DNV·GL ANNOUNCEMENT COMMENT DRAFT REPORT FOR THE Scope extension of the West Greenland offshore Greenland halibut fishery

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Conformity Assessment Body (CAB)	DNV GL Business Assurance Norway AS
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Fishery client	Sustainable Fisheries Greenland
Assessment Type	Scope extension to include longline on vessel Masilik.



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Objective:

MSC Fishery scope extension of the West Greenland offshore Greenland halibut fishery to include longline fishing gear by vessel Masilik.

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2 Glossary

2.1 Abbreviations and acronyms.

DFO Department of Fisheries and Oceans (Canada)	
ETP Endangered, Threatened and Protected species	
GFLK Grønlands Fiskeri Licens Kontor (Greenland Fisheries Control and Inspection	Authorities)
GINR Greenland Institute for Nature Research	
HCR Harvest Control Rule	
IFMP Integrated Fishery Management Plan (Canadian)	
KNAPK Greenland Organisation of Fishers and Hunters	
LTL Low Trophic Level Species (MSC terminology)	
MFHA Ministry of Fishing, Hunting and Agriculture (Greenland ministry dealing with	
fisheries)	
MSC Marine Stewardship Council	
NAFO Northwest Atlantic Fisheries Organisation	
NAFO SC NAFO Scientific Council, within NAFO responsible	
PI Performance indicator	
PISG Performance indicator scoring guidepost	
RBF Risk based framework	
SA NAFO Subarea	
SFG Sustainable Fisheries Greenland	
SG Scoring guidepost	
TAC Total Allowable Catch. Used both as the advised total catch allowed under sustainability limitation and as the guota allowed by the management body	
UoA Unit of Assessment (MSC terminology)	
UoC Unit of Certification (MSC terminology)	
VME Vulnerable Marine Ecosystem	
ZSL Zoological Society of London	

2.2 Stock assessment reference points.

B ₀	The (spawning) biomass expected if there had been no fishing (assuming recruitment as estimated through stock assessment).
Blim	Spawning biomass limit reference point, sometimes used as a trigger within harvest control rules, or defined as the point below which recruitment is expected to be impaired or the stock dynamics are unknown
B _{msy}	Spawning Biomass at which the maximum sustainable yield is expected (sometimes expressed as SB _{msv})
B _{targ}	Spawning biomass target reference point
Flim	Exploitation rate limit reference point, often taken as Fmsy based on UNFSA
F _{msy}	Fishing mortality rate associated with the achieving maximum sustainable yield
Ftarg	Fishing mortality target reference point
MSY	Maximum Sustainable Yield

3 Executive summary

To be drafted at Announcement Comment Draft Report stage To be completed at Public Certification Report stage

The executive summary shall include:

- Date and location of site visit.
- The main strengths and weaknesses of the client's operation.
- The draft determination / determination reached with supporting justification.

Reference(s): FCP v2.1 Section(s) 7.12, 7.18, 7.21

This report provides information on the scope extension assessment of the West Greenland offshore Greenland halibut fishery against Marine Stewardship Council (MSC) Fisheries Standard. The scope extension comprises of the inclusion of longline fishing gear by vessel Masilik.

The assessment was carried out using MSC Fisheries Certification Process v2.1. For the assessment, the default assessment tree from FCR v2.0 was used, as in the original PCR of May 2017.

The scope extension assessment covers one UoA targeting Greenland halibut with longline. The Greenland halibut is indigenous to the Northwest Atlantic and no enhancement takes place.

The assessment process was initiated by the announcement on the MSC web-side on the 12.08.2019 and was concluded on the xxx 2020.

A gap analysis showed that that the PI 1 and P 3 were not affected by the extension of the certificate with long line. The P 2 - Ecosystem impact - is small for this fishery. There are no primary by-catch species in the long line fishery.

The ecosystem impact is identical to the ecosystem impact of the trawl fishery because the overreaching impact is the catch of Greenland halibut which remains within the overall TAC advised by NAFO and the impact is therefore a redistribution of the removal between gears and within the limits that were assessed by Cappell et al (2017).

For ACDR there was no site visit,

A comprehensive programme of stakeholder consultations will be carried out in September 2019 as part of this assessment, complemented by a full and thorough review of relevant literature and data sources. This fishery is, at present certified - Certificate number MSC-F-31311 valid until 21st May 2022.

A rigorous assessment of the MSC Principles and Criteria was undertaken by the assessment team and detailed and fully referenced scoring rationales are provided through the assessment tree scoring tables provided in Appendix 1 of this report.

The Eligibility Date for this scope extension assessment is the xxx 2020 which is also the scheduled date of certification extension /Publication of PCDR.

The strength and weaknesses identified for the trawl fishery apply also to the long line extension. These are included in the summary below.

3.1 Main strengths

Table 1 Main strengths		
Principle	Performance Indicator	Comment
Principle 1	1.1.1	The Greenland halibut stock is shown to be in good health
Principle 2	2.1.1 and 2.2.1 Trawl	The trawl fishery is a clean fishery using large mesh nets that avoid bycatch
	2.1.1 and 2.2.1 Long line	The longline fishery is a clean fishery with minimal by-catch
Principle 3	3.2.1	The Greenland halibut management plan and Canada's IFMP have set clear fisherv-specific objectives for the fishery.

3.2 Main weaknesses

Table 2	Main	weaknesses
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Principle	Performance Indicator	Comment
Principle 1	1.2.2	The total TAC advised for SA 0 + SA 1 was exceeded somewhat in recent years. The overshoot is due to the inshore fishery catches in NAFO 1B-1F. The offshore fishery has adhered to the quotas set for this fishery. The inshore fishery is not restricted by quota and has expanded in recent years and is now about 2,000t annually.
Principle 2	2.4.1	The UoAs are unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. However, there is insufficient knowledge of the distribution and vulnerability of commonly encountered habitats to conclude that this is highly unlikely.
	2.4.2	The management of habitat impacts by the fishery is currently limited as operational constraints currently make it unnecessary to further regulate the footprint of the fishery.
	2.4.3	There is limited information on the deep- water habitats in the key fishing areas.
Principle 3	NA	NA

Table 3 Assessment timeline

Event	Date	
Announcement of scope extension assessment:	12.08.2019	
Site visit and stakeholder consultations:	12.09.2019	
Publication of Public Comment Draft Report		
Publication of Final Report		
Publication of Public Certification Report		
Eligibility date:		

3.1 Draft Determination

The principle scores are summarised below:

Table 4 Principle scores

Principle	Score	
Principle 1	≥80	
Principle 2	≥80	
Principle 3	≥80	

The scope extension of the West Greenland offshore Greenland halibut fishery achieved a score of 80 or more for each of the three MSC Principles, and did not score under 60 for any of the set MSC criteria.

Based on the review, analysis and evaluation of available data for the fishery presented in this report the assessment team did not identify any issues that prevent the scope extension of the West Greenland offshore Greenland halibut fishery to include longline on vessel Masilik.

4 Report details

4.1 Authorship and Peer Reviewer details

To be drafted at Announcement Comment Draft Report stage

The report shall contain:

- Names of team members.
- Specification of which person is the team leader.
- Names of the peer reviewers.
- Statement that peer reviewers can be viewed on the assessment downloads page on the MSC website.

If the Risk-Based Framework (RBF) has been used in assessing the fishery the report shall state which team member(s) has had training in the use of the RBF.

Reference(s): FCP v2.1 Section(s) 7.6, 7.14, Annex PC

4.1.1 Assessment team

Table 5 Assessment team

Name	Sandhya Chaudhury	
Role	Team leader & CoC responsible	
Qualifications: SANDHYA CHAUDHURY is a Principal Specialist at DNV GL Business Assurance. She holds a Bachelor degree in Biological sciences and a MBA. Sandhya Chaudhury has been the Lead Auditor/Team Leader for various MSC Pre- and Full Assessments since 2005. She has participated in various MSC workshops introducing certification methodology for MSC Fisheries and Chain of Custody to workshop participants. She is well-versed in project management with proven ability to lead cross-disciplinary teams. Sandhya has auditor experience with other quality management standards since 2002 and industry experience since 1991.		
She meets the co Chain of Custody trained as a team	mpetence criteria in MSC Fisheries Certification process v2.1, and appropriate skills related to requirements. She also has the knowledge of the country, language and local fishery. She is leader, incl. traceability, according to CR v1.3; FCR v2.0 and FCP v2.1	
She has been Tea auditor and techn Sandhya has no c	She has been Team Leader and traceability responsible for several MSC assessments and is a qualified MSC CoC auditor and technical reviewer and has also been responsible for both the Fisheries and CoC schemes. Sandhya has no conflicts of interest in relation to the fishery under assessment.	
Name	Hans Lassen	
Role	Principle 1 expert	
Qualifications: Har B.Sc. from Copen prime peer review stock assessments assessments, esti ecosystem model fisheries manager Danish delegatior numerous consult programme at IC management issu programme: prov the Danish fisheri MSC assessments fisheries. He carri	hs Lassen is an independent consultant with a M.SC. degree from Copenhagen University and a hagen Business School. He is the author or co-author of more than 30 scientific papers in ved publications of fisheries related topics. He has more than 40 years' experience with fish stock mating and communicating scientific advice for fisheries. He has worked on fish stock mating catch composition issues in fisheries, he has worked on cetacean surveys and ling, topics relevant to PI 1 and PI 2, (PI 2), He was involved in all parts of the Greenland ment system representing Greenland Fisheries Research institute, He has been a member of as on fisheries negotiations, he has participated in quota allocation workshops, he took part in the fishing industry partly as scientific advisor and as head of advisory ES. He conducted regular meetings with RACs now ACs. and worked as consultant for EFCA on less, all relevant to PI 3. He chaired a group that contributed to the EC review of the MGP ided input to the 2002 reform of the CFP and been a member of a similar group that reviewed es management system. He has participated since 2009 as team member in more than 25 and surveillance audits of North Atlantic and Baltic Sea including shrimp, pelagic and demersal es an MSC certificate as Team leader/Fisheries auditor for CR v1.3, FCR v2.0 and FCP v2.1.	

Furthermore, the certificate includes training as RBF assessor. Also, he carries a certificate as Team leader ISO 19011:2011. He has no conflict of interests with the West Greenland lumpfish fishery.

Name	Tim Huntington
Role	Principle 2 expert

Qualifications: Tim Huntington is a fisheries biologist with over 30 years' experience in the industry and related consulting. Tim holds a BSc (Hons) in Biological Sciences and a MSc in Applied Fish Biology. He has worked in capture fisheries and aquaculture in over 70 countries worldwide, with particular focus on Europe, the Middle East, Africa and Asia.

Tim has specialized in promoting sustainability in fisheries and aquaculture and has worked on a number of fisheries development projects for the Global Environment Facility, FAO and other agencies. He has worked extensively with the MSC responsible fisheries programme, including pre-assessments, full assessments and chain of custody audits for a number of certification bodies. Tim has participated both as lead auditor and team member for a number of UK, NW Atlantic, Indian Ocean and Pacific Ocean fisheries and specializes in contributing to the Principle 2 and Principle 3 elements. In addition to his work for certification bodies, Tim has also worked directly for MSC; contributing in studies on chain of custody methodologies, a review of environmental benefits of MSC certification, amongst other projects.

Tim meets the competence criteria and is a trained team member according to the MSC FCR v.2.0 & FCP v2.1 including training as RBF assessor and has substantial and appropriate skills related to Principle 2 & Principle 3. Tim has no conflicts of interest in relation to the fishery under assessment.

4.1.2 Peer Reviewers

Peer reviewer information to be completed at Public Comment Draft Report stage

Peer reviewers used for this report will be chosen by the MSC Peer Review college and will be listed on the MSC website. A summary CV for each will be available in the Assessment downloads section of the fishery's entry on the MSC website.

4.2 Version details

To be drafted at Announcement Comment Draft Report stage

The report shall include a statement on the versions of the fisheries program documents used for this assessment.

Table 6 Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	Version 2.1
MSC Fisheries Standard	Version 2.01
MSC General Certification Requirements	Version 2.3
Default Assessment Tree- FCR	Version 2.0
MSC Reporting Template	Version 1.1

5 Unit(s) of Assessment and Certification and results overview

5.1 Unit(s) of Assessment and Unit(s) of Certification

5.1.1 Unit(s) of Assessment

To be drafted at Announcement Comment Draft Report stage

The fishery is, to the knowledge of the assessment team, within the scope of the MSC Fisheries standard according to the following determinations:

- The target species is a fish and the fishery does not use poisons or explosives.
- The fishery is not conducted under a controversial unilateral exemption to an international agreement.
- The client or client group does not include an entity that has been successfully prosecuted for a forced labour violation in the last 2 years.
- The fishery is not enhanced or based on an introduced species.
- The fishery has mechanisms for resolving disputes and disputes do not overwhelm the fishery.

The Unit of Assessment defines the full scope of what is being assessed and includes the Unit of Certification and any other eligible fishers.

The Unit of Assessment includes the target stock (s), the fishing method or gear type/s, vessel type/s and/or practices, and the fishing fleets or groups of vessels, or individual fishing operators pursuing that stock, including any other eligible fishers that are outside the Unit of Certification.

The Unit of Assessment for this fishery assessment is specified in Table 6.

UoA 1 - Certified	Description
Species	Greenland halibut (Reinhardtius hippoglossoides)
Stock	Greenland halibut in NAFO subareas 0+1
Geographical area	Northwest Atlantic West Greenland coastal zone, archipelago and fjords FAO 21 NAFO Subareas 1 Greenland fishing zone
Harvest method / gear	Bottom Trawl
Client group	Sustainable Fisheries Greenland (SFG)
Other eligible fishers	Vessels from the EU, Norway, Russia and Faroe Islands are fishing for Greenland halibut in the same area due to arrangements with the Government of Greenland. However, these vessels are not part of this certification. Other eligible fishers are other vessels whose owners are members of Sustainable Fisheries Greenland.

Table 7 Unit(s) of Assessment (UoA)

UoA 2 – Scope extension	Description
Species	Greenland halibut (<i>Reinhardtius hippoglossoides</i>)
Stock	Greenland halibut in Subarea 0 and Divisions 1A (offshore) + 1B-F
Geographical area	Northwest Atlantic West Greenland coastal zone, archipelago and fjords FAO 21 NAFO Subareas 1 (A, B, C, D, E, F) Greenland fishing zone
Harvest method / gear	Longline
Client group	Client group is Sustainable Fisheries Greenland (SFG) on behalf of the companies published on the MSC web site, and currently listed in Appendix 7.13. The vessel list is not static and will be kept updated on the MSC website.
Other eligible fishers	Vessels from the EU, Norway, Russia and Faroe Islands are fishing for Greenland halibut in the same area based on arrangements with the Government of Greenland. However, these vessels are not part of this certification. Other eligible fishers are other vessels whose owners are members of Sustainable Fisheries Greenland.

5.1.2 Unit(s) of Certification

To be drafted at Client and Peer Review Draft Report stage

To be completed at Public Certification Report stage

The report shall include a justification for any changes to the proposed Unit(s) of Certification (UoC).

Reference(s): FCP v2.1 Section 7.5

The Unit of certification is the unit entitled to receive an MSC certificate.

The proposed Unit of Certification include the target stock (s), the fishing method or gear type/s, vessel type/s and/or practices, the fishing fleets or groups of vessels or individual fishing operators pursuing that stock including those client group members initially intended to be covered by the certificate.

The MSC FCP v2.1 specifies that the Unit of Certification is defined as "The target stock or stocks (= biologically distinct unit/s) combined with the fishing method/gear and practice (including vessel type/s) pursuing that stock and any fleets, groups of vessels, or individual vessels of other fishing operators." The proposed Unit of Certification is provided in Table 7.

Table 8 Unit(s) of Certification (UoC)

UoC X	Description
Species	
Stock	
Geographical area	

Harvest method / gear	
Client group	
Other eligible fishers	

UoC X	Description
Species	
Stock	
Geographical area	
Harvest method / gear	
Client group	
Other eligible fishers	

The extension concerns the vessel "Masilik"



5.2 Assessment results overview

5.2.1 Summary of the original assessment

The intent of the West Greenland offshore trawl Greenland halibut fishery to become MSC certified was announced on 19th May 2016, and the fishery received its certification on 22nd May 2017. Scope of certification is up to the point of landing and chain of custody commences from point of landing.

The default assessment tree, set out in the MSC Certification Requirements, version 2.0, was used for the initial assessment. The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 60 against any of the individual MSC Criteria. In the initial certification, the scores of the three Principles were:

Table 9 Principle scores – original assessment.			
Principle	Score		
Principle 1 – Target Species	87.5		
Principle 2 – Ecosystem	83.3		
Principle 3 – Management System	86.5		

The fishery achieved a score of below 80 against 4 scoring indicators. The assessment team therefore set 4 conditions and 1 recommendation for continuing certification that the client is required to address. These conditions are shown in Table 9. The recommendation is summarized in Table 10.

The report of the first surveillance audit is dated 8/10/2018 and no rescoring took place.

5.2.2 Gap analysis for scope extension

The client, Sustainable Fisheries Greenland, has requested an extension to the scope to cover the vessel Masilik fishing with gear longline.

The scope extension concerns a new Proposed Unit of Assessment of West Greenland offshore Greenland halibut (F-DNV-240697 valid from 22.05.2017 to 21.05.2022).

Process	MSC-FCP-v2.1: clause 7.27.1 & G7.27.1b
Assessment tree	The default assessment tree, set out in the MSC Certification Requirements, version 2.0, was used for the initial assessment.

The target species remains the same as in the present certificate: Greenland halibut (Reinhardtius hippoglossoides) The scope extension comprises of an addition of the vessel Masilik and a gear (longline to the existing bottom-trawl) in the same geographical area of NAFO Subareas 1 (Divisions 1A, 1B, 1C, 1D, 1E, 1F).

There are four conditions 1-4 in the existing certificate, Table 9. There is 1 recommendation in the existing certificate, Table 10.

Table 9 summarizes the analysis of the degree of overlap between the existing fishery WEST GREENLAND OFFSHORE GREENLAND HALIBUT and the scope extension (GEAR: LONGLINE & VESSEL: MASILIK).

Table 10 Gap analysis for scope extension with long liner Masilik

	Component	Overlap between PCR dt 27.05.2017 and additional scope (added vessel and gear)	Explanation of the degree of overlap	Is updated assessment needed?	Conclusion of gap analysis:
P1	Target species- Outcome	Complete overlap	The longline exploits the same stock	No	No additional action required.

		-			
	Component	Overlap between PCR dt 27.05.2017 and additional scope (added vessel and gear)	Explanation of the degree of overlap	Is updated assessment needed?	Conclusion of gap analysis:
			(Greenland halibut in the Davis strait and Baffin Bay) as the fleet operating under the existing certificate		The stock assessment will be updated at the 2019 surveillance audit planned for September 2019
	Target species- Management	Complete overlap	The quota allocated to the long liner Masilik will be deducted from the total overall Greenlandic TAC. The longlining fishery will be subject to the same data requirements as the trawl fishery. The total exploitation rate will not be affected. Harvest strategy, Harvest Control rule, information available and stock assessment are all unaffected. The existing stock assessment includes the long line fishery in the Davis Strait and Baffin Bay. Logbook information – mandatory for this fishery – may provide additional and useful input data for the stock assessment Condition 1 is directed at the overall HCR and there are no implications whether long liners are included in the certificate or not.	No	No additional action required.
P2	Primary		Long-line By-catch	Yes	Data for the catch
	Secondary ETP species	Some overlap	composition may differ from that of the trawlers. Bait to be considered		composition of the long liners operating in Davis Strait and Baffin Bay to be analysed

	Component	Overlap between PCR dt 27.05.2017 and additional scope (added vessel and gear)	Explanation of the degree of overlap	Is updated assessment needed?	Conclusion of gap analysis:
			Effects of Ghost fishing to be evaluated		and 2.1.1, 2.2.1 and 2.3.1 [outcome] to be scored. Data requirements for 2.1.2, 2.2.2, 2.3.2 [Management strategy] and 2.1.3, 2.2.3, 2.3.3 [information on stock status] are embedded in the Greenlandic legislation and will apply independent of the gear used. By-catch species that occur in the longline fishery but not in the trawl catches to be assessed and this may involve RBF for these species
	Habitats	Some overlap	The longline fishery per unit of catch has less impact on the habitats than bottom trawls. However, the longline grounds may differ from those of the trawlers and the longline impact should be assessed	Yes	The impact should be assessed. Conditions 2, 3 and 4 should be considered if applicable for longline fishery. 2.4.1 [Habitat outcome] to be reviewed particular for grounds not fished by trawlers. 2.4.2 [management strategy] and 2.4.3 [habitat information] are not affected by the introduction of the long liner
	Ecosystem	Complete overlap	The major impact on the ecosystem is the removal of Greenland	No	No action is required

	Component	Overlap between PCR dt 27.05.2017 and additional scope (added vessel and gear)	Explanation of the degree of overlap	Is updated assessment needed?	Conclusion of gap analysis:
			affected by the introduction of the longliner. By-catch of the longliner is small and comparable to the trawler catches.		
P3	Governance and policy	Complete overlap	The longliner operates within the same management framework as the trawlers. Objectives and other legal requirements, decision making processes as well as monitoring and management performance are not affected by the addition of a longliner to the	No	No action is required 3.1.1 [legal and customary framework], 3.1.2 [Consultations, roles and responsibilities] and 3.1.3 [Long term objectives] are not affected by the introduction of the longliner
	Fishery specific management system	Complete overlap	liner 'Masilik' is owned by a group already certified. Fishery specific management is based on Greenland legislation and administrative practice. These regulations and practices are not gear specific. 3.2.1 Objectives. These are not gear specific 3.2.2a Decision making processes are not affected by the gear 3.2.2b Responsiveness of decision-making processes is not affected of the gear 3.2.2c Use of precautionary approach applies across all gears cf Greenland legislation	No	No action is required

Component	Overlap between PCR dt 27.05.2017 and additional scope (added vessel and gear)	Explanation of the degree of overlap	Is updated assessment needed?	Conclusion of gap analysis:
		3.2.2d Accountability and transparency of management system and decision. This is fundamental for the entire fishery independent of the gear 3.2.2e Approach to disputes; there is no gear specific approach 3.2.3a MCS implementation; covers the entire Greenland fisheries and is based on a risk		

5.2.3 Gap Analysis Conclusion

- Principle 1 there is complete overlap
- Principle 2 there is some overlap but not a complete overlap
- Principle 3 there is complete overlap

5.2.4 Determination, formal conclusion and agreement

To be drafted at Final Draft Report To be completed at Public Certification Report

The report shall include a formal statement as to the certification determination recommendation reached by the assessment team on whether the fishery should be certified.

The report shall include a formal statement as to the certification action taken by the CAB's official decision-makers in response to the Determination recommendation.

