore the Icelandic ling fisheries are in full compliance with Clause 2.3.2.17 of Revision 2.0 of the IRFF Responsible Fisheries Management Standard.</p>				

¹⁸⁰ This clause is applicable to gillnets, traps and pots.

¹⁸¹ <http://www.reglugerd.is/reglugerdir/allar/nr/115-2006>

¹⁸² <http://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/20032>

¹⁸³ <https://www.stjornartidindi.is/Advert.aspx?RecordID=024102ac-de04-45ce-99e3-5e83af6d6aae>

¹⁸⁴ <http://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/19883>

¹⁸⁵ <https://www.stjornartidindi.is/Advert.aspx?RecordID=437308e0-8ad1-4009-98cb-10266317ed3e>

¹⁸⁶ <http://www.reglugerd.is/reglugerdir/allar/nr/449-2013>

Non-Conformance Number (if relevant)	NA
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15.5 Clause 3.2.1.2

Clause 3.2.1.2	Information shall be available on the potential effect of fishing on endangered, threatened and protected species, as appropriate and relevant in the context of the unit of certification.		
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>

SUMMARY EVIDENCE
 The IRFF Standard Revision 2.0 defines endangered, threatened and protected species (ETPs) as: *“Species recognised by Icelandic legislation and/or binding international agreements to which the Icelandic authorities are party. Binding international agreements as applicable in Icelandic jurisdiction.”*

Other species which might be considered vulnerable such as marine mammal and seabird species are assessed under [Clause 3.1](#).

Information is available on the potential effect of the ling fishery on species designated as ETPs. The current status of most ETPs species is assessed routinely and presented in the MRI advice reports.

EVIDENCE
 In the context of the IRFF Standard Revision 2.0 endangered, threatened and protected species (ETPs) are those species recognised by Icelandic legislation and/or binding international agreements to which the Icelandic authorities are party and binding international agreements as applicable in Icelandic jurisdiction.

As discussed previously, discarding of fish species is prohibited and there is a statutory requirement for skippers to record both the capture of fish and non-fish species such as seabirds and marine mammals. The e-logbook system as well as paper logbooks for smaller vessels include provisions for such information to be recorded. Observations are also recorded by Directorate fishery inspectors aboard fishing vessels and during bottom trawl, gillnet and longline surveys undertaken by the MFRI.

Vulnerable and ETP species Interactions

According to the Convention for the Protection of the Marine Environment of the North-East Atlantic or OSPAR Convention, as reported in the 2020 ICES Ecosystem report of the Icelandic Ecoregion¹⁸⁷ there are a number of threatened and declining species in Iceland. Interactions with ETP and vulnerable species are generally limited, updates of which have been reported in clause 3.1.

It is the determination of the Assessment Team that sufficient information is available to allow the potential effects of the ling fishery on species designated as ETPs to be determined; therefore the Icelandic ling fisheries are in full compliance with Clause 3.2.1.2 of Revision 2.0 of the IRFF Responsible Fisheries Management Standard.

Non-Conformance Number (if relevant)	NA
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¹⁸⁷https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/EcosystemOverview_IcelandicWaters_2020.pdf

15.6 Clause 3.2.2.4

Clause 3.2.2.4	Suitable steps shall be considered to avoid, minimize or mitigate encounters with endangered, threatened and protected species, as appropriate and relevant in the context of the unit of certification.			
Evidence Rating:	Low <input type="checkbox"/>	Medium <input type="checkbox"/>		High <input checked="" type="checkbox"/>
Non-Conformance:	Critical <input type="checkbox"/>	Major <input type="checkbox"/>	Minor <input type="checkbox"/>	None <input checked="" type="checkbox"/>

SUMMARY EVIDENCE
 The IRFF Standard Revision 2.0 defines endangered, threatened and protected species (ETPs) as: *“Species recognised by Icelandic legislation and/or binding international agreements to which the Icelandic authorities are party. Binding international agreements as applicable in Icelandic jurisdiction.”*

Suitable steps are considered to avoid, minimize or mitigate encounters with ETP species, as appropriate and relevant in the context of the Icelandic ling commercial fisheries. Examples of mitigation measures include the ban on directed fishing for Atlantic halibut, spiny dogfish, Porbeagle sharks and Basking shark and the creation of permanently closed areas to protect known occurrences of vulnerable cold water corals (*Lophelia pertusa*).

EVIDENCE

Interactions with ETP and vulnerable species are generally limited, these have been assessed and reported in detail in the previous clause as well as clause 3.1. Recording of all marine mammals and seabirds in E-logbooks (by species and numbers) interactions/catches is a legal requirement since 2014 (Reg. 126/2014)¹⁸⁸. A smartphone app has been developed and deployed in September 2020 by the Directorate of Fisheries, which aims to prioritise and make both reporting and identification of bycatch easier for small boat operators (e.g. gillnetters) in the fishery. Measures to minimize or mitigate ETP species interactions include the use of night settings, trailing balloons, scare lines and weighted lines in longline fisheries, recent trials of bycatch reduction devices in gillnet fisheries (e.g. banana pingers), the use of T90 nets, flying doors and rock hoppers on bottom trawlers to avoid habitat damage and impact on sensitive benthic biota such as corals, and real time, temporary and permanent areal closures (see clause 3.2.3 for details).

Suitable steps are considered to avoid, minimize or mitigate encounters with ETP species, as appropriate and relevant in the context of the Icelandic common ling commercial fisheries. For example, mitigation measures include the ban on directed fishing for Atlantic halibut, spiny dogfish, Porbeagle sharks and Basking shark and the creation of permanently closed areas to protect known occurrences of vulnerable cold water corals (*Lophelia pertusa*)¹⁸⁹.

It is the determination of the Assessment Team that, where appropriate and relevant in the context of the Icelandic ling commercial fisheries, suitable steps are considered to avoid, minimize or mitigate encounters with ETP species; therefore the Icelandic ling fisheries are in full compliance with Clause 3.2.2.4 of Revision 2.0 of the IRFF Responsible Fisheries Management Standard.

¹⁸⁸ <https://www.reglugerd.is/reglugerdir/eftir-raduneytum/sjavarutvegsraduneyti/nr/18967>

¹⁸⁹ <https://www.sciencedirect.com/science/article/pii/S0141113617303938>

Non-Conformance Number (if relevant)	NA
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