Reference(s): FCP v2.1 Section 7.21

.Table 11 Conditions for original certification (full text in Appendix 1.3)

Condition number	PI	Condition	Time-scale for compliance
1	1.2.2	Management should ensure that overall the TAC advised by NAFO SC is not exceeded.	2020 [Year 3] Provide evidence that landings of halibut have not exceeded the advised TAC Score 80

2	2.4.1	Information on the nature, distribution and vulnerability of the main habitats in the UoA area should be known at a level of detail relevant to the scale and intensity of the fishery (condition 4). That information must be adequate to be able to determine whether or not the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	2021 [Year 4] present information from the fishery on the nature distribution and vulnerability of the commonly encountered habitats, along with the main impacts of the UoA on those habitats, to demonstrate that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. Score 80.
3	2.4.2	Greenland halibut fishery management should include provisions for managing the extent of the fishery interactions with commonly encountered habitats to ensure habitat outcome at SG80 level or above is maintained.	2020 [Year 3] – Revisions to the management plan to include provision for managing the extent of the fishery footprint in relation to commonly encountered habitats to ensure habitat outcome at SG80 level. Score 80
4	2.4.3	Information on the nature, distribution and vulnerability of the main habitats in the UoA area should be known at a level of detail relevant to the scale and intensity of the fishery. That information must be adequate to allow for the identification of the main impacts of the UoA on the main habitats.	2021 [Year 4] – present information from the fishery on the nature distribution and vulnerability of the main habitats, along with the main impacts of the UoA on those habitats. Score 80.

Table 12 Recommendations from original	jinal assessment (full text in Appendix 1.3)
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Recommendation number	PI	Recommendation
1	2.4.2	It is recommended that the Greenland management plan adopts more stringent move –on rules for corals and sponges, and also adopt move-on rules for sea pens, that meet or exceed those recommended by NAFO.

5.2.5 Principle level scores

To be drafted at Client and Peer Review Draft Report

The report shall include scores for each of the three MSC principles in the table below.

Reference(s): FCP v2.1 Section 7.17

Table 13 Principle level scores

Principle	UoA 1	UoA 2	UoA 3	UoA 4
Principle 1 – Target species				
Principle 2 – Ecosystem impacts				
Principle 3 – Management system				

5.2.6 Summary of conditions

To be drafted at Client and Peer Review Draft Report

The report shall include a table summarising conditions raised in this assessment. Details of the conditions shall be provided in the appendices. If no conditions are required, the report shall include a statement confirming this.

Reference(s): FCP v2.1 Section 7.18

Table 14 Summary of conditions

Condition number	Condition	Performance Indicator (PI)	Related to previous condition?
1	Management should ensure that overall the TAC advised by NAFO SC is not exceeded.	1.2.2	Yes
2	Information on the nature, distribution and vulnerability of the main habitats in the UoA area should be known at a level of detail relevant to the scale and intensity of the fishery (condition 4). That information must be adequate to be able to determine whether or not the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	2.4.1	Yes
3	Greenland halibut fishery management should include provisions for managing the extent of the fishery interactions with commonly encountered habitats to ensure habitat outcome at SG80 level or above is maintained.	2.4.2	Yes
4	Information on the nature, distribution and vulnerability of the main habitats in the UoA area should be known at a level of detail relevant to the scale and intensity of the fishery. That information must be adequate to allow for the identification of the main impacts of the UoA on the main habitats.	2.4.3	Yes

5.2.7 Recommendations

To be drafted at Client and Peer Review Draft Report stage

If the CAB or assessment team wishes to include any recommendations to the client or notes for future assessments, these may be included in this section.

Table 15 Summary of Recommendations

Recommendation number	Recommendation	Performance indicator
1	Adopt more stringent move -on rules for corals and sponges. Also adopt move-on rules for sea pens,	2.4.2
	that meet or exceed those recommended by NAFO.	

6 Traceability and eligibility

To be drafted at Announcement Comment Draft Report stage To be completed at Public Certification Report stage

The report shall include a description of the tracking, tracing and segregation systems within the fishery and how these systems will allow any products sold as MSC certified to be traced back to the Unit of Certification.

The report shall include an evaluation of the robustness of the management systems related to traceability.

The report shall include any traceability references, including hyperlinks to publicly-available documents.

The report shall include a description of the factors that may lead to risks of non-certified seafood being mixed with certified seafood prior to entering Chain of Custody using the table below. For each risk factor, there shall be a description of whether the risk factor is relevant for the fishery and, if so, a description of the relevant mitigation measures or traceability systems in place.

Reference(s): FCP v2.1 Section 7.9

6.1 Eligibility Date

The Eligibility Date for the extended scope of this fishery is the publication date of the PCDR

The eligibility date is the date from which the products from a certified fishery are eligible to be sold as MSC certified or bear the MSC ecolabel. In this fishery, the eligibility date is the date of publication of the PCDR. Any fish harvested after the eligibility date and sold or stored as under-MSC-assessment fish shall be handled in conformity with relevant under-MSC-assessment product requirements in the MSC Chain of Custody standard.

The traceability and segregation systems for the scope extension of this fishery is the same as for the existing fishery and is in place. Labelling the products on board and sales note at first hand sale, both describing the catch dates, ensures that only fish caught after the Eligibility Date will be sold as MSC.

6.2 Traceability within the Fishery

Traceability within the scope extension of this fishery remains the same as for the existing fishery and there are no changes to the PCR of May 2017.

There is a sufficient system of tracking, tracing and segregation in this Greenland halibut fishery to ensure that all Greenland halibut products originating from the certified fishery and sold as certified could be identified prior to or at the point of landing.

The scope extension fishery takes place with longline vessel Masilik holding a licence for the Ministry of fisheries, hunting and agriculture.

In Greenland vessels being 9.4 meters or longer shall keep a logbook on each trip with information of the vessels, the fishing activity carried out, the catch and the landing of the catch. Logbooks are handed over to the GFLK which collects and processes the data. The log books are checked by observers when they are on board.

At **initial sale** of the fish the sales notes are filled out and sent to the authorities. These include information of the catch dates, catch area, quantity of each species landed, the form in which the products are presented, the value of each product and the vessel making the landing. The sales notes must be kept for minimum 3 years. The vessels in the UoC can theoretically fish in geographical areas outside the UoC on the same trip or on different trips. However, they have to have separate licenses for the different areas and the catches have to be **clearly separated and labelled** when stowed according to Greenland legislation (executive order) so that no mix of certified and non-certified fish can occur. All the vessels in this fishery have VMS, and by that there is full control about their fishing areas.

There is no transhipment. The catches are frozen and packed in 13 kilos blocks at sea. The bigger fish are gutted and headed with J-cut on board, and the packages are exported to Asia. The smaller fish are frozen and packed whole on board for further processing (filleting) in Greenland. The fillets go to the European markets.

Of the total Greenland halibut off shore catches 25 % of the has to be landed and processed in Greenland according to the regulations. After processing and freezing on land ALL these are shipped to Aalborg in one specific transfer ship for storage before further distribution. The remaining 75 % are processed and frozen on board the trawlers and these catches are landed in different places in Iceland, Denmark and Faroe Islands. All the packages are labelled on board with information about catch date (catch date is the same as freezing date), species, product, vessel id, catch area. The fish changes owner when landed at the quay and payment is made. This means that when the fish arrives at the freezing storage in e.g. Aalborg the ownership has already changed.

Table 16 Traceability within the fishery

Factor	Description
 Will the fishery use gears that are not part of the Unit of Certification (UoC)? If Yes, please describe: If this may occur on the same trip, on the same vessels, or during the same season; How any risks are mitigated. 	No, the fishery does not use gears that are not part of the UoC. All fishing for Greenland halibut in the UoC is either by trawlers (original certificate) or longline (this scope extension).
Will vessels in the UoC also fish outside the UoC geographic area? If Yes, please describe: If this may occur on the same trip; How any risks are mitigated.	Yes, vessels fishing in the UoC also fish outside the UoC but not in the same trip and not for the same species. There are therefore, no risk of problems with traceability.
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at- sea activities and on-land activities. - Transport Storage Processing Landing Auction	There will not be MSC-certified and non-certified Greenland halibut catches in the same trip. The MSC-certificate only covers at- sea activities. Once the products from the MSC-certified Greenland halibut fishery touches the quay it changes ownership. Land based production facilities have separate Chain of Custody certificates. Land based production facilities are used to handle certified and non-certified products.
 Does transhipment occur within the fishery? If Yes, please describe: If transhipment takes place at-sea, in port, or both; If the transhipment vessel may handle product from outside the UoC; How any risks are mitigated. 	No, there is no transhipment in this fishery.
Are there any other risks of mixing or substitution between certified and non-certified fish? If Yes, please describe how any risks are mitigated.	No other risks of mixing or substitution between certified and non-certified fish have been identified.

6.3 Eligibility to enter further chains of custody

To be drafted at Announcement Comment Draft Report stage To be completed at Public Certification Report stage

The report shall include a determination of whether the seafood product will be eligible to enter certified chains of custody, and whether the seafood product is eligible to be sold as MSC certified or carry the MSC ecolabel.

The report shall include a list of parties, or category of parties, eligible to use the fishery certificate, and sell product as MSC certified.

The report shall include the point of intended change of ownership of product, a list of eligible landing points, and the point from which subsequent Chain of Custody certification is required.

If the CAB makes a negative determination under FCP v2.1 Section 7.9, the CAB shall state that fish and fish products from the fishery are not eligible to be sold as MSC certified or carry the MSC ecolabel. If the client group includes other entities such as agents, unloaders, or other parties involved with landing or sale of certified fish, this needs to be clearly stated in the report including the point from which Chain of Custody is required.

Reference(s): FCP v2.1 Section 7.9

Greenland halibut (Reinhardtius hippoglossoides) products fished offshore by trawlers and longliners in West Greenland (NAFO Subareas 1 A-F) holding a Greenland halibut fishing license and that are current members of Sustainable Fisheries Greenland as per list published on the MSC website, are eligible to enter further certified chains of custody and carry MSC logo in case of successful certification.

The client will maintain and provide DNV GL with a current list of members of Sustainable Fisheries Greenland as well as a vessel list eligible to use the fishery certificate. The list will be published on the MSC website. The Greenland halibut products change ownership at the point of landing. This means that by landing the fish changes owner from the certified trawler company to either the sales or the processing company, all members of Sustainable Fisheries Greenland halibut products at the points of landing.

The current points of landing are:

- Greenland: Aasiaat, Sisimiut, Maniitsoq, Nuuk.
- Iceland: Hafnafjordur , Reykjavik
- Faroe Islands: Kollarfjordur
- Denmark: Hirtshals, Skagen

Chain of Custody certification is required for eligible buyers and processors for buying and selling MSC certified Greenland halibut products.

Table 17 Eligibility to enter further chains of custody

Conclusion and determination	West Greenland offshore Greenland halibut will be eligible to enter further certified chains of custody and be sold as MSC certified or carry the MSC ecolabel.
List of parties, or category of parties, eligible to use the fishery certificate and sell product as MSC certified	The current list of members, eligible to use the fishery certificate is published on the MSC website- General documents
Point of intended change of ownership of product	Point of change of ownership is when the products from the MSC- certified Greenland halibut fishery touches the quay. Land based production facilities have separate Chain of Custody certificates.
List of eligible landing points (if relevant)	As listed above.
Point from which subsequent Chain of Custody is required	Subsequent chain of custody is required from the point of change of ownership i.e. from the land based production facilities.

6.4 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to enter further chains of custody

To be drafted at Announcement Comment Draft Report stage

To be completed at Public Certification Report stage

Where IPI stocks are present, the report shall include an evaluation of the species, stock, proportion and weight of the catch of IPI stock(s) and their eligibility to enter further chains of custody. The report shall include a justification of how requirements in FCP Annex PA are met for any catches of IPI stock(s).

Reference(s): FCP v2.1 Section 7.5

Ref.	Clause/ Requirement	IPI- Y/N	Observation
FCP v2.1 7.5.8.1	The CAB shall only recognise stock(s) as either:	being an	IPI stock, where the inseparability arises because
а	The non-target catch is practicably indistinguishable during normal fishing operations (i.e., the catch is from a stock of the same species or a closely related species)	Ν	Non- target catch is 15% in 2017-2018- ref. Table 22. This comprises of Greenland shark is 14%, Roundnose grenadier 0.6%, Atlantic cod 0.1% and other 0.1% all of which are distinguishable and sorted at landing.
b	When distinguishable, it is not commercially feasible to separate due to the practical operation of the fishery that would require significant modification to existing harvesting and processing methods.	Ν	It is commercially feasible to separate at landing.
С	The total combined proportion of catches from the IPI stock(s) do not exceed 15% by weight of the total combined catches of target and IPI stock(s) for the UoA:	Ν	There are no IPI stocks identified
d	The stocks are not ETP species	Ν	None of the stocks are ETP species
е	The stocks are not certified separately	Ν	NA

The average Greenland halibut targeted longline catch for 2017-2018 was 85 % - ref. Table 22. Greenland shark is 14%, Roundnose grenadier 0.6%, Atlantic cod 0.1% and other 0.1%. Fish are sorted at landing and there is therefore, no IPI stocks involved.

7 Scoring

7.1 Summary of Performance Indicator level scores

Principle	Component	Weight		Performance Indicator (PI)	Weight	Score
	Outcomo	0 222	1.1.1	Stock status	1,000	≥80
One	Outcome	0,333				
			1.2.1	Harvest strategy	0,250	≥80
	Managamant	0.667	1.2.2	Harvest control rules & tools	0,250	60-79
	Management	0,007	1.2.3	Information & monitoring	0,250	≥80
			1.2.4	Assessment of stock status	0,250	≥80
			2.1.1	Outcome	0,333	≥80
	Primary species	0,200	2.1.2	Management strategy	0,333	≥80
	·		2.1.3	Information/Monitoring	0,333	≥80
			2.2.1	Outcome	0,333	≥80
	Secondary species	0,200	2.2.2	Management strategy	0,333	≥80
			2.2.3	Information/Monitoring	0,333	≥80
	ETP species	0,200	2.3.1	Outcome	0,333	60-79
Тwo			2.3.2	Management strategy	0,333	60-79
			2.3.3	Information strategy	0,333	≥80
		0,200	2.4.1	Outcome	0,333	≥80
	Habitats		2.4.2	Management strategy	0,333	≥80
			2.4.3	Information	0,333	≥80
			2.5.1	Outcome	0,333	≥80
	Ecosystem	0,200	2.5.2	Management	0,333	≥80
			2.5.3	Information	0,333	≥80
			3.1.1	Legal &/or customary framework	0,333	≥80
	Governance and policy	0,500	3.1.2	Consultation, roles & responsibilities	0,333	≥80
			3.1.3	Long term objectives	0,333	≥80
Three			3.2.1	Fishery specific objectives	0,250	≥80
	Fishery specific	0 500	3.2.2	Decision making processes	0,250	≥80
	management	0,500	3.2.3	Compliance & enforcement	0,250	≥80
	system		3.2.4	Monitoring & management performance evaluation	0,250	≥80

7.1.1 Background

In Cappell et al (2017) and Cook et al (2019) overview of the biology of the Greenland halibut relevant to the Offshore Greenland halibut in the Davis Strait and Baffin Bay, the trawl gear used the harvest strategy by the Greenland authorities and the harvest Control Rule applied. The stock assessment (information and methodology) is not affected by the inclusion of the long lines in the certificate and the descriptions given by Cappell et al (2017) and Cook et al (2019) are unaffected.

The bottom set long line gear is illustrated in Figure 1. The hooks are baited, Table 16

Table 18 Bait using for longlining in Greenlandic fishery for Greenland halibut. Source Client

Species	Origin	Amount (2018)
Herring	Greenland Iceland, Faroe Islands	ca. 18 tons
Squid	Korea, Taiwan/China Argentina (Falklands Islands),	ca. 34 tons

Jørgensen (1995) compared trawl and long line fishing in the area focusing on efficiency and selectivity but also found difference in the catch composition, e.g. roundnose grenadier were present in large numbers in the trawl but totally absent from the longline catches.

The foot print area is currently the same as for the trawlers but long line can fish areas and bottoms which are not accessible to trawler. However, as demonstrated in numerous papers, e.g. Pham et al (2014) the footprint by the bottom set long line is far less than that of the bottom trawl.

The German trawl fishery for Greenland halibut in the same areas as being fished by the Greenland trawlers was MSC certified in 2019 see Cook et al (2019).



Bottom longline illustration.

Figure 1 Bottom set long line used for Greenland halibut fishing at 800-1500 m depth. Source NOAA https://www.fisheries.noaa.gov/national/bycatch/fishing-gear-bottom-longlines

7.2 Principle 1

7.2.1 Principle 1 background

The stock background is summarised by Cappell et al (2017). The current most updated stock advice on fishing is NAFO (218) applicable for 2019 and 2020. The stock status is in 2019 briefly reviewed at NAFO Sc.C. and no major changes are reported.

The stock assessment is based on catch data for all fisheries for Greenland halibut in the Davis Strait and Baffin Bay combined with survey results from a coordinated Greenland Canadian offshore trawl survey in the Davies Strait and in the Baffin Bay.

7.2.2 Catch profiles

The fishery with longline only began in 2017, Table 19

Table 19 Greenland halibut at West Greenland offshore 2014-2018. Catch by Greenland long line fleet (kg). Source: GFLK

Year	Long line	Bottom trawl (single)	Midwater trawl	Bottom trawl (pair)	Total
2014	0	2.337.551	175.686	7.067.199	9,580,436
2015	0	3.017.068	811.240	5.767.120	8,865,312
2016	0	313.902	880.904	8.542.285	9,737,091
2017	119.886	3.326.904	40.000	7.404.944	10,851,774
2018	282.898	1.896.402	52.856	8.799.558	11,031,714

The by-catch composition is summarised in Table 19

Table 20 Greenland halibut fishery offshore at West Greenland (NAFO subarea 1) using long lines. By-catch composition from logbooks. Regulation on requirement in log books was changed in 2017. Source: GFLK

Year	Spotted catfish	Catfish	Cod	Greenland Shark	Mixed	Golden redfish	Round- nose grenadier	Tusk
2014	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	2.325	0
2018	10	150	560	66.500	266	120	450	550

7.2.3 Total Allowable Catch (TAC) and catch data

Table 21 Total Allowable Catch (TAC) and catch data

TAC	Year	2018	Amount	32,300 MT
UoA share of TAC	Year	2018	Amount	16,150 MT
UoA share of total TAC	Year	2018	Amount	16,150 MT
Total green weight catch by UoC	Year (most recent)	2018	Amount	11,032 MT
Total green weight catch by UoC	Year (second most recent)	2017	Amount	10,851 MT

7.2.4 Principle 1 Performance Indicator scores and rationales

The gap analysis found that there is complete overlap of the scope extension and the original assessment. The following is therefore a short summary of the original assessment highlighting the conditions set and the scores. For details see Cappell et al (2017) https://fisheries.msc.org/en/fisheries/west-greenland-offshore-greenland-halibut/@@view

The Principle 1 assessment was audited in 2018 and no rescoring took place.

Table 22 Principle 1 scoring (Scoring from Cappell et al (2019, rationale based on Cappell et al 2017)

PI	Score	Rationale	Condition
1.1.1	00	Based on survey results there is a high degree (SG100) that SSB	
	90	> PRI (proxy Blim) and the exploitation is at or below MSY (SG80)	
1.1.2	NA		
1.2.1	85	The management plan through the NAFO advice is designed to achieve stock management objectives under PI 1.1.1 and is responsive to stock changes but does not address the inshore component in 1B-1F	
1.2.2	75	The HCRs are expected to keep the stock fluctuating at or above a target level consistent with MSY most of the time while of the inshore fishery in 1B-F is outside the quota and has increased over its previous level (SG80 not met)	Management of the quota should ensure that overall the TAC is not exceeded
1.2.3	90	Data to feed the HCR are available and are monitored at regular intervals	
1.2.4	95	NAFO Sc.C. is satisfied that the catch information and survey results provide relevant and useful indicators for stock status.	
Overall	87.5		

PI 1.1.1 – Stock status

PI 1	1.1.1	The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing								
Scoring Issue		SG 60	SG 80	SG 100						
	Stock sta	Stock status relative to recruitment impairment								
а	Guide It is likely that the stock is above the point where recruitment would be impaired (PRI).		It is highly likely that the stock is above the PRI.	There is a high degree of certainty that the stock is above the PRI.						
	Met? Yes		Yes	Yes						

Rationale

The Greenland halibut in the Davis Strait is assessed by NAFO SC based on requests from Canada and Greenland; the most recent report is NAFO SCR 016/14. NAFO SC assesses the entire stock and the assessment and hence the advice for the Davis Strait Greenland halibut resource is split into two components: Greenland halibut in NAFO Divisions 0A+1AB (excl. inshore areas) and 0B+1C-F (including inshore areas).

However, while the advice is provided for two separate components, the Greenland halibut in the Davis Strait is considered a single stock. NAFO SC has agreed a PRI (Blim) based on the biomass proxy the survey biomass. This Blim is 30% of the observed average survey biomass level. This is a proxy set based on the principles laid down by NAFO (2004), "For data-poor stocks, the point at which a valid index of stock size has declined by 85% from the maximum observed index level provides a proxy for Blim. If the highest index of stock size is equal to Bmsy, then it would be consistent for Blim to be 30% of that level. If the highest observed survey index is considered to be below

Bmsy, then this should be taken into account in a similar way." The NAFO Sc.C., NAFO (2016) argues that the current biomass level is at or above MSY. This argument is based on the stability of the stock indicators i.e. survey indices and commercial cpue observations. As the fishery has expanded over the last decade if the exploitation rate was dominating the natural mortality (F>M) the stock should have decreased. It is therefore a conservative estimate that F < M and therefore as MSY is approximately at $F \sim M$ the stock is at MSY or under exploited.

The biomass index in Div. 0B has increased from 2013 to 2015, but levels are still below the high observed in 2011. The biomass index for Div. 1CD has been decreasing since 2011 and was in 2014 at the lowest level seen since 1997, but increased to a level above average for the time series in 2015. Length compositions in the catches and deep sea surveys have been stable in recent years. Div. 0A+1AB: The biomass index has been variable with an increasing trend since 2010. Length compositions in the 1AB commercial catches have been relatively stable in recent years. NAFO SCR 016/14 finds that the State of the Stocks are based on the biomass (combined Div. 0A + Divs. 1CD index) has been relatively stable with a slight increasing trend in recent years and was well above Blim; the stock is about three times the Blim. The uncertainty in the survey is far less than this difference (CV for overall biomass estimate is about 10%, Jørgensen 2016) and there is a high degree of certainty that the stock is above the PRI resulting in **SG100 being met**.

Stock sta	atus in i	relation to	achievem	ent of	ΙM	axım	num	Su	staina	able	Yield	(M	SY)	
								a						

b	Guide post	around a level consistent with MSY.	certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?	Yes	Νο
Rationa	ale		

Insert sufficient rationale to support the team's conclusion for each Scoring Guidepost (SG).

References

The MSY level has not been estimated. NAFO SC (2016) writes "...the precautionary factor need not apply in the case of SA0+1A (off shore) and 1B-F Greenland halibut given the stock is near the Bmsy proxy and therefore well above Blim and there have been several recent years with good recruitment." This is in accordance with general considerations that BMSY is 2-3 times the Blim level which indicates that that the stock is at, or above, MSY levels. The fishery has been ongoing for about three decades suggesting that the stock has stabilised and is not conducted on the build-up of biomass of an unfished stock. Furthermore, the stock indicators are stable (NAFO Scr 16/14) indicating that the population has reached some stable level. Therefore, based on stock indicators the exploitation is at or below MSY, and **SG 80 is met.**

However, with the uncertainty of what is the actual MSY level suggests that SG 100 is not met

Stock status relative to reference points

	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to PRI (SIa)	Blim proxy 30% of mean biomass	Blim proxy 30% of mean biomass	Blim proxy 30% of mean biomass
Reference point used in scoring stock relative to MSY (SIb)	Not available.		The proxy for the biomass development is the survey biomass indicator. The current mean biomass survey index level corresponds to or is above the indicator level corresponding to BMSY

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI
Overall Performance Indicator scores added from Clien	t and Peer Review Draft Report
Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.1.2 – Stock rebuilding

PI 1	1.1.2	Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe							
Scoring Issue		SG 60	SG 80	SG 100					
а	Rebuildir	ng timeframes							
	Guide post	A rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time . For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed one generation time for the stock.					
	Met?	Yes / No		Yes / No					
Rationale									

The Greenland halibut is not under rebuilding PI 1.1.2 is not scored

Insert sufficient rationale to support the team's conclusion for each Scoring Guidepost (SG).

	Rebuildir	Rebuilding evaluation				
b	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is evidence that the rebuilding strategies are rebuilding stocks, or it is likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe .	There is strong evidence that the rebuilding strategies are rebuilding stocks, or it is highly likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe .		
	Met?	Yes / No	Yes / No	Yes / No		
Rationale						

Insert sufficient rationale to support the team's conclusion for each Scoring Guidepost (SG).

References

List any references here, including hyperlinks to publicly-available documents.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	<60 / 60-79 / ≥80
Information gap indicator	More information sought / Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place			
Scoring Issue		SG 60	SG 80	SG 100	
	Harvest strategy design				
а	Guide post	The harvest strategy is expected to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in PI 1.1.1 SG80.	
	Met?	Yes	Yes	Νο	

Rationale

The total stock is managed in two units the Canadian share (50%) under the Canadian Integrated management plan for Greenland halibut and the Greenland share (50%) under the Greenland management plan for Greenland halibut. There is a general understanding between the countries that the TAC is set following the NAFO advice and with a 50:50 sharing between the countries. Both management plans are implemented within the national legislation. Together these management plans present an overall strategy that assures that the total Greenland halibut stock is managed within sustainable limits. Both Canada and Greenland are through their fisheries legislation committed to a management strategy consistent with the MSC PI 1 and PI 2 objectives. For the client fishery, the harvest strategy is laid down in the Greenland fishing law §2 which obliges management to aim for targets consistent with management objectives reflected in PI 1.1.1. The Greenlandic as well as the Canadian management plan is established under this general strategy and implies that management is based on the NAFO SC Advice. NAFO provides advice on sustainable fisheries that is reflecting stock changes and changes in stock status. The management plan through the NAFO advice is designed to achieve stock management objectives under PI 1.1.1 and is responsive to stock changes. However, the management plan does not address the inshore component of the catch in NAFO Divisions 1B-1F, particular in NAFO 1D and therefore the design of the Harvest Strategy will not meet the full set of management objectives (**SG 100 is not met**).

Harvest strategy evaluation

b	Guide post	The harvest strategy is likely to work based on prior experience or plausible argument.	The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	Yes	Yes	Νο

Rationale

The Harvest Strategy, i.e. the commitments laid down in the Canadian Ocean Act, the Canadian Greenland halibut Integrated Management plan, the Greenlandic fishing law (§2) and in the Greenland halibut management plan to fish within sustainable limits, has been tested both in this fishery as well as in another MSC certified fishery (SA0+1 shrimp also shared between Canada and Greenland). For the Greenland halibut there is evidence (stock status is good) that it is achieving objectives consistent with PI ic1.1.1 objectives (**SG 80 is met**).

However, for offshore Greenland halibut the strategy never has been challenged nor is the strategy thoroughly evaluated in a theoretical study. Also, the inshore fishery in NAFO 1B-1F has not been included in the evaluations. The strategy, therefore, is not fully evaluated. (**SG 100 is not met**)

Harvest strategy monitoring

С	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.
	Met?	Yes

Rationale

Canada and Greenland have agreed at NAFO SC a joint research strategy (Helle Siegstad pers. Comm.) There are annual surveys in 1CD and in 0B and surveys in 0A (Northern area). This is considered to be satisfactory to determine whether the harvest strategy is working or not. The fishery is well documented (via logbooks, VMS, landing statistics). For further details see section 3.4.2.

d	Harvest	Harvest strategy review		
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Yes

Rationale

The management plan obliges the management authorities to follow the NAFO advice and based on past experience with the authorities to follow the NAFO advice for this stock there is a high degree of certainty (SG 100) that the stock remains above Blim (PRI).

The Blim is set by NAFO Sc.C. based on consideration of stock development and the Greenland halibut biology. The advice for the Greenland halibut resource that is exploited by the UoC fishery is split into two components: Greenland halibut in NAFO Divisions 0A+1AB (excl. inshore areas) and 0B+1C-F (including inshore areas). The NAFO SC concludes that the risk of the stock being below Blim is low provided that the TACs for 2017 and 2018 do not exceed 17,150 t for Divs 0A+1AB and 15,150 t for Divs. 0B+1C-F.

The harvest strategy is reviewed at revisions of the fishing law. Furthermore, elements of the harvest strategy is under constant discussion and review both in the Greenlandic Parliament and in the Fishery Council. The strategy is thus constantly improved. The regulations of individual fisheries are reviewed annually in relation to the TAC setting. **(SG 100 is met)**

е	Shark finning				
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.	
	Met?	NA	ΝΑ	NA	

Rationale

Issue not relevant in this fishery.

	Review of alternative measures				
f	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of the target stock.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.	
	Met?	NA	NA	NA	

Rationale

Issue not scored, there is no unwanted catch of the target stock both as a result of the fishing strategy (fishing below 800 m) and because of the minimum mesh size (140 mm) which generate little undersized fish (< 42 cm), Jørgensen and Tremble (2016).

References

- DFO Canadian Ocean Act Oceans Act S.C. 1996, c. 31
- DFO 2014. Canada Integrated Fishery Management Plan for Greenland halibut
- Greenland Fisheries Council 2016. Greenland Halibut Fisheries Management Plan
- NAFO 2016) SC.C. 16/04
- ICES (2014b)
- Jørgensen and Tremble (2016)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80	
Information gap indicator	Information sufficient to score PI	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
	HCRs de	esign and application		
а	Guide post	Generally understood HCRs are in place or available that are expected to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock fluctuating at or above a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, most of the time.
	Met?	Yes	Yes	Yes

Rationale

The TAC setting has followed the NAFO advice for more than a decade and there is a general agreement between Canada and Greenland that the quota as advised by NAFO is split 50:50. (SG 60). The NAFO advice is based on a HCR that include setting of a total TAC based on MSY considerations and reduction of the exploitation rate if the stock falls below preset trigger points. As the harvest control rule is based on the NAFO advice the combined Canadian and Greenlandic HCRs are well defined and are responsive to stock changes (because it is based on an assessment of the actual stock, here based on survey trends) and implies through the NAFO advisory framework that the fishing mortality be reduced if the biomass of Greenland halibut declines and reaches low levels around or below the Blim (PRI). The NAFO precautionary approach is described in section 3.4.4. The approach presupposes the input from an assessment here there is data from surveys that provide biomass indices for the stock. These indices indicate a stable stock and taking the fishery into account the impact is assumed to be small relating the stability of the stock with the increase in the fishery in recent years. The Greenland management plan caps annual changes of the TAC (max 15%). Based on studies for other arctic stocks (e.g. Barents Sea cod and Haddock) such a cap is not expected to hinder sustainability objectives to be met. Canada manages its share of the Davis Strait Greenland halibut according to its Integrated Fishery Management plan for the Greenland halibut fishery and this plan meet similar objectives as those of the Greenland plan.

Experience with this management approach indicates that the stock will remain stable at the current high level. The MSY level has not been estimated. NAFO SC (2016) writes "...the precautionary factor need not apply in the case of SA0+1A (off shore) and 1B-F Greenland halibut given the stock is near the Bmsy proxy and therefore well above Blim and there have been several recent years with good recruitment." This is in accordance with general considerations that BMSY is 2-3 times the Blim level. The HCRs are expected to keep the stock **fluctuating at or above** a target level consistent with MSY **most** of the time. **(SG 100 is met)**.



The HCR is intended by NAFO SC, as the key scientific adviser, to be robust to the main uncertainties. These include imprecision of the survey estimates and a general lack of detailed knowledge about the population biology and dynamics of Greenland halibut (SG 80). In formulating the advice NAFO SC, as a responsible advisor on international fisheries, includes considerations of these uncertainties.

The resulting robustness is fundamental for the committee approach adopted as 'best practise' by Regional fisheries organisations around the world. Although NAFO SC in formulating its advice make best judgement on uncertainty, there is little **direct** evidence that the HCR is robust to these uncertainties because there has not been a situation where the advice has changed from one year to the next because of change in uncertainties. **SG 100 is not met**.

HCRs evaluation

С	Guide post	There is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	Yes	Νο	Νο

Rationale

The tools implemented in the HCR (TAC combined with a set of technical measures and closed area) are appropriate to control overall exploitation pressure (SG 60). Evidence suggests that these tools are in general effective in limiting the fishery within the defined limits The total Greenlandic catch has, after 2012 (2013-15) overshot the advice by about 1,500 t annually a result of the inshore fishery in 1B-F being outside the quota and has increased over its previous level while the offshore quota is set at the advised TAC without accounting for the removal in the inshore areas 1B-1F. Therefore, **SG 80 is not met** and a condition is set.

References

Greenland Management Plan for Greenland Halibut

Canadian Integrated Fishery Management Plan for Greenland halibut

http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/groundfishpoisson-fond/halibut-fletan-eng.htm NAFO 2004. NAFO Precautionary Approach Framework.

NAFO 2004. NAFO 2004. NAFO Study Group on Limit Reference Points

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	60-79
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score

Condition number (if relevant)

PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy			
Scoring Issue		SG 60	SG 80	SG 100	
а	Range of information				
	Guide post	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.	
	Met?	Yes	Yes	Νο	

Rationale

Data are available from abundance surveys covering both the Canadian as well as the Greenland parts of the Davis Strait. The fisheries both Canadian and Greenlandic are well documented through logbooks, VMS, landing statistics and some biological sampling. The biology of the Greenland halibut is generally known. All these data together form a comprehensive dataset that is both relevant and sufficient to support the harvest strategy. **SG 80 is met.** The ageing of the fish older than about 6 years is very uncertain and there are ongoing studies to improve ageing. Recent otolith exchange using two new methods (the frozen whole right otolith method, and the thin-section method) found that for experienced readers, the bias between the two methods generally increased with age but remained within 1–2 years until age 15. Furthermore, the stock structure is discussed. **SG100 is not met.**

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b	Guide post	Stock abundance and UoA removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule , and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	Yes	Yes	Yes
D ('				

Rationale

The Harvest Control Rule requires that NAFO SC provides an annual assessment and advice on sustainable limits relevant for the total TAC. Data to underpin this assessment include monitoring of the catches, catch rates and annual surveys. The data are provided annually as required by the HCRs and with a high degree of accuracy necessary to allow NAFO SC to provide advice for a decade which illustrates that the system functions and is robust to changes over time. The surveys and the fisheries data collections are based on standard approaches which are well understood and their uncertainties are well known. The inherent uncertainties in the assessment are factored in when formulating the advice and the advice is robust based on annual reviews within NAFO SC. Furthermore, scientific symposia held at irregular intervals provides an overhaul of the available knowledge and assessment methodologies, the most recent of these activities concerned the age reading in August 2016. These reviews are
based on research in the Canadian and Greenlandic Research institutes on the imperfections in the assessment approach and to possible changes in the fishing practice which will affect the interpretation of catch rates. These factors are all well understood and the robustness of the assessment and management are understood. NAFO Sc.C procedures include a thorough scrutiny of the data and of their accuracy and reliability. This is based on a review of the research papers presented to the STACFIS committee and preliminary assessment provided by the. The NAFO Sc.C. concludes "Based upon a qualitative evaluation of stock biomass trends compared to the limit reference point and recruitment indices.

The assessment is considered data limited and as such associated with a relatively high uncertainty. Input data are research survey indices and fishery data (STACFIS 2016)." The assessment is robust because the stock biomass is very far above (about 3 times) Blim. **SG 100 is met**

Comprehensiveness of information

с	Guide post	There is good information on all other fishery removals from the stock.	
	Met?	Yes	

Rationale

There are removals from the Greenland halibut stock by the Canadian and Greenlandic shrimp fisheries as by-catch and by the Canadian Greenland halibut fishery in Subarea 0. All these removals are known and well documented. **SG 80 is met.**

References

ICES (2017) ICES_NAFO Workshop on Age Reading of Greenland Halibut (Reinhardtius hippoglossoides) Reykjavik, Iceland 22–26 August 2016

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.4 – Assessment of stock status

ΡI	1.2.4	There is an adequate assessment of the stock status					
Scoring Issue		SG 60	SG 80	SG 100			
	Appropr	Appropriateness of assessment to stock under consideration					
а	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.			
	Met?		Yes	Yes			
D ('							

Rationale

The assessment approach is designed for the offshore Greenland halibut stock in the Davis Strait and the assessment takes into account the major features (stock distribution, productivity and recruitment). Stock development and recruitment are monitored through abundance surveys (Shrimp and Greenland halibut surveys). The surveys are designed to monitor the status of the Greenland halibut stock and these are an integral part of the assessment. Such surveys are only meeting their purpose if they account for the relevant biological features of the species. NAFO Sc.C is satisfied that that the surveys provide useful indicators. **SG 100 is met.**

Assessment approach

b	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	Yes	Yes	

Rationale

NAFO SC has defined a Blim (PRI) reference point, has provided an estimate (in biomass survey units) and assesses the stock relative to this. **SG 80 is met.**

	Uncertainty in the assessment					
С	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.		
	Met?	Yes	Yes	Νο		

Rationale

The specification of the assessment approach takes uncertainty into account e.g.age data are not used (SG 80). However, the evaluation of stock status is not probabilistic and SG 100 is not met.

	Evaluation	Evaluation of assessment				
d	Guide post	The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.				

	Met?			Yes
Ration	ale			
NAFO Solution be used approact	C reviews a for advice. nes through	and benchmarks the assessment The NAFO STACFIS annually re n its review of SCR documents. S	and find that the assessment is s view new information and explore G 100 is met.	sufficient robust as to allow it to alternative assessment
	Peer rev	view of assessment		
е	Guide post		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		Yes	Yes
Ration	ale			
STACFIS working fisheries intervals	S as a com with other f for Greenla discussed	mittee is signing off on the Green isheries and other species and in and halibut in the Davis Strait. The and reviewed at international syn	land halibut assessment. This co volves scientists from other coun e Greenland halibut assessment nposia and conferences. SG 100	mmittee involves scientists tries than those involved with the and its database are at irregular is met.
References				
NAFO Greenland halibut symposia NAFO SCS 16/14				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator score	
Condition number (if relevant)	

7.3 Principle 2 7.3.1 Principle 2 background

The Ecosystem

Currents: The West Greenland ecosystem is subarctic at Cape Farewell (60° N) and extends into the high Arctic at Inglefield Land (78° N); it is influenced by the cold polar water masses of the Arctic region and temperate water masses of the Atlantic Ocean (Buch et al., 2004)2. In the south, summer temperatures rarely fall below 5° C but there are inter-decadal variations under the influence of the North Atlantic Oscillation (NAO). In periods when sea temperature rises under the influence of the NAO, cod stocks of West Greenland tend to increase in abundance and decrease when there is a negative trend in sea temperatures (Buch et al., 2004¹).

The surface waters around South and West Greenland are influenced by two major currents, a cold inshore surfacelayer (0-150 m) East Greenland Current that flows south around Cape Farewell and then northwards along the West Greenland coast (**Figure 2**). Parallel to this but further offshore is the relatively warm Irminger Current, a northerly offshoot from the North Atlantic Drift. It is the strength of these two currents that determines the environmental conditions around south-east and West Greenland. As they round Cape Farewell, the Irminger Current subducts under the polar water to form the West Greenland Current (Dünweber & Frederiksen, 2012a²).



Figure 2: Major sea surface currents around Greenland. Relatively warm Irminger Current water from the Atlantic that mixes with relatively cold polar water from the East Greenland Current before turning north to form the mixed-water West Greenland Current (Dünweber & Frederiksen, 2012).

¹ Buch, E., S. A. Pedersen, and M. H. Ribergaard. (2004). Ecosystem variability in West Greenland waters. Journal of the Northwest Atlantic Fishery Science 34: 13–28. doi:10.2960/J.v34.m479. Available at

http://ocean.dmi.dk/staff/mhri/Docs/Buch_et_al_nafo2004.pdf

² Dünweber, M. & Frederiksen, M. (2012a). Physical Environment. In South Greenland: A Strategic Environmental Impact Assessment of hydrocarbon activities in the Greenland sector of the Labrador Sea and the southeast Davis Strait (Morten Frederiksen, M., Boertmann, D., Ugarte, F. & Mosbech, A. eds) pp 24 – 33. Danish Centre for Environment and Energy, Aarhus University, Denmark. Available at http://www2.dmu.dk/pub/sr23.pdf

The West Greenland Current component loses its momentum along the West Greenland coast and current patterns tend to follow the bathymetry along the coast but around 64° N the current patterns are influenced by the steep continental slope and banks that deflect the coastal currents westwards, towards Canada, and generate instabilities in the current flow.

The inflow of polar water is strongest during spring and early summer (May–July) and the inflow of relatively warm Atlantic water to the West Greenland Current is strongest during autumn and winter, which explains why the area between 58° N and 67° N is usually ice free during the winter (Dünweber & Frederiksen, 2012). Years where the East Greenland and Irminger Current are strong will often be warm years (Buch, 2000³). During the past two decades, there has been a tendency towards increased water temperatures and reduced ice cover during winters, which may be due in part to a change in the index of the North Atlantic Oscillation (NAO).

Primary productivity

The waters off West Greenland are characterised by low phytoplankton species diversity although primary production is relatively high. The time of the onset of the spring phytoplankton bloom varies between years depending on many factors, not the least of which are the strengths of the East Greenland and Irminger Currents, but usually commences of SW Greenland in April (Dünweber & Frederiksen, 2012b⁴).

Zooplankton provides the principal pathway for energy transfer from phytoplankton to consumers at higher trophic levels, including lumpfish, seabirds such as the little auk (*Alle alle*) and whales, primarily the bowhead whale (*Balaena mysticetus*). Although there is a variety of calenoid copepods they are dominated (in biomass) by the large species Calanus finmarchicus. This species is particularly important to many higher trophic levels in Arctic marine ecosystems as they rely on lipids that are accumulated in Calanus to establish fat reserves for the winter (Lee et al. 2006⁵, Falk-Petersen *et al.* 2009⁶).

Larger zooplankton (>1 cm) include both herbivores such as krill (*Euphausidae*) and copepod predators such as hyperiid amphipods but larvae of fish and shrimp are also important components of the plankton community. Cod larvae, in particular, show increased survival with a positive trend in stock recruitment and adult stock biomass in periods of relatively warmer sea temperatures compared with cooler periods (Buch *et al.*, 2004).

Benthos

Benthic flora are confined to a relatively narrow photic zone extending from the inter-tidal zone to approximately 40 m depth but, inevitably, benthic fauna are more widespread and are found at all depths and on or in all types of substrata (Boertmann *et al.*, 2009⁷). The benthic fauna is often species rich with more than 100 spp. m² often found in undisturbed soft sediments (Sejr *et al.*, 2010⁸; Blicher, 2010⁹). Three benthic species are fished commercially in Greenland waters. The scallop *Chlamys islandica* and the snow crab *Chionoecetes opilio* live directly on the sea floor, whereas the northern shrimp *Pandalus borealis* is found closely associated with but not necessarily on the bottom. All three tend to be distributed in water deeper than is occupied by spawning lumpfish.

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³ Buch, E. (2000). A monograph on the physical oceanography of the Greenland waters. Danish Meteorological Institute (DMI) Scientific Report 00-12, 405 pp.

⁴ Dünweber, M. & Frederiksen, M. (2012b). Phytoplankton. In South Greenland: A Strategic Environmental Impact Assessment of hydrocarbon activities in the Greenland sector of the Labrador Sea and the southeast Davis Strait (Morten Frederiksen, M., Boertmann, D., Ugarte, F. & Mosbech, A. eds) pp 24 – 33. Danish Centre for Environment and Energy, Aarhus University, Denmark. Available at http://www2.dmu.dk/pub/sr23.pdf

 ⁵ Lee, R.F., Hagen, W. & Kattner, G. (2006). Lipid storage in marine zooplankton. Marine Ecology Progress Series 307, 273–306.
 ⁶ Falk-Petersen, S., Mayzaud, P., Kattner, G. & Sargent, J. 2009. Lipids and life strategy of Arctic Calanus. Marine Biology Research 5, 18–39.

⁷ Boertmann, D., Mosbech, A., Schiedek, D. & Johansen, K. (Eds) (2009). The Eastern Baffin Bay: a preliminary strategic environmental impact assessment of hydrocarbon activities in the KANUMAS West area. Technical report no. 720; National Environmental Research Institute, Aarhus University, Denmark. http://www.dmu.dk/Pub/FR720.pdf

⁸ Sejr, M., Włodarska-Kowalczuk, M., Legeżyńska, J. & Blicher, M. (2010). Macrobenthic species composition and diversity in the Godthaabsfjord system, SW Greenland. Polar Biology 33, 421–431.

⁹ Blicher, M.E., (2010). Structure and Function of Marine Macrozoobenthos in Greenland – and link to environmental drivers. PhD Thesis, University of Copenhagen published by Greenland Institute of Natural Resources, Nuuk.

Relative to the length of the Greenland coast, there have been few benthic surveys, but one specific benthic habitat has been studied in detail: columns of ikaite tufa (Garcia, 2007¹⁰) found at shallow depths along a 2 km stretch in the Ikka Fjord (61° 11' N, 48° 02' W). The ecological importance of these features and the potential vulnerability to fishing have been fully recognised by Greenlandic scientists and government agencies and the area in which they are found has been closed to fishing since 2010 (G-gov, 2010¹¹).

More generally, on soft substrata, the benthic fauna is dominated by polychaetes (Sejr et al. 2010) but also Pennatulacea (sea pens; Jørgensen & Tedndal, 2013), neither of which overlap with lumpfish spawning habitat. More generally, there is little detailed information due to difficulties in sampling (Blicher & Sejr, 2012¹²) but the Greenland Institute of Natural Resources (GINR) is gradually extending its survey areas to intertidal and littoral waters to increase knowledge in this area.

In common with comparable sub-Arctic environments (Garcia, 2007), it might be anticipated that some areas of West Greenland will support and be characterised by extensive and diverse sponge gardens (ostur). However, although such areas have been identified off East Greenland (albeit at depths greater than those at which lumpfish spawn), hitherto, such areas have not been found off West Greenland and, similarly, no beds of coralline red algae (maerl) Lithothamnion spp. have been identified within the lumpfish spawning areas (Steingrímsson, Fosså, Tendal, & Ragnarsson. 2007¹³).

Fish

All fish, both commercial and non-commercial species, must be retained, landed and recorded; i.e. there is a statutory total discard ban for fish in Greenlandic waters. The one exception to this rule is that Atlantic halibut should be returned to sea alive whenever possible.

A variety of mostly demersal commercial fish species are found throughout the assessment area. Among the more important are cod Gadus morhua, Atlantic halibut Hippoglossus hippoglossus, Greenland halibut Reinhardtius hippoglossoides, salmon Salmo salar, Atlantic Anarhichas lupus and A. minor, redfish Sebastes spp., capelin Mallotus *villosus* as well as lumpfish but there are relatively few dominant species (Pedersen & Kanneworff, 1995¹⁴; Pedersen & Zeller, 2001¹⁵; ICES, 2019¹⁶). Over 270 species of fish have been identified from Greenland waters (GINR; http://www.natur.gl/index.php?id=863&L=3) but the number characteristic of coastal waters is relatively small (Pedersen & Kanneworff, 1995; Pedersen & Zeller, 2001; Boertmann et al., 2009).

Only one species – the Greenland shark (Somniosus microcephalus) - is taken in measurable quantities (14 - 20%) by volume) in the lumpfish gillnets (Table 22). In 2017 the roundnose grenadier (Coryphaenoides rupestris) represented around 2% of the bycatch. Over 2018 all other bycatch species together - including roundnose grenadier - represent less than 1% of the total catch. Furthermore, GINR underlines that the overall bycatch in the longline fishery is very low.

¹⁰ Garcia, E. G. (Ed.) (2007a). Bottom Trawling and Scallop Dredging in the Arctic: Impacts of fishing on non-target species, vulnerable habitats and cultural heritage. TemaNord 2006:529. Nordic Council of Ministers, Copenhagen. Available at http://www.diva-portal.org/smash/get/diva2:702602/FULLTEXT01.pdf

¹¹ G-gov (2010). Selvstyrets bekendtgørelse nr. 4 af 12. April 2010 om fredning af et område ved lvittuut og Kangilinnguit. Grønlands Selvstyre, den 12. April 2010

¹² Blicher, M. & Sejr, M. (2012). Benthos. In South Greenland: A Strategic Environmental Impact Assessment of hydrocarbon activities in the Greenland sector of the Labrador Sea and the southeast Davis Strait (Frederiksen, M., Boertmann, D., Ugarte, F. & Mosbech, A. eds) pp 24 –33. Danish Centre for Environment and Energy, Aarhus University, Denmark. Available at http://www2.dmu.dk/pub/sr23.pdf

¹³ Steingrímsson, S.A., Fosså, J.H., Tendal, O.S. & Ragnarsson, S.Á. (2007). Vulnerable habitats in Arctic waters. In Garcia, E. G. (Ed.) 2007a. Bottom Trawling and Scallop Dredging in the Arctic: Impacts of fishing on non-target species, vulnerable habitats and cultural heritage. TemaNord 2006:529. Nordic Council of Ministers, Copenhagen. Available at http://www.divaportal.org/smash/get/diva2:702602/FULLTEXT01.pdf ¹⁴ Pedersen, S.A. & Kanneworff, P. (1995). Fish on the West Greenland shrimp grounds, 1988–1992. *ICES Journal of Marine*

Science 52: 165-182.

¹⁵ Pedersen, S.A., & Zeller, D. (2001). A mass balance model for the West Greenland marine ecosystem. In. Fisheries Impacts on North Atlantic Ecosystems: Models and Analyses (Guenette, S., Christensen, V. & Pauly, D. eds). Fisheries Centre Research Reports, 9: 111-127. Available at http://www.seaaroundus.org/report/impactmodels/Greenland.pdf

¹⁶: ICES (2019). Cod (Gadus morhua) in NAFO Subarea 1, inshore (West Greenland cod). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, cod.21.1, https://doi.org/10.17895/ices.advice.4732

Common nome (code)	Scientific name	Catch (kg / year)			9/
Common name (code)	Scientific hame	2017	2018	Avg.	70
Greenland halibut (GHL)	Reinhardtius hippoglossoides	119,886	282,898	201,392	85.0%
Greenland shark (GSK)	Somniosus microcephalus	-	66,500	33,250	14.0%
Roundnose grenadier (RNG)	Coryphaenoides rupestris	2,325	450	1,388	0.6%
Atlantic cod (COD)	Gadus morhua	-	560	280	0.1%
Tusk (USK)	Brosme brosme	-	550	275	0.1%
Other (MZZ)	Osteichthyes	-	266	133	0.1%
Wolffishes (CAT)	Anarhichas spp.	-	150	75	0.0%
Golden redfish (REG)	Sebastes marinus	-	120	60	0.0%
Spotted wolffish (CAS)	Anarhichas minor	-	10	5	0.0%
TOTAL		122,211	351,504	236,858	100%

Table 23: Catch composition of Greenland halibut-d	directed longline	(2017 - 2018)
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Source: GFLK

This longline fishery uses three types of bait, (i) *Atlantic herring* (*Clupea harengus*) from Greenland, Iceland and the Faroe Islands (around 18 tonnes or 7.6% to total catch volume) and (ii) *squid* – either Patagonian longfin squid (*Doryteuthis gahi*) commonly colloquially Loligo from the Falkland Islands EEZ or Argentine shortfin squid (*Illex argentinus*) mainly from Argentina (together around 34 tonnes or 14% to total catch volume). Herring, a managed fishery, will be considered as primary (main) species and squid as a secondary (main) species in this assessment.

Seabirds

According to GINR (Kristina Guldbæk, Sustainable Fisheries Greenland, pers. comm., 05 August 2019) there is no reported bycatch of birds on the offshore long line fishery for Greenland halibut in West Greenland. This has been confirmed by GINR (Adriana Nogueira) GFLK and the owner of the vessel "Uummannaq" which – until last year- has been the only Greenlandic long line vessel in this fishery. This will be verified over the site visit in September 2019.

Marine mammals

According to GINR (Kristina Guldbæk, Sustainable Fisheries Greenland, pers. comm., 05 August 2019) there is no reported bycatch of marine mammals on the offshore long line fishery for Greenland halibut in West Greenland. This has been confirmed by GINR (Adriana Nogueira) GFLK and the owner of the vessel "Uummannaq" which – until last year- has been the only Greenlandic long line vessel in this fishery. This will be verified over the site visit in September 2019.

Endangered, Protect or Threatened (ETP)

Under the auspices of Denmark (the signatory sovereign state), Greenland has observer status and is an active participant and supporter of a wide range of international organisations, commissions and conventions that aim to monitor and safeguard the long-term wellbeing of ETP species; e.g. CITES, ICES, IUCN, NAFO, NAMMCO, OSPAR. Under most North Atlantic jurisdictions, and in compliance with various convention requirements, the majority of seabirds, marine mammals and even some of the large elasmobranchs are scheduled under either national or international legislation as endangered, threatened or protected species. Many of these species are to be found more or less regularly in Greenlandic waters but they do not receive the same level of protection as elsewhere. This is in recognition that all living marine resources have been vital to the survival of indigenous Greenlandic populations and continue to be central to both their diet and culture. Greenland has recognised dispensations to continue hunting many of these species, as well as dispensations to continue trading in some pinniped products.

One species is considered as an ETP in this fishery:

• Greenland shark (GSK) Somniosus microcephalus

Greenland shark (*Somniosus microcephalus***)**: the Greenland shark is considered to be 'Near Threatened) by the UIUCN Red List (Kyne *et al*, 2006¹⁷). It is a very slow-growing species (c. 1 cm a year) late maturation timing (mature females >450 cm and ~134 years old¹⁸). It is therefore vulnerable to over-fishing.

Based on a recent study in the Canadian Arctic Archipelago (Devine *et al*, 2018¹⁹), Greenland sharks are seemingly widespread and commonly inhabit a wide range of depth and temperature conditions. However, as with other shark species, their life history features highlight the need for considering Greenland sharks in spatial management and bycatch avoidance plans in this region. In gillnet fisheries targeting Greenland halibut, Greenland shark bycatch was negatively associated with halibut catch, suggesting that where possible, shark avoidance and maximum targeted catch rates may be mutually achievable goals. Whether similar patterns occur in longline fisheries has yet to be established.

From 2015-2017, 144 t of Greenland shark were recorded as discarded bycatch in the NAFO Subarea 1 offshore fishery (NAFO, 2018)²⁰. All of the reported bycatches were from trawlers targeting other fish species and in a few cases from offshore longliners. Unreported catch of Greenland sharks could potentially originate from the small boat fishery in the inshore areas targeting Greenland halibut. However, from both shark surveys, fish surveys and numerous personal accounts, it is known that shark distribution is not random in the inshore areas in Greenland and that most encounters are minimized simply by avoiding known shark areas. Furthermore, a large proportion of the Greenland halibut are targeted with thin 1mm or 3 mm nylon mainline, with ordinary hook size 6, 7, or 8, or size 10 or 11 circle hooks, attached to a 1 mm leader. Therefore, most encounters should result in a lost hook or longline, rather than a landed bycatch. Whereas small boats and sea ice fishery during the winter use light gear, auto-liners and gillnets use more powerful gear and may be more exposed to bycatches of sharks.

In terms of management Greenland sharks warrant precautionary consideration due to their extremely delayed maturity and low fecundity. General recommendations (NAFO, 2018) include:

- Improve reporting of all sharks by species within the NAFO Convention Area.
- Improve collection of Greenland shark numbers, measurements (when feasible without causing undue harm) and recording of sex data and discard disposition (i.e., dead or alive) by fishery observers in all fisheries in the NAFO Convention Area.
- · Conduct discard mortality studies for longline gear and bottom trawls
- Undertake studies to better understand reproductive potential, abundance, and movements and distribution of Greenland sharks
- To inform potential spatial and/or temporal fishery management measures, further research on movements, diel vertical migrations and distribution of Greenland shark is required to better understand factors such as migration, nursery areas, population structure, and connectivity.

¹⁷ Kyne, P.M., Sherrill-Mix, S.A. & Burgess, G.H. (2006). *Somniosus microcephalus*. The IUCN Red List of Threatened Species 2006: e.T60213A12321694. http://dx.doi.org/10.2305/IUCN.UK.2006.RLTS.T60213A12321694.en. Downloaded on 05 August 2019.

¹⁸ Nielsen, J. R. Hedeholm, J. Heinemeier, P. Bushnell, J. Christiansen, J. Olsen, C. Bronk Ramsey, R. Brill, M. Simon, K. Steffensen, J. Steffensen (2016). Eye lens radiocarbon reveals centuries of longevity in the Greenland shark (*Somniosus microcephalus*). Science. 353, 702–704 (2016).

¹⁹ Article | OPÉN | Published: 17 January 2018

Devine, B., L. J. Wheel & J. Fisher (2018). First estimates of Greenland shark (*Somniosus microcephalus*) local abundances in Arctic waters. Scientific Reports, Vol. 8, Article number: 974 (2018)

²⁰ NAFO. 2018. Report of the Scientific Council, 01-14 June 20-18, Halifax, Canada. NAFO SCS Doc. 18/19

Habitats

Compared to mobile gears such as bottom trawls and dredges, the impact of bottom longlines on benthic habitats have had relatively little attention. As a static gear the impact footprint is small, but vulnerable marine ecosystems (VMEs) could be negatively affected by bottom longlining (Bavestrello *et al.*, 1997²¹; Krieger, 2001²²; Fossa *et al.*, 2002²³; Reed, 2002²⁴ and Duran Munoz *et al.*, 2010²⁵).

For a description of the habitats, including the VMEs, see the main assessment (DNV, 2018²⁶). **Scoring Elements**

Based on preliminary information we have allocated bycatch species against the following components.

Component	Scoring elements	Designation	Data-deficient
P1	Greenland halibut (Hippoglossoides reinharditus)	98.1% of catch volume	No
Primary	Bait: Atlantic herring (<i>Clupea harengus</i>)	Main (7.6% of catch volume)	No
Secondary	Bait: Patagonian longfin squid (Doryteuthis gahi) commonly colloquially Loligo.	Main (<i>c.</i> 14% of catch volume)	???
ETP	Greenland shark (Somniosus microcephalus)	14 - 20% of catch IUCN VU.	No

Table 24 Scoring elements

²¹ Bavestrello G., Cerrano C., Zanzi D. and Cattaneo-Vietti R. (1997). Damage by fishing activities to the gorgonian coral *Paramuricea clavata* in the Ligurian Sea. *Aquatic Conservation: Marine and Freshwater Ecosystems* 7, 253–262

²² Krieger K.J. (2001) Coral (Primnoa) impacted by fishing gear in the Gulf of Alaska. In Willison J.H.M., Hall J., Gass S.E., Kenchington E.L.R., Butler M. and Doherty P. (eds) Proceedings of the First International Symposium on Deep-Sea Corals, Halifax, 30 July–3 August 2000. *Ecology Action Centre*, Nova Scotia Museum, pp 106–116.

²³ Fossa[°] J.H., Mortensen P.B. and Furevik D.M. (2002) The deep-water coral *Lophelia pertusa* in Norwegian waters: distribution and fishery impacts. *Hydrobiologia* 471, 1–12.

²⁴ Reed J.K. (2002) Deep-water Oculina coral reefs of Florida: biology, impacts, and management. *Hydrobiologia* 471, 43–55
²⁵ Durán Muñoz, P., F. Javier Murillo, M. Sayago-Gil, A. Serrano, M. Laporta, I. Otero & C. Gomez 92010). Effects of deep-sea bottom longlining on the Hatton Bank fish communities and benthic ecosystem, north-east Atlantic. *Journal of the Marine Biological Association of the United Kingdom*, page 1 of 14. # Marine Biological Association of the United Kingdom, 2010 doi:10.1017/S0025315410001773

²⁶ DNV (2018). Public Certification Report for the Initial assessment of the West Greenland offshore Greenland halibut fishery. Report No.: 2016-012, Rev. 00. Authors: Rod Cappell, Hans Lassen, Terry Holt, Sigrun Bekkevold. Date: 2017-05-18. Certificate code: F-DNV-24069

7.3.2 Principle 2 Performance Indicator scores and rationales

PI 2.1.1 – Primary species outcome

PI 2	2.1.1	The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI			
Scorin	g Issue	SG 60	SG 80	SG 100	
	Main pri	mary species stock status			
а	Guide post	Main primary species are likely to be above the PRI. OR If the species is below the PRI, the UoA has measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are highly likely to be above the PRI. OR If the species is below the PRI, there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding.	There is a high degree of certainty that main primary species are above the PRI and are fluctuating around a level consistent with MSY.	
	Met?	Yes	Yes	Νο	

Rationale

Atlantic herring (*Clupea harengus***)** in ICES subareas 1, 2, and 5, and in divisions 4.a and 14.a, part of the Norwegian spring-spawning herring (the Northeast Atlantic and the Arctic Ocean) stock are one of two important bait species used by this longline fishery. Preliminary figures suggest that it represents around 7% by weight of the total UoA catch and is therefore a main primary species.

According to ICES (2018^{27}) fishing mortality has been increasing since 2015 and is above F_{MSY} in 2017. The stock is declining but estimated to be above MSY $B_{trigger}$ in 2018. Since 1998 four large year classes have been produced (1998, 1999, 2002, and 2004). The 2005 to 2015 year classes are estimated to be average or small. The 2016 year class, however, is estimated to be above average. ICES assesses that fishing pressure on the stock is above F_{MSY} and F_{MGT} but below F_{pa} and F_{lim} ; spawning-stock size is above MSY $B_{trigger}$, B_{pa} , and B_{lim} .

Figure 3: Spawning Stock Biomass 1988 - 2018

http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/her.27.1-24a514a.pdf

²⁷ ICES (2018). Herring (*Clupea harengus*) in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian spring-spawning herring (the Northeast Atlantic and the Arctic Ocean). ICES Advice on fishing opportunities, catch, and effort Northeast Atlantic and Arctic Ocean Published 22 October 2018. her.27.1-24a514a.



This meets SG 80 but given the downward trend in the SSB (see Figure 3 above), fails to meet SG 100.

	Minor pr	Minor primary species stock status			
				Minor primary species are highly likely to be above the PRI.	
b	Guide			OR	
	post		If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.		
	Met?			Yes	
Ration	ale				

There are no minor primary species so this meets SG 100.

References

ICES (2018). Herring (*Clupea harengus*) in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian spring-spawning herring (the Northeast Atlantic and the Arctic Ocean). ICES Advice on fishing opportunities, catch, and effort Northeast Atlantic and Arctic Ocean Published 22 October 2018. her.27.1-24a514a. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/her.27.1-24a514a.pdf

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.1.2 – Primary species management strategy

PI 2	2.1.2	There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch			
Scoring	g Issue	SG 60	SG 80	SG 100	
	Manager	nent strategy in place			
а	Guide post	There are measures in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a partial strategy in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a strategy in place for the UoA for managing main and minor primary species.	
	Met?	Yes	Yes	Yes	

Rationale

A long-term management strategy was agreed by the European Union, the Faroe Islands, Iceland, Norway, and Russia in 2018 (Anon, 2018). ICES has evaluated the long-term management strategy and found it to be precautionary (ICES, 2018). This **meets SG 100**.

	Management strategy evaluation					
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.		
	Met?	Yes	Yes	Yes		

Rationale

EU, Faroe Islands, Iceland, Norway, and Russia agreed in 1996 to implement a long-term management plan for Norwegian spring-spawning herring (rule: fishing mortality limited to 0.15, with an additional catch ceiling of 1.5 million t). The stock has been managed since the 1980's when the first assessments were conducted for the stock and 2.5 million t was chosen as a rebuilding level both by ICES and the Norwegian management authorities. A fishery closure was initially agreed. Finally, it was decided to maintain the fishery at a low level (fishing mortality of maximum 0.05) until recovery achieved (SSB > 2.5 million t). It took over 20 years to lift the stock to the target level.

The management systems have been comprehensively tested over time and this supports a high confidence that the strategy will continue to work, and thus **meets SG 100**.

	Manager	nent strategy implementation		
с	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a) .
	Met?		Yes	Yes

Rationale

EU, Faroe Islands, Iceland, Norway, and Russia agreed in 1996 to implement a long-term management plan for Norwegian spring-spawning herring (rule: fishing mortality limited to 0.15, with an additional catch ceiling of 1.5 million t). The stock has been managed since the 1980's when the first assessments were conducted for the stock and 2.5 million t was chosen as a rebuilding level both by ICES and the Norwegian management authorities. A fishery closure was initially agreed. Finally, it was decided to maintain the fishery at a low level (fishing mortality of maximum 0.05) until recovery achieved (SSB > 2.5 million t). It took over 20 years to lift the stock to the target level.

The management system has been comprehensively tested over time and there is clear evidence that the strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a) and thus **meets SG 100**.

	Shark finning			
d	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	ΝΑ	ΝΑ	ΝΑ

Rationale

This refers to the potential for shark finning in fisheries targeting the Atlantic herring. No sharks are caught in this fishery (FCI, 2014)., and thus this is not applicable.

	Review of alternative measures					
e	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of main primary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.		
	Met?	NA	NA	NA		

Rationale

These mid-water trawl and purse seine fisheries have no discarded bycatch, with all species being retained and landed. There are few economic incentives of slipping catches (which is illegal under Icelandic law). On this basis, we consider that a review of alternative measures is not applicable to these bait fisheries.

References

Anon. 2018. Arrangement for the long-term management of the Norwegian Spring Spawning (Atlanto-scandian) Herring stock. Coastal States meeting, London, UK, October 2018. List any references here, including hyperlinks to publicly-available documents.

Food Certification International (2014). Samherji Norwegian & Icelandic herring trawl and seine fishery. Public Certification Report. May 2014

ICES (2018a). Herring (*Clupea harengus*) in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian springspawning herring (the Northeast Atlantic and the Arctic Ocean). ICES Advice on fishing opportunities, catch, and effort Northeast Atlantic and Arctic Ocean Published 22 October 2018. her.27.1-24a514a. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/her.27.1-24a514a.pdf

ICES (2018b). Report of the Workshop on a long-term management strategy for Norwegian Spring-spawning herring (WKNSSHMSE), 26–27 August 2018, Torshavn, Faroe Islands. ICES CM 2018/ACOM:53. 113pp. http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2018/WKNSSHMSE/WKNSSHMS E%20Report%20-%20Annex%209.pdf

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80				
Information gap indicator	Information sufficient to score PI				
Overall Performance Indicator scores added from Client and Peer Review Draft Report					
Overall Performance Indicator score					
Condition number (if relevant)					

PI 2.1.3 – Primary species information

PI 2	2.1.3	Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species				
Scoring Issue		SG 60	SG 80	SG 100		
	Informat	Information adequacy for assessment of impact on main primary species				
а	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main primary species with respect to status.	Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status.	Quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoA on main primary species with respect to status.		
	Met?	Yes	Yes	Yes		

Rationale

The Norwegian Spring-spawning herring is an ICES stock data category 1 stock and has been using data since 1988 to assess commercial catches-at-age (stock weight-at-age from surveys and since 2009 from catch sampling). There are three survey indices: Norwegian acoustic survey on spawning grounds in February/March (NASF, 1994–2005, 2015–2018); International Ecosystem Survey in the Nordic Seas (IESNS) covering the adult stock in the Nordic seas (1996–2018) and the juvenile stock in the Barents Sea (1991–2018). We consider that quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoA on this bait species, and that this **meets SG 100**.

Information adequacy for assessment of impact on minor primary species

b	Guide post		Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?		Yes
Ration	ale		

There are no minor primary species so this meets SG 100.

Information adequacy for management strategy Information is adequate to Information is adequate to Information is adequate to support measures to manage support a partial strategy to support a strategy to manage С main primary species. manage **main** primary all primary species and Guide species. evaluate with a high degree post of certainty whether the strategy is achieving its objective. Met? Yes Yes Yes Rationale

Given the long-term nature of both stock assessment and management strategy implementation for this species in the NE Atlantic, this **meets SG 100.**

References

Anon. 2018. Arrangement for the long-term management of the Norwegian Spring Spawning (Atlanto-scandian) Herring stock. Coastal States meeting, London, UK, October 2018. List any references here, including hyperlinks to publicly-available documents.

Food Certification International (2014). Samherji Norwegian & Icelandic herring trawl and seine fishery. Public Certification Report. May 2014

ICES (2018a). Herring (*Clupea harengus*) in subareas 1, 2, and 5, and in divisions 4.a and 14.a, Norwegian springspawning herring (the Northeast Atlantic and the Arctic Ocean). ICES Advice on fishing opportunities, catch, and effort Northeast Atlantic and Arctic Ocean Published 22 October 2018. her.27.1-24a514a. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/her.27.1-24a514a.pdf

ICES (2018b). Report of the Workshop on a long-term management strategy for Norwegian Spring-spawning herring (WKNSSHMSE), 26–27 August 2018, Torshavn, Faroe Islands. ICES CM 2018/ACOM:53. 113pp. http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2018/WKNSSHMSE/WKNSSHMS E%20Report%20-%20Annex%209.pdf

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score

Condition number (if relevant)

PI 2.2.1 - Secondary species outcome

PI 2	2.2.1	The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit				
Scoring Issue SG 60 SG 80 SG 10		SG 100				
	Main se	Main secondary species stock status				
а	Guide post	Main secondary species are likely to be above biologically based limits.	Main secondary species are highly likely to be above biologically based limits.	There is a high degree of certainty that main secondary species are above biologically based limits.		
	Met?	Yes	Yes	Νο		

Rationale

Two species of squid, (i) Patagonian longfin squid (*Doryteuthis gahi*) commonly colloquially Loligo, mainly from the Falkland Islands EEZ and (ii) Argentine shortfin squid (*Illex argentinus*) mainly from Argentinian waters are important bait species used by this longline fishery. Preliminary figures suggest that together they represent around 14% by weight of the total UoA catch and are therefore main secondary species.

Patagonian longfin squid (Doryteuthis gahi): The bottom trawl fishery for Falkland calamari operates in a restricted area to the south and east of the islands called the "Loligo Box" and is open in two distinct seasons (RSPB, 2017). The first season runs from February 24th until April 28th (64/65 days) whilst the second season is open from July 29th until September 30th (64 days). The harvest strategy is based on a minimum mean estimated escapement of 10,000 tonnes for each season. The stock is monitored in-season using depletion models and, if the models project that the escapement will drop below 10,000 tonnes, the fishery may be suspended or stopped in advance of the scheduled closure date. Management is complicated by immigration events within the season, so the escapement is determined from depletion following each in-season immigration event. The 10,000 tonne escapement requirement is modified from a previous management requirement to allow 40% escapement, which was based on experience with the *Illex argentinus* fishery (Agnew *et al.*, 1998).

Fishing effort and catch levels (see **Figure 4**) of this short-lived species have been fairly consistent over the past 25 years. Since 2000 annual catches have averaged 45,000 tonnes. Inter-annual variability is probably related to the influence of the environment on recruitment. Given the consistent CPUE and the consistently strong management approach. Combined with twice annual stock assessments, there is a high degree of certainty that this species are above biologically based limits and therefore **reaches SG 100**.

Figure 4: Falklands long-fin squid catches 1989 - 2015



Argentine shortfin squid (Illex argentinus): There are no routine stock assessments for the Argentine shortfin squid. Chang *et al* (2016) analysed Taiwanese jigger records over 1993 – 2012 and concluded that the total squid biomass for the studied years was estimated more than 2-fold higher than the annual catch, indicating that the Argentine shortfin squid remains in a healthy status under current fisheries exploitation. However, this conflicts with other, albeit earlier studies (FAO, 2011; Rodhouse, 2013) who consider the fishery to be over-fished. FAO catch statistics for *I. argentinus* also suggest a boom / bust cycle (Dunne, 2017).



Figure 5: Argentine shortfin squid catches 1989 - 2017

Source: FAO. 2019. Fishery and Aquaculture Statistics. Global capture production 1950-2017 (FishStatJ). In: FAO Fisheries and Aquaculture Department [online]. Rome. Updated 2019. www.fao.org/fishery/statistics/software/fishstatj/en

Based on Chang *et al*'s fairly recent (2016) stock assessment, this meets SG 80. However, other authors (FAO, 2011; Rodhouse, 2013) as well as the inter-annual variation in catch, suggest that **SG 100 is not met**.



There are no minor secondary species so this meets SG 100.

References

Agnew DJ, Baranowski R, Beddington JR, des Clers, S, & Nolan CP. 1998. Approaches to assessing stocks of *Loligo gahi* around the Falkland Islands. *Fisheries Research*, 35, 155–169. List any references here, including hyperlinks to publicly-available documents.

Chang, K.-Y., C-S Chen, T-Y Chiu, W-B Huang and T-S Chiu (2016). Argentine Shortfin Squid (*Illex argentinus*) Stock Assessment in the Southwest Atlantic Using Geostatistical Techniques. *Terrestrial Atmospheric and Oceanic Sciences*, 27(2), pp.281–292.

Dunne, S. (2017). Managing the Southwest Atlantic: the case of Illex argentinus. Dissertation for the degree of

FAO (2011). Review of the state of world marine fishery resources, Rome.

MSc in Environmental Sustainability at the University of Edinburgh. 81 pp.

Rodhouse, P.G.K., 2013. Role of squid in the Southern Ocean pelagic ecosystem and the possible consequences of climate change. Deep-Sea Research Part li-*Topical Studies in Oceanography*, 95, pp.129–138.

RSPB (2017). Falkland Islands Detailed Fisheries Report. https://ww2.rspb.org.uk/Images/Falkland%20Islands%20fisheries%20detailed%20report%202017_tcm9-440547.pdf

Winter, A (2018). Stock assessment, 2nd Season 2018. *Doryteuthis gahi*. Natural Resources, Fisheries, December 2018. https://www.fig.gov.fk/fisheries/publications/d-gahi-loligo

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.2 – Secondary species management strategy

PI 2	2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring	g Issue	SG 60	SG 80	SG 100
	Manage	ment strategy in place		
а	Guide post	There are measures in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a partial strategy in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a strategy in place for the UoA for managing main and minor secondary species.
	Met?	Yes	Yes	Νο

Rationale

Patagonian longfin squid (*Doryteuthis gahi***):** From its beginning in 1987 the Falkland Islands fisheries policy has included three objectives to (1) conserve the resource, (2) maintain the fisheries' economic viability, and (3) to enable the Falkland Islands to enjoy greater benefit from the resource.

The long-fin squid management system is highly responsive to the in-season monitoring of the stock. The season can be closed early if the depletion models indicate that the escapement will fall below the target level. Within season spatial closures (e.g. 2016 first season) have also been implemented to conserve small squid. The ITQ system was introduced in 2006 and, since then, the fishery has been operated by 16 trawlers, most of which are on the Falkland Islands registry.

Given the overall Falkland Islands policy approach, combined with the specific strategy based around a depletion model, we consider that there is a strategy in place for the UoA for managing the long-fin squid and thus this **meets SG 100**.

Argentine shortfin squid (*Illex argentinus***)**: following bilateral management of *I. argentinus* between the UK Government and the Argentina Government through the South Atlantic Fisheries Commission (SAFC) up until 2005, there was a switch to unilateral management following the UK's decision to impose Individual Transferable Quotas rights-based system. There is still a collaborative management between Argentina and the UK using effort limitation, Leslie-Delury depletion analysis, real-time assessment and a known target escapement. The fishery is closed when the escapement threshold is reached (Barratt & Allcock, 2014). In Argentina the scientific body INIDEP has a predefined surveys' program to assess the stock, and onboard observers allowing a real-time monitoring of the resource. The resolutions of the management body (CFP) directly follow the recommendations made by INIDEP.

In contrast with the *D. gahi* squid fishery, the companies involved in the *I. argentinus* have fewer vested interests, as they spend most of their activity in the high seas and not in the Falklands fishery (Harte & Barton 2007; Arkhipkin *et al.* 2013). Although high fluctuation in the annual production has been observed in recent years, no regional fisheries management organization is in charge of the squid in this region.

There are measures in place to maintain or rebuild the *I. argentius* stock, and this meets SG 60. Although not managed jointly by the UK and Argentina, there is a partial strategy (e.g. basing management upon depletion models) and this meets SG 80. However, this falls short of a full strategy, and thus does **not meet SG 100**.

b Management strategy evaluation

Guide	The measures are considered	There is some objective	Testing supports high
post	likely to work, based on	basis for confidence that the	confidence that the partial

Met?	Yes	Yes	No
	plausible argument (e.g.	measures/partial strategy will	strategy/strategy will work,
	general experience, theory or	work, based on some	based on information directly
	comparison with similar	information directly about the	about the UoA and/or species
	UoAs/species).	UoA and/or species involved.	involved.

Rationale

Patagonian longfin squid (*Doryteuthis gahi*): The harvest strategy is based on a minimum mean estimated escapement of 10,000 tonnes for each season. The stock is monitored in-season using depletion models and, if the models project that the escapement will drop below 10,000 tonnes, the fishery may be suspended or stopped in advance of the scheduled closure date. Management is complicated by immigration events within the season, so the escapement is determined from depletion following each in-season immigration event. This strategy has been implemented since 1989, with ITQs introduced in 2006. The 10,000 tonne escapement requirement is modified from a previous management requirement to allow 40% escapement, which was based on experience with the *Illex argentinus* fishery (Agnew *et al.*, 1998). Given the long period of management and the fishery's consistent yield, there is a high confidence that the strategy will work, based on information directly about the UoA and the species involved, this **meets SG 100**.

Argentine shortfin squid (*Illex argentinus***)**: this fishery is less rigorously managed than that for *D. gahi* e.g. lacks any ITQ system, but is still subject regular review, esp. in the Argentine EEZ. The continuing productivity of this fishery suggests that there is some objective basis for confidence that the partial strategy, but this lacks a high degree of confidence (esp. for areas outside the Argentina EEZ), and this **fails to meet SG 100**.

	Manage	Management strategy implementation			
с	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) .	
	Met?		Yes	Νο	

Rationale

Patagonian longfin squid (*Doryteuthis gahi***):** The harvest strategy is based on a minimum mean estimated escapement of 10,000 tonnes for each season. The stock is monitored in-season using depletion models and, if the models project that the escapement will drop below 10,000 tonnes, the fishery may be suspended or stopped in advance of the scheduled closure date. Management is complicated by immigration events within the season, so the escapement is determined from depletion following each in-season immigration event. This strategy has been implemented since 1989, with ITQs introduced in 2006. The 10,000 tonne escapement requirement is modified from a previous management requirement to allow 40% escapement, which was based on experience with the *Illex argentinus* fishery (Agnew et al., 1998). The management system has been comprehensively tested over time and there is clear evidence that the strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a) and thus **meets SG 100.**

Argentine shortfin squid (*Illex argentinus***)**: this fishery is less rigorously managed than that for *D. gahi* e.g. lacks any ITQ system, but is still subject regular review, esp. in the Argentine EEZ. The continuing productivity of this fishery suggests that there is some evidence that the partial strategy is being implemented successfully, but this lacks clear evidence (esp. for areas outside the Argentina EEZ), and this **fails to meet SG 100**.

	Shark finning				
d	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.	
	Met?	ΝΑ	ΝΑ	ΝΑ	

Rationale

Both species: This refers to the potential for shark finning in fisheries targeting squid. No sharks are caught in this fishery (RSPB, 2017), and thus this is not applicable.

	Review of alternative measures to minimise mortality of unwanted catch			
e	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of main secondary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of main secondary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of unwanted catch of all secondary species, and they are implemented, as appropriate.
	Met?	NA	NA	NA

Rationale

Both species: This bottom trawl fishery is highly targeted, with only about 6% bycatch (mainly rock cod, with occasional catches of blue whiting and *Illex argentinus*. On this basis, we consider that a review of alternative measures is not applicable to these bait fisheries.

References

Arkhipkin, A. *et al.*, 2013. Close cooperation between science, management and industry benefits sustainable exploitation of the Falkland Islands squid fisheries. Journal of Fish Biology, 83(4), pp.905–920.

Barratt, I. & Allcock, L. 2014. Illex argentinus. The IUCN Red List of Threatened Species 2014: e.T163246A989453. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T163246A989453.en. Downloaded on 07 August 2019.

Harte, M. & Barton, J., 2007a. Balancing local ownership with foreign investment in a small island fishery. Ocean and Coastal Management, 50(7), pp.523–537.

RSPB (2017). Falkland Islands Detailed Fisheries Report.

https://ww2.rspb.org.uk/Images/Falkland%20Islands%20fisheries%20detailed%20report%202017_tcm9-440547.pdf

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.3 – Secondary species information

PI 2	2.2.3	Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring	g Issue	SG 60	SG 80	SG 100
	Informat	ion adequacy for assessme	nt of impacts on main seco	ndary species
а	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main secondary species with respect to status.	Some quantitative information is available and adequate to assess the impact of the UoA on main secondary species with respect to status.	Quantitative information is available and adequate to assess with a high degree of certainty the impact of the UoA on main secondary species with respect to status.
	Met?	Yes	Yes	Νο

Rationale

Patagonian longfin squid (Doryteuthis gahi): Assessing stocks of short-lived species, such as squid, is not possible using standard production models, as they are highly volatile with a very weak stock – recruitment relationship. In the Falkland Island squid fisheries, the stock is assessed and managed using in-season depletion projections (Roa-Ureta & Arkhipkin, 2007). The models, which include catchability, natural mortality and fishing mortality parameters, project the stock to the end of the season to estimate escapement. The Falkland *D*, *gahi* stock assessment is calculated in a Bayesian framework, whereby results of the season depletion model are conditioned by prior information on the stock – in this case with information from the pre-season survey. The pre-season trawl survey is undertaken on one of the licensed vessels and this generates an estimate of the standing stock, which gives an indication of the abundance of squid and prospects for the season. Based on the above, quantitative information is available and adequate to assess with a high degree of certainty the impact of the UoA on longfin squid with respect to its status and thus this fishery **meets SG 100.**

Argentine shortfin squid (*Illex argentinus*): much of the above also applies to *I. argentius*. However a major unknown is the high level of removals from IUU fishing by foreign fleets, both in the EEZ (estimated to be 40% of total catches over 2012 – 2015) and in the high seas. Approximately 11-35% of the population can be found in the area over the Patagonian Shelf and Slope (Waluda *et al.* 2008), which means that IUU-fishing in the high seas can potentially undermine conservation measures imposed by coastal states (Rodhouse *et al.* 2014). Using satellite imagery, the study conducted by Waluda *et al.* (2002) proved that there is substantial fishing of *I. argentinus* throughout the season that occurs in the high seas region in the adjacency of the EEZs of Argentina and Falkland Islands, increasing the risk of illegal poaching (Rodhouse *et al.* 2014). Moreover, it is estimated that approximately 50-100,000 tonnes per year are fished in the high seas of the South West Atlantic (Rodhouse *et al.* 2014). The difficulty in controlling IUU fishing in the high seas is that vessels flag states are the only ones entitled to prosecute them (Rodhouse *et al.* 2014). Even though IUU-fishing has been considerably reduced in the South West Atlantic, it remains a major concern for the region (Barton 2002; Maguire et al. 2006). WILL SCORE THIS AS A GROUP. GIVEN THE HIGH DEGREE OF IUU FISHING, THERE IS SOME DOUBT THIS WILL PASS...... BUT IF THE UOA ONLY, THEN WILL PROBABLY SQUEEZE THROUGH...

Information adequacy for assessment of impacts on minor secondary species

b	Guide post	Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?	Yes
Ration	ale	

There are no minor secondary species so this meets SG 100.

	Informat	ion adequacy for managem	ent strategy	
с	Guide post	Information is adequate to support measures to manage main secondary species.	Information is adequate to support a partial strategy to manage main secondary species.	Information is adequate to support a strategy to manage all secondary species and evaluate with a high degree of certainty whether the strategy is achieving its objective .
	Met?	Yes	Yes	Yes

Rationale

Patagonian longfin squid (*Doryteuthis gahi*): Given the long-term nature of both stock assessment and management strategy implementation for this species in the Falkland Islands fishery, this **meets SG 100**.

Argentine shortfin squid (Illex argentinus): As stated above, a major unknown is the high level of removals from IUU fishing by foreign fleets, both in the EEZ (estimated to be 40% of total catches over 2012 – 2015) and in the high seas. Approximately 11-35% of the population can be found in the area over the Patagonian Shelf and Slope (Waluda *et al.* 2008), which means that IUU-fishing in the high seas can potentially undermine conservation measures imposed by coastal states (Rodhouse *et al.* 2014). Using satellite imagery, the study conducted by Waluda *et al.* (2002) proved that there is substantial fishing of *I. argentinus* throughout the season that occurs in the high seas region in the adjacency of the EEZs of Argentina and Falkland Islands, increasing the risk of illegal poaching (Rodhouse *et al.* 2014). Moreover, it is estimated that approximately 50-100,000 tonnes per year are fished in the high seas of the South West Atlantic (Rodhouse *et al.* 2014). The difficulty in controlling IUU fishing in the high seas is that vessels flag states are the only ones entitled to prosecute them (Rodhouse *et al.* 2014). Even though IUU-fishing has been considerably reduced in the South West Atlantic, it remains a major concern for the region (Barton 2002; Maguire et al. 2006). WILL SCORE THIS AS A GROUP. GIVEN THE HIGH DEGREE OF IUU FISHING, THERE IS SOME DOUBT THIS WILL PASS. THIS IS NOT AT UOA LEVEL, SO NEED TO CONSIDER CAREFULLY.

References

Barton, J., (2002). Fisheries and fisheries management in Falkland Islands conservation zones. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 12(1), pp.127–135.

Maguire, J.J. et al., (2006). The state of world highly migratory, straddling and other high seas fishery resources and associated species. *FAO Fisheries Technical Paper*, 495, p.96.

Roa-Ureta R & Arkhipkin AI. (2007). Short-term stock assessment of *Loligo gahi* at the Falkland Islands: sequential use of stochastic biomass projection and stock depletion models. *ICES Journal of Marine Science* 64, 3–17.List any references here, including hyperlinks to publicly-available documents.

Rodhouse, P.G.K. et al., 2014. Environmental Effects on Cephalopod Population Dynamics: Implications for Management of Fisheries. In E. A. G. Vidal, ed. Advances in Cephalopod Science: Biology, Ecology, Cultivation and Fisheries. *Advances in Marine Biology*. pp. 99–233.

RSPB (2017). Falkland Islands Detailed Fisheries Report. https://ww2.rspb.org.uk/Images/Falkland%20Islands%20fisheries%20detailed%20report%202017_tcm9-440547.pdf

Waluda, C.M. et al., 2002. Throwing light on straddling stocks of *Illex argentinus*: assessing fishing intensity with satellite imagery. *Canadian Journal of Fisheries and Aquatic Sciences*, 59(4), pp.592–596.

Waluda, C.M., Griffiths, H.J. & Rodhouse, P.G., 2008. Remotely sensed spatial dynamics of the *Illex argentinus* fishery, Southwest Atlantic. *Fisheries Research*, 91(2–3), pp.196–202.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80

Information gap indicator	Information sufficient to score PI
Overall Performance Indicator scores added from Clier	nt and Peer Review Draft Report
Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.1 – ETP species outcome

PI 2	2.3.1	The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scorin	g Issue	SG 60 SG 80 SG 100		
	Effects of the UoA on population/stock within national or international limits, where applicable			
а	Guide post	Where national and/or international requirements set limits for ETP species, the effects of the UoA on the population/ stock are known and likely to be within these limits.	Where national and/or international requirements set limits for ETP species, the combined effects of the MSC UoAs on the population /stock are known and highly likely to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a high degree of certainty that the combined effects of the MSC UoAs are within these limits.
	Met?	NA	NA	NA

Rationale

One species is considered as an ETP in this fishery: the Greenland shark (*Somniosus microcephalus*). Whilst none was caught in 2017, 33.3 mt was caught in 2018, representing around 19% of the catch.

Fisheries for Greenland shark have occurred in the past (e.g. Norway, Greenland and Iceland). Historically, high catches have been recorded in Norway and Greenland, driven by the liver oil and skin markets. Landings in Norway peaked in 1948 at 58,000 sharks. Reports of landed amounts of liver in Greenland, converted to number of sharks, was historically estimated to be 15,000 to 30,000 sharks annually from 1850 to 1895, increasing to 30,000 to 45,000 in most years from 1895 to 1938 for North Greenland alone. With the advent of synthetic oil, the fisheries substantially declined in the middle of the 20th century and landings have remained relatively low, ranging between 50 and 200 t per year (MacNeil et al., 2012). As no sharks or shark products are landed to factories, the utilized sharks originate either from directed subsistence fishery or from the utilization of bycatches such as this longline fishery.

The Greenland shark is considered to be 'Near Threatened' by the IUCN Red List (Kyne *et al*, 2006), but there are no limits set for this species, and therefore this PI is not applicable. It therefore **reaches SG 100**.

	Direct ef	fects		
b	Guide post	Known direct effects of the UoA are likely to not hinder recovery of ETP species.	Direct effects of the UoA are highly likely to not hinder recovery of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	Met?	Yes	Yes	Νο

Rationale

Despite the inherent vulnerability of this species, given that it is no longer fished by directed commercial fisheries and catches are a small fraction of those in the past, fishing in the UoA is highly likely to not hinder recovery of the Greenland shark and this **meets SG 80**.

However, as NAFO warrants a precautionary consideration due to their extremely delayed maturity and low fecundity, this cannot be started with a high degree of confidence and thus **fails to meet SG 100.**

	Indirect	effects		
С	Guide post		Indirect effects have been considered for the UoA and are thought to be highly likely to not create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the UoA on ETP species.

Met?	Yes	Νο

Rationale

Given the relatively low numbers of Greenland sharks killed by this fishery, indirect impacts (e.g. removal of a keystone species) are highly likely to not create unacceptable impacts and this **meets SG 80**. However, as NAFO warrants a precautionary consideration due to their extremely delayed maturity and low fecundity, this cannot be started with a high degree of confidence and thus **fails to meet SG 100**.

References

Kyne, P.M., Sherrill-Mix, S.A. & Burgess, G.H. (2006). *Somniosus microcephalus*. The IUCN Red List of Threatened Species 2006: e.T60213A12321694. http://dx.doi.org/10.2305/IUCN.UK.2006.RLTS.T60213A12321694.en. Downloaded on 05 August 2019.

NAFO. 2018. Report of the Scientific Council, 01-14 June 20-18, Halifax, Canada. NAFO SCS Doc. 18/19List any references here, including hyperlinks to publicly-available documents.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	60-79
Information gap indicator	More information sought (esp. on discarding levels, survival, move-on rules, etc)

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.2 - ETP species management strategy

PI 2.3.2		 The UoA has in place precautionary management strategies designed to: meet national and international requirements; ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species		
Scoring	g Issue	SG 60	SG 80	SG 100
	Manage	agement strategy in place (national and international requirements)		
а	Guide post	There are measures in place that minimise the UoA-related mortality of ETP species, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a comprehensive strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to achieve above national and international requirements for the protection of ETP species.
	Met?	NA	NA	NA
Rationale				

Scoring issue not be scored as there are no requirements for protection or rebuilding provided through national ETP legislation or international agreements.

	Manage	Management strategy in place (alternative)			
b	Guide post	There are measures in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a strategy in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a comprehensive strategy in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.	
	Met?	Yes / No / NA	Yes / No / NA	Yes / No / NA	
Rationale					

Insufficient information to score this PI.

С	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	Met?	Yes / No	Yes / No	Yes / No

Rationale

Insufficient information to score this PI.

d	Management strategy implementation				
	Guide post	There is some evidence that the measures/strategy is being implemented successfully.	There is clear evidence that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b).		
	Met?	Yes / No	Yes / No		
Rationale					

Insufficient information to score this PI.

	Review	of alternative measures to n	ninimize mortality of ETP sp	pecies	
e	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of ETP species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of ETP species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality ETP species, and they are implemented, as appropriate.	
	Met?	Yes / No	Yes / No	Yes / No	
Rationale					

Insufficient information to score this PI. Note Grant et al's work (2018) on alternative hook designs to minimise Greenland shark bycatch.

References

Grant, S., R. Sullivan & K. Hedges (2018), Greenland shark (*Somniosus microcephalus*) feeding behaviour on static fishing gear, effect of SMART (Selective Magnetic and Repellent-Treated) hook deterrent technology, and factors influencing entanglement in bottom longlines. *PeerJ* 6:e4751; DOI 10.7717/peerj.4751

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	<60 / 60-79 / ≥80
Information gap indicator	More information sought (on management mechanisms / strategies to avoid Greenland shark bycatch)

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.3 - ETP species information

PI 2	2.3.3	Relevant information is collected to support the management of UoA impacts on ETP species, including: - Information for the development of the management strategy; - Information to assess the effectiveness of the management strategy; and - Information to determine the outcome status of ETP species			
Scorin	g Issue	SG 60	SG 80 SG 100		
	Informat	Information adequacy for assessment of impacts			
а	Guide post	Qualitative information is adequate to estimate the UoA related mortality on ETP species.	Some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species.	Quantitative information is available to assess with a high degree of certainty the magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status of ETP species.	
	Met?	Yes	Yes	Yes	

Rationale

All Greenland shark catches by the longline fleet must be retained and landed, despite its low value compared to the target species, Greenland halibut, where it is usually turned into dogfood (NAFO, 2018). As a result, there is comprehensive quantitative data on the mortality of Greenland sharks resulting from this fishery, thus meeting **SG 100**.

Information adequacy for management strategy

b	Guide post	Information is adequate to support measures to manage the impacts on ETP species.	Information is adequate to measure trends and support a strategy to manage impacts on ETP species.	Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.
	Met?	Yes	Yes	Yes

Rationale

At the request of the NAFO Fisheries Commission, in their 2018 meeting the Scientific Council reviewed the available information on the life history, population status, and current fishing mortality of Greenland sharks (Somniosus microcephalus), on longevity and records of Greenland shark bycatch in NAFO fisheries, and developed advice for management, in line with the precautionary approach, for consideration by the Fisheries Commission (NAFO, 2018).

The fully quantitative catch accounting of the Greenland shark (which has to be retained and landed), combined with accurate logbook data (tbc) on spatial and temporal catch patterns also allows a long-term catch per unit effort e.g. number of sharks per thousand hooks to be assembled. This therefore **meets SG 100.**

References

NAFO. 2018. Report of the Scientific Council, 01-14 June 20-18, Halifax, Canada. NAFO SCS Doc. 18/19

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
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Information gap indicator	Information sufficient to score PI			
Overall Performance Indicator scores added from Client and Peer Review Draft Report				
Overall Performance Indicator score				
Condition number (if relevant)				

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue SG 60 SG 80			SG 100	
	Commonly encountered habitat status			
а	Guide post	The UoA is unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	Yes	Yes	Yes

Rationale

Commonly encountered habitats in the UoA are considered to be soft sediments ranging from muddy sand to mud, which dominate the areas below 500m depth, although studies of habitat and communities both within and outside of the main fished areas have concentrated more on distribution of bycatch including VMEs, with descriptions of commonly encountered habitat taking a lesser priority.

The bottom longline is a static gear. As such, the main potential impacts are from the hooks snagging erectile organisms and removing epibenthic organisms. Pham (2014) conducted a detailed analysis of deep-water bottom longlining in temperate waters and concluded that t bottom longline has a reduced impact on benthic communities with low bycatch and *in situ* damages. Given this, and the low level of longline effort involved, we consider that there is evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm, thus **meeting SG 100**.

VME habitat status

b	Guide post	The UoA is unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	Met?	Yes	Yes	Yes

Rationale

Sponges, *Lophelia*, black corals, solitary corals, coral gardens, bamboo corals, gorgonians, soft corals and sea pens are identified as potential VMEs within Greenlandic waters. The only recognised *Lophelia* reef is a protected area some way south of the southern fishing area. One area with a higher level of occurrence of a variety of coral species including black corals, *Flabellum alabastrum*, and a variety of gorgonians as well as sea pens has been identified in the Davis Strait at between 63°N and 64°N and 54°W and 56°W and depths between 1000 m and 1500 m. This is not thought to directly overlap with the current fishing area and the recorded density or abundance of this feature is not considered by GINR to result in the area being considered a VME. Other than this there is little evidence of concentrations or aggregations likely to represent of any of the other VME candidates (sea pens, sponges, bamboo corals, other corals). Those very limited examples are well away from the fishing areas. The vessels fish regular areas by habit, and VME indicators such as sponges, or corals are very rarely recorded in bottom longlines.

Overall, with the limited footprint of the fishery and the lack of VMEs identified in the vicinity of these two fishing grounds, the UoA is highly unlikely to reduce structure and function of VMEs. Given Pham (2014)'s investigations on the impact of bottom longlines on VMEs and the low level of longline effort involved, we consider that there is

evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm, thus **meeting SG 100**.

	Minor habitat status			
С	Guide post			There is evidence that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	Met?			Νο

Rationale

Overall the predominant habitat below 500m is clearly soft sediment, but it is known that there are likely to be areas of more rocky habitat for example in gullies on the continental slope where currents are stronger. These are considered as minor habitats. There is limited information on the nature and distribution of minor habitats. Some limited information exists below 500m based on predictive modelling (Gougeon *et al*, 2017). This does show predominantly soft sediments but also some areas of more gravelly sediments, both in the vicinity of Davis Strait fishing area and in the permanently closed area. However, the fishery takes place regularly on the same areas with few exceptions, and according to Jorgensen (DNV, 2016) the fishermen are aware of the presence of both rocky ground and a steep canyon in the vicinity of the Davis Strait fishing area and routinely avoid these areas. The very restricted area impacted by fishing in relation to the overall areas that are deeper than 500m (estimated at c.5%) and the recognition that fishers actively avoid rough ground does not amount to evidence that the UoA is highly unlikely to reduce structure and function of minor habitats to appoint where there would be serious or irreversible harm and **SG100 is not met.**

References

Gougeon S, Kemp K, Blicher ME & Yesson (2017). Mapping and classifying the seabed off West Greenland. *Estuarine, Coastal and Shelf Science* 187 (2017) 231e240

Pham, C.K., Diogo, H., Menezes, G., Porteiro, F., Braga-Henriques, A., Vandeperre, F. & T. Morato (2014). Deepwater longline fishing has reduced impact on Vulnerable Marine Ecosystems. *Scientific Reports*, V. 4, Article Number 4837.List any references here, including hyperlinks to publicly-available documents.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI (extent of LL fishing area)

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.2 – Habitats management strategy

PI 2	2.4.2	There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats			
Scoring Issue		SG 60	SG 80	SG 100	
	Management strategy in place				
а	Guide post	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.	
	Met?	Yes	Yes	Νο	

Rationale

Both the limited longline effort (two vessels in West Greenland tbc), the static nature of the gear and evidence from studies such as Pham (2014) suggest that the UoA does not pose a risk of serious or irreversible harm to the habitats. On this basis, measures nor a partial strategy are required and thus both SG 60 and SG 80 are met. However, there is no strategy in place, and this **fails to meet SG 100**.

Management	strategy evaluation	
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b	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some objective basis for confidence that the measures/partial strategy will work, based on information directly about the UoA and/or habitats involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or habitats involved.
	Met?	Yes	Yes	No

Rationale

As discussed in Scoring Issue (a) the static nature of the gear and evidence from studies such as Pham (2014) suggest that the UoA does not pose a risk of serious or irreversible harm to the habitats. On this basis, measures nor a partial strategy are required and thus both **SG 60 and SG 80 are met**. However, there is no strategy nor testing in place, and this **fails to meet SG 100**.

	Management strategy implementation		
с	Guide post	There is some quantitative evidence that the measures/partial strategy is being implemented successfully.	There is clear quantitative evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	Met?	Yes	Νο

Rationale

d

As discussed in Scoring Issue (a) the static nature of the gear and evidence from studies such as Pham (2014) suggest that the UoA does not pose a risk of serious or irreversible harm to the habitats. On this basis, measures nor a partial strategy are required and thus SG 80 is met. However, there is no strategy nor clear quantitative evidence in place, and this fails to meet SG 100.

Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs

Guide post	There is qualitative evidence that the UoA complies with its management requirements to protect VMEs.	There is some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is clear quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
Met?	Yes	Yes	No

Rationale

The halibut vessels do not overlap with other MSC fisheries for shrimp or lumpfish in West Greenland, which is evidenced by VMS data. The same is true of Canadian fisheries, as Greenlandic vessels are restricted to the Greenland EEZ. Therefore, there is some quantitative evidence of compliance with any measures associated with these fisheries and **SG80** is met.

Measures for VMEs are in place under NAFO regulations. There is mandatory recording of all coral and sponge species in the catch by both masters (logbooks) and observers (observer reports). There is also a move on rule for corals and sponges. As the move on rule threshold amounts to very high levels of sponge and coral bycatch that are reportedly not be encountered in the fishery, there is not clear quantitative evidence of compliance and **SG100 is not met.**

References

Gougeon S, Kemp K, Blicher ME & Yesson (2017). Mapping and classifying the seabed off West Greenland. *Estuarine, Coastal and Shelf Science* 187 (2017) 231e240

Pham, C.K., Diogo, H., Menezes, G., Porteiro, F., Braga-Henriques, A., Vandeperre, F. & T. Morato (2014). Deepwater longline fishing has reduced impact on Vulnerable Marine Ecosystems. *Scientific Reports*, V. 4, Article Number 4837.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2	2.4.3	Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat					
Scoring Issue		SG 60	SG 80	SG 100			
а	Information quality						
	Guide post	The types and distribution of the main habitats are broadly understood .	The nature, distribution and vulnerability of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.			
	Met?	Yes / No	Yes / No	Yes / No			
Rationale							

Insert sufficient rationale to support the team's conclusion for each Scoring Guidepost (SG).

	Information adequacy for assessment of impacts					
b	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear.	The physical impacts of the gear on all habitats have been quantified fully.		
	Met?	Yes	Yes	Νο		

Rationale

The types and distribution of the main habitats (soft sediments notably muddy sands and sandy muds) are broadly understood since there is a widely acknowledged predominance of these habitats in the deeper (especially >500m) parts of Western Greenland. These are informed by research surveys, observer information, by-catch information and fishers knowledge leading to the estimations of type and distribution described in this report (e.g. Gougeon 2015; Gougeon *et al* 2017). SG60 is therefore met. There have been no direct studies of vulnerability, although it is possible to infer this based on knowledge from other areas e.g. Pham, 2014. In addition the location, spatial extent and timing of longlining activity can be determined from logbook and VMS information (tbc), thus meeting SG 80. However the physical impacts of the gear on all habitats have not been quantified fully and SG100 is not met.

с	Monitorin	g	Adequate information	Changes in all habitat			
	post		detect any increase in risk to the main habitats.	measured.			
	Met?		Yes	Νο			
Rationale							
The extent of fishing is well monitored and can be estimated and confirmed from both logbook data and VMS data. Potential changes to the areas fished are arguably the biggest risk to the habitats and area fished is clearly monitored, with no evidence of change. There is also sufficient observer coverage to detect any change in fishing practice that might increase risk to main habitats. **SG80 is met.**

VME distribution is broadly understood (Jørgensen *et al* 2013). Spatial distribution of habitats including VME's is not well known except in very general terms and changes are not measured over time (e.g. Gougeon 2015; Gougeon *et al* 2017). Whilst VME information based on a NAFO VME indicator list is collected from the fishery, but this provides only very limited information as longl;ione hooks and lines have a poor ability to retain many of the relevant species. Potentially more useful information comes from research trawls, however there is only extremely limited information from other sources such as direct observation or habitat modelling. Overall, habitat information in all respects is based on relatively little information. Information on the main and minor habitats is based on limited direct observation and is not monitored to enable detection of distribution changes, **SG100 is not met**.

References

Gougeon S, 2015. Mapping and classifying the seabed off West Greenland. MRes Thesis, Imperial College London. Available from https://www.zsl.org/conservation/regions/americas/benthic-habitats-of-west-greenland List any references here, including hyperlinks to publicly-available documents.

Gougeon S, Kemp K, Blicher ME & Yesson (2017). Mapping and classifying the seabed off West Greenland. *Estuarine, Coastal and Shelf Science* 187 (2017) 231e240

Jørgensen O.A., Tendal O.S. & Arbe N.H. 2013. Preliminary mapping of the distribution of corals observed off West Greenland as inferred from bottom trawl surveys 2010-2012 Serial No. N6156NAFO SCR Doc. 13/007.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI (VMS coverage; VME bycatch monitoring by LL)

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.1 – Ecosystem outcome

PI 2	2.5.1	The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function			
Scorin	g Issue	SG 60 SG 80 SG 100			
	Ecosyst	em status			
а	Guide post	The UoA is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	
	Met?	Yes	Yes	Partial	

Rationale

Natural mortality, which would include predation is taken into account when setting TACs by NAFO under their commitment to ecosystem considerations in fisheries management. No concerns have been expressed by stakeholders in this regard. The biomass of Greenland halibut is stable or increasing in recent years and predation rates in the important overwintering areas by one the most important predators (Narwhal) are regarded as being low in relation to overall stock size, (Laidre et al 2004). The limited footprint of the fishery in relation to the ecosystem makes it highly unlikely that the UoA would disrupt the key elements underlying ecosystem structure and function.

Several mammal species are allocated a small catch within Greenland for cultural and subsistence reasons and hence form a small fishery (including hooded seal narwhal and beluga, all of which probably feed on Greenland halibut, with Narwhal in particular probably being quite heavily dependent upon offshore GHL). However, there are no recent data on narwhal predation rates in overwintering areas and IUCN (Jefferson et al 2012) considers that trends in Narwhal populations are not known. There are no equivalent data on predation rates in hooded seals. Therefore, some of the evidence required to ensure the UoA does not disrupt key elements of ecosystem structure and function is lacking, leading to a **partial score at SG100**.

Given the lack of bycatch of any mammals or birds and very low levels of fish bycatch, and geographically very limited effects on main habitats, removals of Greenland halibut leading to indirect effects via the food chain are the only significant impact pathway which can realistically be envisaged.

References

Jefferson T.A., Karkzmarski L., Laidre K., O'Corry-Crowe G., Reeves R., Rojas-Bracho L., Secchi E., Slooten E., Smith B.D., Wang J.Y. & Zhou K. (2012). *Monodon monoceros*. The IUCN Red List of Threatened Species 2012: e.T13704A17691711. http://dx.doi.org/10.2305/IUCN.UK.2012.RLTS.T13704A17691711.en.

Laidre K.L., Heide-Jørgensen M.P., Jørgensen O.A., and Treble M.A. (2004). Deep ocean predation by a high Arctic cetacean. *ICES Journal of Marine Science*, 61: 430e440.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score

Condition number (if relevant)

PI 2.5.2 – Ecosystem management strategy

PI 2	2.5.2	There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function			
Scorin	g Issue	SG 60 SG 80 SG 100			
	Manage	ment strategy in place			
а	Guide post	There are measures in place, if necessary which take into account the potential impacts of the UoA on key elements of the ecosystem.	There is a partial strategy in place, if necessary, which takes into account available information and is expected to restrain impacts of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a strategy that consists of a plan , in place which contains measures to address all main impacts of the UoA on the ecosystem, and at least some of these measures are in place.	
	Met?	Yes	Yes	Νο	

Rationale

NAFO is asked to take ecosystem effects, including species interrelationships into account when setting TACs for Greenland halibut. In terms of other impacts of the fishery, Greenland authorities require mandatory reporting of all marine mammal and bird catches in all fisheries by skippers and observers so that if for some reason fishing began to have wider ecosystem impacts this would be detected and management measures would be taken. These measures within the management of the Greenland halibut fishery can be considered as a partial strategy that is highly likely to achieve the requirements for Ecosystem Outcome 80 level of performance and **SG80 is met.** However, this does not amount to an ecosystem management plan to address all main impacts of the UoA and **SG100 is not met.**

	Management strategy evaluation				
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar UoAs/ ecosystems).	There is some objective basis for confidence that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	Testing supports high confidence that the partial strategy/ strategy will work, based on information directly about the UoA and/or ecosystem involved.	
	Met?	Yes	Yes	Νο	

Rationale

The recording of fishing mortality within the Greenland halibut fishery, as part of an assessment that takes ecosystem roles into account provides some evidence that the partial strategy is working. There is also research on key predators such as narwhal that has identified the fishery is not impacting those populations (e.g. Laidre *et al* 2004). The VMS data on the location of fishing activity further contributes to the evidence base on the partial strategy to restrict the extent of the fishery and indicate that the measures will work, **SG80 is met**.

However there has not been testing of the partial strategy in relation to ecosystem outcome and SG100 is not met.

	Manage	ment strategy implementati	on	
C	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) .

Met?	Yes	Νο

Rationale

There is some evidence via the monitoring of the fishery (mammal and bird bycatches; all other bycatch; location of fishing activities; some monitoring of mammal populations) that the partial strategy is being implemented successfully, **SG80 is met**.

However, this is not always monitored explicitly in relation to key ecosystem elements and therefore clear evidence on this is lacking, **SG100 is not met.**

References

GFLK, 2016. VMS data analysis unpublished GFLK;

Laidre K.L., Heide-Jørgensen M.P., Jørgensen O.A., and Treble M.A. (2004). Deep ocean predation by a high Arctic cetacean. *ICES Journal of Marine Science*, 61: 430e440.

Management Plan for Trawl Fishing For Greenland Halibut Off West Greenland. Ministry of Fishing, Hunting and Agriculture, July, 2016

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.3 – Ecosystem information

PI 2	2.5.3	There is adequate knowledge of the impacts of the UoA on the ecosystem		
Scoring	g Issue	SG 60 SG 80 SG 100		
	Informat	ion quality		
а	Guide post	Information is adequate to identify the key elements of the ecosystem.	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Yes	Yes	

Rationale

There is information on benthic fish assemblages within Baffin Bay and Davis Strait. For example, Jørgensen et al (2005; 2011) found 116 benthic fish species of which around 80 primarily benthic species were used to identify and map seven benthic assemblages. There is more limited information on benthic invertebrate fauna of the predominant muddy sediments, the present focus of research being on VMEs. A mass balance Ecopath model incorporating juvenile and adult Greenland halibut as two of the functional groups (Pedersen & Zeller 2001) has been prepared for the Western Greenland area that indicates the importance of Greenland halibut in the food chain. These studies illustrate that information is adequate to broadly understand the key elements of the ecosystem and **SG80 is met.**

Investigation of UoA impacts

b	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but have not been investigated in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail .	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and have been investigated in detail.
	Met?	Yes	Yes	Νο

Rationale

The main impacts of the fishery can be considered as removal of adult halibut as food items. A number of species prey heavily on Greenland halibut in Baffin Bay and the Davis Strait, including Narwhal (which can be quite heavily dependent upon Greenland Halibut in autumn and early winter, probably from areas deeper than 800m; Laidre *et al* 2003; 2004) and hooded seal (Andersen et al 2013) and others including beluga. Other fish including Greenland shark and cod are also thought to be important predators of Greenland halibut. Some of these predator interactions have been investigated in detail (e.g. Laidre et al 2004), **thus meeting SG 80**.

However, not all have been investigated in detail and similarly other interactions between the UoA and ecosystem elements, are yet to be investigated in detail. **SG100 is not met**.

	Understa	Understanding of component functions				
с	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are known .	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are understood .		
	Met?		Yes	Yes		
Ration	ale					

The target species (Greenland halibut) is recognized as a highly important prey for a variety of organisms including marine mammals and other fish species, whilst also preying on a variety of shrimp, squid and fish. There are no primary nor secondary fish species (apart from bait). The impacts of the UoA on the Greenland halibut and bycatch species are identified. The only direct impact on ETP species is the bycatch of Greenland shark (14 - 20% tot al catch volume), and potential indirect effects on marine mammals that feed on Greenland halibut (through the potential for reduction in prey availability) are identified and studied. Interactions with the main soft sediment habitats are identified and known to be very limited in relation to the geographical extent of those habitats over long periods. Thus the information on the various ecosystem components and their main functions within the ecosystem are known and the impact of the UoA on these are identified and understood, **SG100 is met**.

	Information relevance				
d	Guide post	Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components and elements to allow the main consequences for the ecosystem to be inferred.		
	Met?	Yes	No		

Rationale

Information on Greenland halibut biomass and the species and habitats interacting with the fishery is adequate to infer some of the consequences for the ecosystem, thus **SG80 is met.**

Narwhal and hooded seals are themselves fished as part of small-scale subsistence fisheries, along with other species notably beluga. Hunting allowances for these species in western Greenland are informed by regular population estimates (e.g. Jefferson et al 2012). Narwhal was the subject of unregulated fishing until 2005 when quotas were introduced (Witting et al 2008). Of the two important narwhal stocks in West Greenland, there is some suggestion of a recent increase in the Narwhal population in the Qaanaaq area but it was not possible to determine whether population had changed in Melville Bay (GINR 2010); improved aerial surveys since 2007 are leading to improved data but detailed figures are still lacking (GINR 2015).

These examples, along with the somewhat limited information on habitats, illustrate that information on all ecosystem elements and impacts of the UoA on those elements is not adequate and SG100 is not met.

Monitoring

е	Guide post	Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?	Yes	No

Rationale

Adequate data is collected to inform the NAFO Greenland halibut assessment, which takes the ecosystem role into account. There is also surveys of key predator populations. This would detect any increase in risk level, so that **SG80** is met.

Beyond the monitoring of Greenland halibut removals, it is not clear whether current information is adequate to support the development of strategies to manage ecosystem impacts and so **SG100 is not met**.

References

Andersen J.M., Wiersma Y.F., Stenson G.B., Hammill M.O., Rosing-Asvid A., and Skern-Maurizen, M. 2013. Habitat selection by hooded seals (*Cystophora cristata*) in the Northwest Atlantic Ocean. *ICES Journal of Marine Science*, 70: 173–185.

GINR 2010. Aerial surveys of marine mammals. Taking a census of whales and walruses. http://www.natur.gl/en/birds-and-mammals/marine-mammals/aerial- surveys-of-marine-mammals. First published October 2010 updated 11.10.2015. GINR 2015. Aerial surveys of marine mammals. Taking a census of whales and walruses. http://www.natur.gl/en/birds-and-mammals/marine-mammals/aerial-surveys-of-marine-mammals/ First published October 2010 updated 11.10.2015.

Jefferson T.A., Karkzmarski L., Laidre K., O'Corry-Crowe G., Reeves R., Rojas- Bracho L., Secchi E., Slooten E., Smith B.D., Wang J.Y. & Zhou K. 2012. Monodon monoceros. The IUCN Red List of Threatened Species 2012: e.T13704A17691711. http://dx.doi.org/10.2305/IUCN.UK.2012.RLTS.T13704A17691711.en.

Jørgensen O.A. Hvingel C. Møller P.R. and Treble M.A. 2005. Identification and mapping of bottom fish assemblages in Davis Strait and southern Baffin Bay. *Can. J. Fish. Aquat. Sci.* 62: 1833–1852 (2005).

Jørgensen O.A., Hvingel C., and Treble M.A. 2011. Identification and mapping of bottom fish assemblages in northern Baffin Bay. J. *Northw. Atl. Fish. Sci.*, 43: 65–79.

Laidre K.L., Heide-Jørgensen M.P., Diets R., Hobbs R.C. & Jørgensen, O.A. 2003. Deep-diving by narwhals *Monodon monoceros*: differences in foraging behavior between wintering areas? *Marine Ecology Progress Series* Vol. 261: 269–281, 2003

Laidre K.L., Heide-Jørgensen M.P., Jørgensen O.A., and Treble M.A. 2004. Deep ocean predation by a high Arctic cetacean. *ICES Journal of Marine Science*, 61: 430e440.

Pedersen S.A. and Zeller D. 2001. A mass balance model for the West Greenland marine ecosystem. In: Guenette, S., Christensen, V. and Pauly, D. (eds). Fisheries impacts on North Atlantic Ecosystems: Models and Analyses. Fisheries Centre Research Reports 9(4). P. 111-127.

Witting L. Ugare F. & Heide-Jorgensen M.P. 2008. Greenland, Narwhal *Monoceros monoceros* NDF WORKSHOP CASE STUDIES WG 5 – Mammals CASE STUDY 7 https://cites.org/sites/default/files/ndf_material/WG5-CS7.pdf

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80	
Information gap indicator	Information sufficient to score PI	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

7.4 Principle 3

7.4.1 Principle 3 background

The gap analysis section 5.2.2 suggested that there is complete overlap for the assessment presented by Cappell et al (2017) and the present scope extension with the long liner.

The general framework for management is based on stock considerations (Canada – Greenland sharing the resource in the Davis Strait and the Baffin Bay) and the internal Greenlandic administrative and consultation system is not affected by including the long line in the certificate. The control and enforcement systems are likewise unaffected. The Management system was audited in 2018 and no rescoring took place.

Scoring is therefore adopted from Cappell et al (2017). . For details see Cappell et al (2017) https://fisheries.msc.org/en/fisheries/west-greenland-offshore-greenland-halibut/@@view

Table 25 Scores for Principle 3 Scores are from Cappell et al (2019 while rationale is based on Cappell et al (2017)

PI	Score	Rationale	Condition
3.1.1	80	Greenland halibut in the Davis Strait and Baffin Bay is part of a wider stock that is shared with Canada and there is a mechanism through NAFO that establishes a joint assessment with bilateral agreements between Canada and Greenland. There are national legal system and organized and effective cooperation with other parties through the advisory process and nationally with the management process	
3.1.2	90	The roles and responsibilities within Greenland are explicitly defined by the fisheries act and well understood by all parties for all areas of responsibility and interaction. The same is true at an international level, with the NAFO convention clearly setting out the roles and functions of the General Council, Scientific Council and contracting members.	
3.1.3	90	The Greenland halibut management plan re-iterates the Fisheries Act and Longterm objectives are therefore explicit within this and other management policy documents	
3.2.1	90	The Greenland Management Plan has been approved by the Fishery Council after wider consultation and is a collation of the management measures agreed and already implemented under the fishery specific management system.	
3.2.2	85	There are well defined decision processes in place	
3.2.3	80	There is a well established MCS system in place	
3.2.4	90	The management system is evaluated as part of the Greenland legistative and administrative process.	
Total	86.5		

7.4.2 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI (3.1.1	 The management system exists within an appropriate legal and/or customary framework which ensures that it: Is capable of delivering sustainability in the UoA(s); Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and Incorporates an appropriate dispute resolution framework 				
Scorin	g Issue	SG 60 SG 80 SG 100				
	Compatibility of laws or standards with effective management					
а	Guide post	There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2.		
	Met?	Yes	Yes	Νο		

Rationale

It is noted that P1 relates to the whole stock (Canada and Greenland) while P2 relates to the UoA (vessels operating in W Greenland). As such the necessary cooperation for P1 extends to co-operation between Canada and Greenland, while P2 relates to co-operation between parties within Greenland.

Greenland and Canada are fishing different portions of a shared stock of Greenland Halibut. Their decisions for the management of their fisheries are based on the same scientific advice, from NAFO. The NAFO Convention contains binding procedures governing cooperation with other contracting parties. That cooperation delivers sustainable management under the obligations of UNCLOS Articles 63(2), 118, 119, and UNFSA Article 8. It further delivers the intent of UNFSA Article 10 paragraphs relating to the collection and sharing of scientific data, the scientific assessment of stock status, and development of scientific advice. This addresses requirements for at SG60 as the cooperation delivers the intent of UNFSA Article 10 with the collection and sharing of scientific data, the assessment of stock status and the development of scientific advice.

As the fisheries are then prosecuted by vessels fishing in their own waters, technical measures and TACs are enacted separately under their own jurisdictions.

The West Coast Offshore Greenland halibut fishery operates entirely within Greenland's EEZ, which is under the Greenland Self-Government's regulation and legal system. As described in section 3.5 of the main report, the legal framework for the management of Greenland's fisheries resources is provided by the 'Fisheries Act'). The Act is implemented through numerous executive orders, issued in pursuance of the Act, which provide more detailed regulation in specific aspects of fisheries management and for specific fisheries. Section 2, subsection 2 states:

In the administration of this Act, emphasis shall be given to the conservation and reproduction of the resources, and to the need to keep the impact of the fishing on the ecosystem at an acceptable level. Moreover, emphasis shall also be placed on the rational and seasonally best exploitation, in accordance with the usual scientific advice and the recreational needs of the population.

Protection of ETP stocks is implemented as Landstings Act no 29 of 18 December 2003 on the Protection of Nature. The main objective is to support the Government of Greenland in its implementation of the Biodiversity Convention and other closely related international agreements and to conserve the biodiversity in Greenland. Other Executive Orders under the Act include binding commitments to co-operate with other parties to ensure management outcomes consistent with principles 1 and 2 such as its membership of the Arctic Council, Fisheries Partnership Agreements with the European Union and agreements with Norway, Canada and Iceland. The Act and associated Executive

orders represent binding procedures governing cooperation with other parties to deliver management outcomes consistent with P2 and SG100 is met.

Greenland halibut is part of a wider stock that is shared with Canada across the Davis Strait and there is a mechanism through NAFO that establishes a joint assessment with bilateral agreements between Canada and Greenland.

Since 2014 Canada has had an Integrated Fishery Management Plan in place for Greenland Halibut in Subarea 0 (the Canadian EEZ). This includes an objective to "Promote collaborative science and management initiatives with Greenland." However, the IFMP does not represent a legally binding instrument as any provision can be modified by DFO in line with the Fisheries Act. The Subarea 0 Greenland Halibut fishery is managed consistent with the Nunavut Land Claims Agreement (NLCA) and the Nunavik Inuit Land Claims Agreement. While Government retains ultimate responsibility for wildlife management within and outside respective settlement areas, the Agreements, among other things, set out the harvesting rights of the beneficiaries to the respective Agreements, provide for the establishment of wildlife management structures, set out the role of those structures and cooperative management processes, and contain provisions related to defined waters outside of the settlement areas (DFO, 2014). Greenland Fisheries Act no18 of 1996 states that "The Cabinet shall determine each year the TACs for certain fish stocks in Greenland's fishing territory. The distribution of the TAC in quotas for the Greenland fleet components and in § 7- mentioned non-Greenlandic fishing activities carried out by our government taking into account the provisions of international agreements." These binding procedures ensure management outcomes that are consistent with MSC P1. Within the Canadian and Greenland processes, there is an effective national legal system and organized and effective cooperation with other parties through the advisory process (**SG80 is met**).

While there is a constitutionally binding requirement in Canada to consult with aboriginal peoples and Canadian provinces on some issues, there is no general requirement governing cooperation with all interested parties. Overall, while the current agreement to a 50/50 split between Canada and Greenland ensures appropriate P1 outcomes, **SG100 is not** met as there is no binding commitment evident in Canadian legislation.

Resolution of disputes

b	Guide post	The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective .
	Met?	Yes	Yes	Νο

Rationale

Stakeholders (including GFLK) identified that legal disputes are proactively avoided through discussion of emerging issues at the Fisheries Council. GFLK and the police initially warn and then fine or confiscate gear and catch using powers afforded by the Fisheries Act. Article 13 para 38 of the Fisheries Act 1996 establishes the right of stakeholders to appeal decisions and that these can be resolved by the General Court for larger vessels and companies.

Greenlandic Law requires compliance with judicial decisions. Unless otherwise agreed, a two-month period is stated under the Fisheries Act for an adequate response to judicial decisions. This is a transparent mechanism that is proven to be effective with various legal challenges regarding violations of fisheries regulations. Disputes between or among Contracting Parties about proposals before the NAFO FC are first subject to the usual discussion and negotiating process, and NAFO has a solid history of resolving most disputes through this mechanism. For disputes that cannot be resolved through this process, a formal objection procedure is provided for in Article XII of the NAFO Convention: 1. If any Commission member presents to the Executive Secretary an objection to a proposal within sixty days of the date of transmittal specified in the notification of the proposal by the Executive Secretary, the proposal shall not become a binding measure until the expiration of forty days following the date of transmittal specified in the notification of the upon any other Commission member may similarly object prior to the expiration of the additional forty- day period, or within thirty days after the date of transmittal specified in the notification presented within that additional forty-day period, whichever shall be the later. The proposal shall then become a measure binding on all Contracting Parties, except those which have presented objections, at the end of the extended period or periods for objecting. If, however, at the end of such

extended period or periods, objections have been presented and maintained by a majority of Commission members, the proposal shall not become a binding measure, unless any or all of the Commission members nevertheless agree as among themselves to be bound by it on an agreed date.

This process means that a NAFO Contracting Party that submits a formal objection to a proposed measure may elect to not be bound by that measure. Unless a majority of Contracting Parties object to a measure, the measure becomes binding on all who do not register an objection. The mechanism has been considered effective in dealing with most issues, as evidenced by the various resolutions adopted by the contracting parties. However, the ability to abstain from measures indicates that a mechanism to resolve disputes has not been fully tested and **SG100 is not therefore met.**

	Respect	for rights		
С	Guide post	The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	Yes	Yes	Νο

Rationale

Greenland's general fisheries law includes in its objective: Moreover, emphasis shall also be placed on the rational and seasonally best exploitation, in accordance with the usual scientific advice and the recreational needs of the population. This can be considered a commitment to the legal rights of dependent communities while remaining consistent with P1 and P2 so **SG 80 is met.**

The division of resources between inshore and offshore fisheries is an example of the mechanism by which the legal rights and customs of local people are respected. While some recognition of the legal rights of people dependent on fishing is implicit in the wording of the Fisheries Act (Article 1), there is no formal commitment to legal rights that are explicitly stated and **SG100 is not met.**

References

Greenland Fisheries Act, 1996 (amended): Act No. 12 of 6 November 1997, Act No. 6 of 20 May 1998, Act No. 15 of 12 November 2001, Act No. 5 of 21 May 2002, Act No. 28 of 18 December 2003, Act No. 5 of 12 November 2008, Act No. 17 of 3 December 2009, Act No, 8 of 22 November 2011, Act No. 5 of 4 June 2012 and Act No. 12 of 3 December 2012.

Landstings Act no 29 of 18 December 2003 on the Protection of Nature DFO, 2014 IFMP of Greenland Halibut http://www.dfo-mpo.gc.ca/fm-gp/pechesfisheries/ifmp-gmp/groundfish-poisson-fond/halibut-fletan-eng.htm Canadian Fisheries Act, 1985 (last amended April 5, 2016) http://lawslois.justice.gc.ca/PDF/F-14.pdf

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score
Condition number (if relevant)

PI 3.1.2 – Consultation, roles and responsibilities

PI (3.1.2	The management system has effective consultation processes that are open to interested and affected parties The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties					
Scorin	g Issue	SG 60 SG 80 SG 100					
	Roles and responsibilities						
а	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood .	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.			
	Met?	Yes	Yes	Yes			

Rationale

Section 3.5 of the main report describes the organisations involved in fisheries management system in Greenland. These roles and the individuals representing are well understood by stakeholders and **SG80 is met**. The organisation of the MFHA is well understood by stakeholders, as is the membership and role of the Fisheries Council. Article 12 of the Fisheries Act explicitly states the aspects of Fisheries regulation where the Fisheries Council can advise. Article 9 of the Act defines the role and responsibilities of the GINR. Article 11 of the Act specifies the role of the GFLK. The roles and responsibilities within Greenland are explicitly defined by the fisheries act and well understood by all parties for all areas of responsibility and interaction. The same is true at an international level, with the NAFO convention clearly setting out the roles and functions of the General Council, Scientific Council and contracting members. **SG100 is met**.

Consultation processes

b	Guide post	The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used .
	Met?	Yes	Yes	Yes

Rationale

The Fisheries Council (which meets monthly or more regularly at the request from a member organisation for an extraordinary meeting) is the main mechanism by which relevant information, including local knowledge is sought and accepted by the MFHA. Any changes in legislation such as proposed Executive Orders are circulated for comment to a full range of stakeholders. **SG80 is met.**

There is regular consultation between the fishermen's representatives in KNAPK and the MFHA. There is also regular consultation between the MFHA and the fishing companies involved in the offshore halibut fishery. The annual NAFO process contains provisions and rules of procedure that regularly seeks and accepts relevant information. Annual assessment reports of the SC and proceedings of the FC include consideration of relevant information and indicate how it is used or not used. Stock assessment documents and meeting proceedings are approved and published on the NAFO website. The working group on the development of the management plan for Greenland halibut illustrates

the extensive consultation processes in place. The management system feedbacks to the Fisheries Council how information was used and not used in decision-making and **SG100 is met.**

	Participation				
с	Guide post		The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.	
	Met?		Yes	Νο	

Rationale

Participation of the fishers and hunters' association (KNAPK) and the Greenland Employers Association enables all interested and affected parties to be involved in consultation processes. Any changes in legislation such as proposed Executive Orders are circulated for comment to a full range of stakeholders, including these groups who's membership extends to all participants in the fishery. The Fisheries Council structure facilitates the effective engagement of all stakeholders as member organisations disseminate information to individual members. **SG 80 is met.**

The consultation process facilitated by NAFO for this stock shared between Greenland and Canada is less inclusive than the those employed at a national level in each country. While observer status can be given for attendance at NAFO meetings, it does not actively facilitate the effective engagement of all interested parties and so **SG100 is not met**.

References

Greenland Fisheries Act, 1996 (amended):

Act No. 12 of 6 November 1997, Act No. 6 of 20 May 1998, Act No. 15 of 12 November 2001, Act No. 5 of 21 May 2002, Act No. 28 of 18 December 2003, Act No. 5 of 12 November 2008, Act No. 17 of 3 December 2009, Act No, 8 of 22 November 2011, Act No. 5 of 4 June 2012 and Act No. 12 of 3 December 2012.

NAFO Convention, 2004

http://www.nafo.int/publications/frames/publications.html

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score

Condition number (if relevant)

PI 3.1.3 – Long term objectives

PI (3.1.3	The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach		
Scorin	g Issue	SG 60	SG 80	SG 100
	Objectiv	es		
а	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are implicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are explicit within and required by management policy.
	Met?	Yes	Yes	Partial

Rationale

The NAFO FC has adopted the Precautionary Framework that was developed by the NAFO SC and has agreed to manage NAFO stocks following that framework. The principal long-term objective of NAFO is explicitly defined in the Convention as "...the optimum utilization, rational management and conservation of the fishery resources of the Convention Area. NAFO promotes contemporary ideas for international collaboration in the high seas based on the scientific research fundamentals." (NAFO 1979). The Convention outlines a detailed framework for the development and implementation of fishery management plans to meet this overall objective.

The Greenland Fishery Act states "In the administration of this Act, emphasis must be placed on the conservation and reproduction of resources and on keeping the fishery's impact on the ecosystem at an acceptable level. Moreover, emphasis is placed on the most rational and seasonally best exploitation in accordance with common biological advice and the recreational needs of the inhabitants". Section 3.5 of this report lists relevant objectives, which illustrate that clear long-term objectives are in place and that these are consistent with the MSC criteria for both Principles 1 and 2.

The Greenland halibut management plan re-iterates the Fisheries Act and Longterm objectives are therefore explicit within this and other management policy documents, but this is not a stated requirement of management policy and therefore, **SG100 is only partially met** and a score of 90 is given.

References

Greenland Fisheries Act, 1996 (amended): Act No. 12 of 6 November 1997, Act No. 6 of 20 May 1998, Act No. 15 of 12 November 2001, Act No. 5 of 21 May 2002, Act No. 28 of 18 December 2003, Act No. 5 of 12 November 2008, Act No. 17 of 3 December 2009, Act No, 8 of 22 November 2011, Act No. 5 of 4 June 2012 and Act No. 12 of 3 December 2012.

NAFO Convention, 2004

http://www.nafo.int/publications/frames/publications.html

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.1 - Fishery-specific objectives

PI (3.2.1	The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2			
Scoring Issue SG 60 SG 80			SG 100		
	Objectiv	es			
а	Guide post	Objectives , which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery- specific management system.	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery- specific management system.	Well defined and measurable short and long-term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system.	
	Met?	Yes	Yes	Partial	

Rationale

A Greenland Halibut Offshore Trawl Fishery Management Plan has been drafted; the English translation is dated July 2016. This is the main source of information on the fishery-specific management system in Greenland. It refers to the general Fisheries Act – Parliamentary Act 17 of 2009 – and specific Fishery Orders where applicable to the offshore fishery.

The Management Plan has been approved by the Fishery Council and has been translated into Greenlandic for wider consultation before adoption as a specific Fishery Order. It is not yet formally part of legislature, but is rather a collation of the management measures agreed and already implemented under the fishery specific management system. The plan refers to the general fisheries Act when it defines the objective of the management as follows: Section 2, subsection 2:

In the administration of this Act, emphasis shall be given to the conservation and reproduction of the resources, and to the need to keep the impact of the fishing on the ecosystem at an acceptable level. Moreover, emphasis shall also be placed on the rational and seasonally best exploitation, in accordance with the usual scientific advice and the recreational needs of the population.

The Canadian part of the fishery-specific management system is set out in Canada's Integrated Fishery Management Plan for Greenland halibut (DFO, 2014). It describes clear long and short term objectives that include:

- □ Conserve the Greenland Halibut stock through sustainable use and effective fishery management.
- □ Take a precautionary approach to fishery decisions for the Subarea 0 Greenland Halibut stock.
- □ Conserve sensitive benthic areas through effective fishery management.

 $\hfill\square$ Conserve by catch species through effective fishery management.

An explicit objective is also to:

□ Promote collaborative science and management initiatives with Greenland.

The above can be considered explicit objectives of the fishery specific management system that are consistent with P1 and P2 outcomes and therefore **SG80 is met.**

An explicit goal in the Greenland management plan is to ensure that the overall resource is fished sustainably at all times, and to work towards the exploitation than 15 percent year to year unless in exceptional circumstances agreed by the Fisheries Council. These goals that relate to P1 outcomes are well-defined and measurable. Such well-defined and measurable goals relating to P2 outcomes are not explicit in the Greenland management plan and therefore **SG100 is only partially met** and a score of 90 is given.

References

Management Plan For Trawl Fishing For Greenland Halibut Off West Greenland. Ministry of Fishing, Hunting and Agriculture, July, 2016

DFO, 2014 Integrated Fishery Management Plan for Greenland halibut. http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/groundfishpoisson-fond/halibut-fletan-eng.htm

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80			
Information gap indicator	Information sufficient to score PI			
Overall Performance Indicator scores added from Client and Peer Review Draft Report				

Overall Performance Indicator score

Condition number (if relevant)

PI 3.2.2 – Decision-making processes

PI (3.2.2	The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery				
Scoring Issue		SG 60	SG 80	SG 100		
а	Decisior	Decision-making processes				
	Guide post	There are some decision- making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.			
	Met?	Yes	Yes			

Rationale

The decision-making processes in Greenland are described in section 3.5, but can be summarized as: The management of the fishery for Greenland halibut is based on annual TACs, determined on the basis of advice received from the NAFO Scientific Council, and the TAC is divided 50/50 with Canada. Then, in the case of the Greenlandic fisheries, advice from the GINR and subsequent recommendations from the Fisheries Council inform the Ministry in its management of the fishery.

In Canada DFO has developed a National Sustainable Fisheries Framework to promote an ecosystem-based approach to fisheries management. This policy framework applies to the Greenland Halibut fishery and includes approaches to decision-making processes that are further specified in the IFMP.

These decision-making processes are well-established and SG80 is met.

Responsiveness of decision-making processes

b	Guide post	Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	Yes	Yes	Νο

Rationale

As described in the Greenland management plan: In the design of all regulation of Greenlandic fisheries, there is extensive prior consultation with the relevant parties, formalised through the Fisheries Council. This also applies to fishing for Greenland halibut in the Davis Strait and Baffin Bay, and especially to the setting of the annual TAC. In Canada, the inclusion of Inuit and fisher Traditional Ecological Knowledge (TEK) is an important component of fisheries management and is used with scientific knowledge for effective fisheries decision-making. With the inclusion of fisher interest groups such as KNPK other stakeholder groups, Greenland's Fisheries Council represents a mechanism for alerting management authorities to serious and other important issues, with response in a transparent timely and adaptive way. This is evidenced by the development of the Greenland Halibut management plan itself, which has been led by industry within approval of the Fishery Council before consultation by MFHA and ultimately adoption within legislation. The Fishery Council can organise extraordinary meetings and agree to adopt measures in advance of formal regulation, enabling a quicker adaptation to issues arising. This is exemplified by the identification of VMEs by research and the closure of that area to trawling in advance of the formal regulation. **SG80 is met.**

As yet there is not sufficient evidence from the functioning of the management plan to determine that decision-making processes respond to all issues identified and so **SG100 is not met**..

с	Use of precautionary approach		
	Guide post	Decision-making processes use the precautionary approach and are based on best available information.	
	Met?	Yes	

Rationale

Within the Canadian system, the use of the precautionary approach in the exploitation of marine resources is a requirement detailed in the Fishery Decision-Making Framework Incorporating the Precautionary Approach (DFO 2009) to ensure that the PA is built into fisheries management decisions.

In Greenland decisions are based on scientific advice from the NAFO scientific council in relation to the stock and on advice from GINR in relation to other environmental aspects using the precautionary approach. These are then debated within the Fisheries Council, which enables the consideration of fisher knowledge. Together these sources amount to the best available information. **SG 80 is met.**

Accountability and transparency of management system and decision-making process

	Met?	Yes	Yes	No
d	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	Information on the fishery's performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders provides comprehensive information on the fishery's performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity

Rationale

Approach to disputes

The NAFO advice includes fishery performance and historic management actions. Decisions on TAC are agreed in meetings between government representatives of Greenland and Canada and these are reported to fishery participants. The management plan, annual NAFO advice and annual statistics on fishery performance is debated within the Fisheries Council, which includes industry representatives.

All relevant stakeholders can be considered to receive all necessary information on request, but formal reporting to all interested stakeholders of all management actions is not required and so **SG80 is met**, but **SG100 is not met**.

	rippiouo			
e	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Yes	Yes	Yes

Rationale

In Canada, judicial decisions arising from prosecutions or legal challenges are implemented immediately or as soon as is practically possible (Acoura, 2016). A two- month limit to take action is explicitly stated in the Greenland Fisheries Act, which in relation to disputes can be considered timely. The Fisheries Council is a consultation forum and advisory mechanism that proactively avoids conflict and legal challenge.

The Greenland Halibut management plan processes are also well defined and have been consulted upon. SG 100 is met.

References

Management Plan For Trawl Fishing For Greenland Halibut Off West Greenland. Ministry of Fishing, Hunting and Agriculture, July, 2016

Greenland Fisheries Act, 1996 (amended): Act No. 12 of 6 November 1997, Act No. 6 of 20 May 1998, Act No. 15 of 12 November 2001, Act No. 5 of 21 May 2002, Act No. 28 of 18 December 2003, Act No. 5 of 12 November 2008, Act No. 17 of 3 December 2009, Act No, 8 of 22 November 2011, Act No. 5 of 4 June 2012 and Act No. 12 of 3 December 2012.

NAFO Convention, 2004

http://www.nafo.int/publications/frames/publications.html

Acoura (2016) MSC Sustainable Fisheries Certification Canada Northern and Striped Shrimp Fishery DFO, 2009 A fishery decision-making framework incorporating the precautionary approach. Available at http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fishren-peche/sff-cpd/precaution-eng.htm.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.3 – Compliance and enforcement

PI (3.2.3	Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with			
Scorin	g Issue	SG 60 SG 80 SG 100			
	MCS im	plementation			
а	Guide post	Monitoring, control and surveillance mechanisms exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A comprehensive monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.	
	Met?	Yes	Yes	Νο	
Ration	ale				

Section 3.5 describes the MCS system implemented by GFLK.

The fishing is subject to inspection, as set out in Government of Greenland Executive Order no. 18 of 9 December 2010 on the inspection of offshore fishing, including the obligation to provide statistical information and to keep a logbook. Under Government of Greenland Executive Order no. 7 of 4 April 2016 on the reporting of first sales of fish and fish products, all landings by both Greenlandic and foreign vessels must be reported, regardless of whether the landing is abroad or in Greenland as first-hand purchases with a view to export.

The MCS system can be considered comprehensive in most aspects so **SG 80 is met**, but the constraints of the paper logbook system, which is still to be replaced by a delayed e-logbook system, in reporting by-catch comprehensively and the relatively limited observer coverage, result in **SG100 not being met**.

	Sanctior	IS		
b	Guide post	Sanctions to deal with non- compliance exist and there is some evidence that they are applied.	Sanctions to deal with non- compliance exist, are consistently applied and thought to provide effective deterrence.	Sanctions to deal with non- compliance exist, are consistently applied and demonstrably provide effective deterrence.
	Met?	Yes	Yes	No

Rationale

Article 13 of the Fisheries Act outlines sanctions in terms of fines etc. and how they are to be applied. Warnings, fines and the potential for prosecution have been show to provide effective deterrence in fisheries elsewhere. They are therefore thought to provide effective deterrence in the Greenland halibut fishery and SG60 is met.

GFLK, industry and other stakeholders report that sanctions are applied consistently, which is thought to provide effective deterrence and **SG80 is met.**

However, there is no evidence received by the assessment team showing that the proposed sanctions are demonstrably effective and therefore **SG100 is not met.**

Compliance

С	Guide post	Fishers are generally thought to comply with the management system for the	Some evidence exists to demonstrate fishers comply with the management system	There is a high degree of confidence that fishers comply with the management
		fishery under assessment,	under assessment, including,	system under assessment,

Me	et?	Yes	Yes	No
		including, when required, providing information of importance to the effective	when required, providing information of importance to the effective management of	including, providing information of importance to the effective management of

Rationale

Observer reporting, inspections at sea by GFLK and the Danish Coastguard all provide evidence that leads GFLK to state, and other stakeholders to confirm, that compliance in the fishery is high. Fishers provide all required information. SG 80 is met.

However, the observer coverage amounts to approximately 22 per cent of landings and therefore this is not considered to enable a high degree of confidence and SG100 is not met.

	Systematic non-compliance	stematic non-compliance		
d	Guide post	There is no evidence of systematic non-compliance.		
	Met?	Yes		

Rationale

GFLK and all other stakeholders consulted provided no evidence and made no suggestion that there was systematic non-compliance. SG80 is met.

References

Greenland Fisheries Act, 1996 (amended):

Act No. 12 of 6 November 1997, Act No. 6 of 20 May 1998, Act No. 15 of 12 November 2001, Act No. 5 of 21 May 2002, Act No. 28 of 18 December 2003, Act No. 5 of 12 November 2008, Act No. 17 of 3 December 2009, Act No, 8 of 22 November 2011, Act No. 5 of 4 June 2012 and Act No. 12 of 3 December 2012.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.4 – Monitoring and management performance evaluation

PI 3.	2.4	There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives There is effective and timely review of the fishery-specific management system		
Scorin	g Issue	SG 60 SG 80 SG 100		
	Evaluati	on coverage		
а	Guide post	There are mechanisms in place to evaluate some parts of the fishery-specific management system.	There are mechanisms in place to evaluate key parts of the fishery-specific management system.	There are mechanisms in place to evaluate all parts of the fishery-specific management system.
	Met?	Yes	Yes	Yes

Rationale

In Canada, the IFMP was developed through a consultative process including resource users, co-management organizations, and other interested parties. DFO continue to consult and liaise with these groups on an annual basis and as circumstances require, both through formal advisory processes as well as informal ad hoc or issue-related basis between advisory processes.

The Greenland Halibut Management Plan contains clear timing to review and evaluate the plan: "This management plan covers the period from 1 January 2017 to 31 December 2019, after which time it will be assessed on the basis of experience of the plan, as well as advice from the Greenland Institute of Natural Resources and consultation with the Fisheries Council. On this basis, the government of Greenland will revise the plan if this is deemed desirable or necessary. "

The NAFO stock assessment and scientific advice are also subject to evaluation, as are Canadian management plans and measures. Together this is considered to constitute all parts of the fishery-specific management system and **SG100 is met.**

	Internal and/or external review			
b	Guide post	The fishery-specific management system is subject to occasional internal review.	The fishery-specific management system is subject to regular internal and occasional external review.	The fishery-specific management system is subject to regular internal and external review.
	Met?	Yes	Yes	No

Rationale

As stated above, the Greenland halibut management after two-years will be subject to review internally and by GINR and the Fisheries Council. These can be considered to contain parties that are external to the management authority and therefore **SG80 is met**. This process is expected to be repeated, but it is not stipulated when such external reviews will occur after the first review and therefore SG100 is not met.

The stock will continue to be assessed annually through the NAFO Scientific Council and monitoring of the fishery will be accomplished using several tools including quota reports, daily hails, logbooks, Vessel Monitoring Systems, Dockside Monitoring Programs, At-sea Observers, air surveillance and at-sea patrols (DFO, 2016). The NAFO scientific advice is subject to occasional external review by other scientists through the process of benchmarking, **SG80 is met.**

References

Management Plan For Trawl Fishing For Greenland Halibut Off West Greenland. Ministry of Fishing, Hunting and Agriculture, July, 2016 DFO, 2016 IFMP for Greenland Halibut (Reinhardtius hippoglossoides) -Northwest Atlantic Fisheries Organization Subarea 0 - Effective 2014 NAFO Convention, 2004 http://www.nafo.int/publications/frames/publications.html

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80			
Information gap indicator	Information sufficient to score PI			
Overall Performance Indicator scores added from Client and Peer Review Draft Report				
Overall Performance Indicator score				

Condition number (if relevant)

8 APPENDICES

8.1 Assessment information

8.1.1 Previous assessments

The intent of the West Greenland offshore trawl Greenland halibut fishery to become MSC certified was announced on 19th May 2016, and the fishery received its certification on 22nd May 2017. Scope of certification is up to the point of landing and chain of custody commences from point of landing.

The default assessment tree, set out in the MSC Certification Requirements, version 2.0, was used for the initial assessment. The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 60 against any of the individual MSC Criteria. In the initial certification, the scores of the three Principles were:

Table 26 Principle scores – original assessment.			
Principle	Score		
Principle 1 – Target Species	87.5		
Principle 2 – Ecosystem	83.3		
Principle 3 – Management System	86.5		

The fishery achieved a score of below 80 against 4 scoring indicators. The assessment team therefore set 4 conditions and 1 recommendation for continuing certification that the client is required to address. These conditions are shown in Table 10. The recommendation is summarized in Table 11 and appendix 8.5.

The report of the first surveillance audit is dated 8/10/2018 and no rescoring took place.

8.2 Evaluation processes and techniques

8.2.1 Site visits

The report shall include:

- An itinerary of site visit activities with dates.
- A description of site visit activities, including any locations that were inspected.
- Names of individuals contacted.

Reference(s): FCP v2.1 Section 7.16

The ACDR is prepared as a desk -study based on public available information and input from the Client (SFG). Site visits are scheduled for 12th and 13th September 2019.

8.2.2 Stakeholder participation

The report shall include:

- Details of people interviewed: local residents, representatives of stakeholder organisations including contacts with any regional MSC representatives.
- A description of stakeholder engagement strategy and opportunities available.

Reference(s): FCP v2.1 Section 7.16

For the ACDR there was no stakeholder input outside Client input.

8.2.3 Evaluation techniques

The report shall include:

- Justification for how public announcements were developed.
- Methodology used, including sample-based means of acquiring a working knowledge of the management operation and sea base.
- Details of the scoring process e.g. group consensus process.
- The decision rule for reaching the final recommendation e.g. aggregate principle-level scores above 80.

If the RBF was used for this assessment, the report shall include:

- The justification for using the RBF, which can be copied from previous RBF announcements, and stakeholder comments on its use.
- The RBF stakeholder consultation strategy to ensure effective participation from a range of stakeholders including any participatory tools used.
- A summary of the information obtained from the stakeholder meetings including the range of opinions.
- The full list of activities and components that have been discussed or evaluated in the assessment, regardless of the final risk-based outcome.

The stakeholder input should be reported in the stakeholder input appendix and incorporated in the rationales directly in the scoring tables.

Reference(s): FCP v2.1 Section 7.16, FCP v2.1 Annex PF Section PF2.1

The ACDR is based on a desk-top study with information from the client on request, and the client document checklist. RBF will be used for PI 2.2.1 for Somniosus microcephalus Greenland shark, Doryteuthis gahi (Falklands) and Illex argentius (Argentina).

The assessment team has not found sufficient information on the stock status of Somniosus microcephalus Greenland shark, Doryteuthis gahi (Falklands) and Illex argentius (Argentina) to assess PI 2.2.1 through the default assessment process. The team therefore proposes the use of RBF in order to evaluate the fishery impacts on this species.

	Colontific nomo	Ca	itch (kg / yea	nr)	9/	Primary/	Main/	RBF
Common name (code)	Scientific name	2017	2018	Avg.	70	Secondary	WIIIO	Y/N
Greenland halibut	Reinhardtius					Target		
(GHL)	hippoglossoides	119,886	282,898	201,392	85.0%	P1		
	Somniosus					Sec	Minor	Y
Greenland shark (GSK)	microcephalus	-	66,500	33,250	14.0%			
Roundnose grenadier	Coryphaenoides					Sec	Minor	N
(RNG)	rupestris	2,325	450	1,388	0.6%			
Atlantic cod (COD)	Gadus morhua	-	560	280	0.1%	Sec	Minor	Ν
Tusk (USK)	Brosme brosme	-	550	275	0.1%	Sec	Minor	Ν
Other (MZZ)	Osteichthyes	-	266	133	0.1%	Sec	Minor	Ν
Wolffishes (CAT)	Anarhichas spp.	-	150	75	0.0%	Sec	Minor	Ν
Golden redfish (REG)	Sebastes marinus	-	120	60	0.0%	Sec	Minor	Ν
Spotted wolffish (CAS)	Anarhichas minor	-	10	5	0.0%	Sec	Minor	Ν
TOTAL		122,211	351,504	236,858	100%			

Table 27- RBF evaluation

Bait Herring (Atlanto			18 000	7.6%	Primary	Main	N
scandian herring)			18,000	7.070	rinnary	Iviaiii	
Bait Patagonian	Doryteuthis gahi		34,000	14%	Sec	Main	v
longfin squid							ľ
Bait Argentine shortfin	lllex argentius						v
squid							Y

8.3 Peer Review reports

To be drafted at Public Comment Draft Report

The report shall include unattributed reports of the Peer Reviewers in full using the relevant templates. The report shall include explicit responses of the team that include:

- Identification of specifically what (if any) changes to scoring, rationales, or conditions have been made; and,
- A substantiated justification for not making changes where peer reviewers suggest changes, but the team disagrees.

Reference(s): FCP v2.1 Section 7.14

8.4 Stakeholder input

To be drafted at Client and Peer Review Draft Report To be completed at Public Certification Report

The CAB shall use the stakeholder input template to include all written stakeholder input during the stakeholder input opportunities and provide a summary of verbal stakeholder input received during the site visit. Using the stakeholder input template, the team shall respond to all written stakeholder input identifying what changes to scoring, rationales and conditions have been made in response, where the changes have been made, and assigning a 'CAB response code'. The team may respond to the verbal summary.

Reference(s): FCP v2.1 Section 7.15

8.5 Conditions

To be drafted from Client and Peer Review Draft Report

The report shall document all conditions in separate tables. The CAB shall include rationale for exceptional circumstances in the summary of conditions in the Client and Peer Review Draft Report and all subsequent reports.

For reassessments, the CAB shall note:

- If and how any of the new conditions relate to previous conditions raised in the previous assessment or surveillance audits.
- If and why any conditions that were raised and then closed in the previous assessment are being raised again in the reassessment.
 - If any conditions are carried over from a previous assessment, including an explanation of:
 - Which conditions are still open and being carried over.
 - Why those conditions are still open and being carried over.
 - Progress made in the previous assessment against these conditions.
 - Why recertification is being recommended despite outstanding conditions from the previous assessment.
- If any previous conditions were closed after the 4th Surveillance Audit and reassessment site visit (i.e. in Year 5), including the rationale for re-scoring and closing out of the condition.

Reference(s): FCP v2.1 Section 7.18

Table 28 Condition 1

Performance Indicator	1.2.2 Harvest Strategy: 1.2.2 c Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.
Score	75
Justification	PI 1.2.2 scoring table.
Condition	Management should ensure that overall the TAC advised by NAFO SC is not exceeded.
	Year 1 – 75 Provide evidence of discussions with MFHA on approaches to ensure that the overall advised TAC is not exceeded.
Milestones	Year 2 – 75 Provide evidence that the inshore fishery in NAFO 1B-1F is regulated and that TAC setting by MFHA takes the removal in the inshore areas in 1B-1F into account.
	Year 3 – 80 Provide evidence that landings of halibut have not exceeded the advised TAC.
Client Action plan	Objectives: To ensure that the TAC set by the Government of Greenland is not exceeded and thereby achieve a sustainable fishery for Greenland halibut in a long-term perspective.
	Action: Sustainable Fisheries Greenland (SFG) and the Ministry of Fisheries, Hunting and Agriculture (MFHA) will through mutual consultations cooperate on establishing a new management regarding the non-quota coastal fishery for Greenland halibut in NAFO div. 1B- F in order to ensure that the overall TAC is not exceeded.
	Year 1: Consultations with MFHA on establishing management regulations in order to ensure that the overall TAC set by the government for the Davis strait is not exceeded when coastal catches from NAFO div. 1B-F are accounted for. Year 2: Agreement on a new management regime for including the coastal catches of Greenland halibut in NAFO div. 1B-F in the overall TAC for the Davis Strait is reached.

	Year 3: Catches of Greenland halibut offshore in the Davis strait (trawl fishery) and coastal in NAFO div. 1B-F (line fishery) corresponds with the overall TAC set by the Government of Greenland and the overall advised TAC given by NAFO SC.
	Expectation: The expectation is that by the third annual audit there will be full compliance between the enacted TAC in both the off shore and the coastal fishery for Greenland halibut in the Davis strait and the total catches recorded by the Greenland Fisheries License Control Authority (GFLK) for the same two areas.
	Documentation: Official recordings of landings from GFLK will be used as documentation for the landings and basis for comparison with the enacted TAC set by the Government of Greenland.
	Responsible: Ministry of Fisheries, Hunting and Agriculture. Sustainable Fisheries Greenland.
	Deadline: By 3rd annual audit 2020.
	A letter conforming active partnership has been received from the Ministry of Fisheries, Hunting and Agriculture. Date: 27/12/16
Consultation on condition	Ministry of Fisheries, Hunting and Agriculture.
Progress on Condition SA1-2018	The issue of how to regulate the fishery in the inshore areas of NAFO 1B-1F and how to account for this fishery in the overall offshore Greenland TAC for Greenland halibut has been discussed among industry partners and with the ministry. However, no decision has been reached. The Ministry and Client confirm that the discussions take place. The topic is not on the formal agenda in Fiskerirådet.
Status of condition	<i>The milestone for Year 1 requires: "</i> Provide evidence of discussions with MFHA on approaches to ensure that the overall advised TAC is not exceeded". The discussions have taken place, as confirmed during the skype interview, and the condition is ON SCHEDULE .

Table 29 Condition 2 on Habitat outcome

Performance Indicator	2.4.1 Habitat Outcome: 2.4.1 a The UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
Score	70
Justification	PI 2.4.1 scoring table.
Condition	Information on the nature, distribution and vulnerability of the main habitats in the UoA area should be known at a level of detail relevant to the scale and intensity of the fishery (condition 4). That information must be adequate to be able to determine whether or not the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
Milestones	 Year 1 – develop research project to improve information on habitat distribution and UoA impacts on those habitats. Score 70 Year 4 – present information from the fishery on the nature distribution and vulnerability of the commonly encountered habitats, along with the main impacts of the UoA on those habitats, to demonstrate that the UoA is highly unlikely to reduce structure and function of

	the commonly encountered habitats to a point where there would be serious or irreversible harm. Score 80.
	Objectives: To ensure that there is sufficient information regarding habitats in the areas that are being fished and similar areas (commonly encountered habitat) and to detect occurrences of vulnerable or sensitive ecosystems of e.g. corals and sponges.
	Action: Sustainable Fisheries Greenland is co-funding a new research project conducted by the Zoological Society of London specifically aimed at gathering information about bottom habitats in deep water areas (1.000-1.500 m.) in Vest Greenland. This will include the areas where the trawl fishery for Greenland halibut is taking place but also similar areas which have not been fished. The project will commence in 2017 and is scheduled to end in 2019.
Client Action plan	Year 1: Research project by the Zoological Society of London is initiated. Year 4: Results regarding the nature, distribution and vulnerability of the main habitats - along with the main impacts of the UoA on those habitats -are presented.
	Documentation: Data from the Zoological Society of London. Letter conforming active partnership has been received from the Zoological Society of London. Date: 22 November 2016.
	Responsible: The Zoological Society of London Sustainable Fisheries Greenland.
	Deadline: By 4th annual audit 2021. A letter conforming active partnership has been received from the Ministry of Fisheries, Hunting and Agriculture. Date: 27/12/16
Consultation on condition	The Zoological Society of London
Progress on Condition SA1-2018	GINR and Zoological Society of London have cooperated in designing and conducting a survey in October 2017.
Status of condition	The milestone for year 1 is to develop research project to improve information on habitat distribution and UoA impacts on those habitats. This survey has been designed and conducted in October 2017. Further surveys are planned for 2018/2019 – refer Interim report: Deep-sea benthic habitats and the impacts of trawling, Davis Strait, West Greenland. The condition is AHEAD OF SCHEDULE .

Table 30 Condition 3 on Habitat Management

Performance Indicator	2.4.2 Habitat Management 2.4.2 a: There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.
Score	75
Justification	PI 2.4. 2 scoring table.
Condition	Greenland halibut fishery management should include provisions for managing the extent of the fishery interactions with commonly encountered habitats to ensure habitat outcome at SG80 level or above is maintained.
Milestones	Year 1 – Evidence of discussions with relevant stakeholders, GINR and MFHA. Score 75

	Year 3 – Revisions to the management plan to include provision for managing the extent of the fishery footprint in relation to commonly encountered habitats to ensure habitat outcome at SG80 level. Score 80
	Objectives: The objective is to ensure that provisions for managing the extend of the fishery footprint in relation to the commonly encountered habitat in West Greenland are included in the management plan.
	Action: Sustainable Fisheries Greenland (SFG), the Ministry of Fisheries, Hunting and Agriculture (MFHA) and the Zoological Society of London (ZSL) will cooperate on establishing provisions which makes it possible to manage the footprint of the Greenland halibut fishery in relation to the so-called commonly encountered habitat. This means that if the fishery should desire to expand or move beyond the two fishing areas (northern and southern) where the off-shore fishery for Greenland halibut is presently taking place, restrictions can be enforced by the MFHA if data regarding habitats and possible VME's are not sufficient.
Client Action plan	Year 1: Commencing discussions with MFHA and ZSL. Year 3: The management plan for the Greenland halibut fishery is revised and provisions for managing a possible expansion of the fishery footprint is included.
	Expectation: The expectation is that by adding new provisions to the management plan a possible expansion of the fishing area can be avoided until there is sufficient data regarding commonly encountered habitats in the areas in which the fishery wishes to expand.
	Documentation: Data from Zoological Society of London or other recognized research institutions.
	Responsible: Ministry of Fisheries, Hunting and Agriculture. Zoological Society of London (or other recognized research institutions). Sustainable Fisheries Greenland.
	Deadline: By 3rd annual audit 2020.
Consultation on condition	Ministry of Fisheries, Hunting and Agriculture. The Zoological Society of London
Progress on Condition SA1-2018	GINR and Zoological Society of London have cooperated in designing and conducting a survey in October 2017. Further surveys are planned for 2018/2019
Status of condition	The milestone for Year 1 requires evidence of discussions with relevant stakeholders, GINR and MFHA. Discussions confirmed by all Parties have been conducted. A survey has been conducted and further surveys are planned – ref data from Zoological Society of London. The condition is AHEAD of SCHEDULE .

Table 31 Condition 4 on Habitat Information

Performance Indicator	2.4.3 Habitat Information: 2.4.3 A The nature, distribution and vulnerability of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA.2.4.3 B Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear.
Score	65

Justification	PI 2.4.3 scoring table.
Condition	Information on the nature, distribution and vulnerability of the main habitats in the UoA area should be known at a level of detail relevant to the scale and intensity of the fishery. That information must be adequate to allow for the identification of the main impacts of the UoA on the main habitats.
Milestones	 Year 1 – develop research project to improve information on habitat distribution and UoA impacts on those habitats. Score 65 Year 4 – present information from the fishery on the nature distribution and vulnerability of the main habitats, along with the main impacts of the UoA on those habitats. Score 80.
	To ensure that there is sufficient information regarding habitats in the areas that are being fished and similar areas (commonly encountered habitat) and to detect occurrences of vulnerable or sensitive ecosystems of e.g. corals and sponges.
	Action: Sustainable Fisheries Greenland is co-funding a new research project conducted by the Zoological Society of London specifically aimed at gathering information about bottom habitats in deep water areas (1.000-1.500 m.) in Vest Greenland. This will include the areas where the trawl fishery for Greenland halibut is taking place but also similar areas which have not been fished. The project will commence in 2017 and is scheduled to end in 2019.
Client Action plan	Year 1: Research project by the Zoological Society of London is initiated. Year 4: Results regarding the nature, distribution and vulnerability of the main habitats - along with the main impacts of the UoA on those habitats -are presented.
	Documentation: Data from the Zoological Society of London.
	Responsible: The Zoological Society of London Sustainable Fisheries Greenland.
	Deadline: By 4th annual audit 2021.
Consultation on condition	The Zoological Society of London
Progress on Condition SA1-2018	GINR and Zoological Society of London have cooperated in designing and conducting a survey in October 2017. Further surveys are planned for 2018/2019
Status of condition	The milestone for Year 1 is to develop research project to improve information on habitat distribution and UoA impacts on those habitats. The condition is ON SCHEDULE .

Table 32 Recommendation 1

Performance Indicator	2.4.2 Habitat Management 2.4.2 A There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.
Score	75 (SG80a not met in relation to commonly encountered habitats, resulting in condition 2 however this recommendation relates to VME management.)
Rationale	See scoring table for 2.4.2A There is a move on rule for VMEs (800kg of sponges or 60 kg of corals), although these alone cannot be expected to protect VMEs unless combined with other action such as closure of areas once they have been identified as VMEs. The amount of corals required to

	trigger move-on for sponges is considerably higher than the 300kg recommended by NAFO, and there is no required move-on rule for sea pens (7kg recommended by NAFO). However, the existing move on rules are rarely if ever invoked due probably to the fact that the fishery presently rarely, if ever, fishes outside of the regularly fished areas, and reported catches of VME organisms are extremely low.
Recommendation	It is recommended that the Greenland management plan adopts more stringent move –on rules for corals and sponges, and also adopt move-on rules for sea pens, that meet or exceed those recommended by NAFO.

8.6 Client Action Plan

To be added from Public Comment Draft Report

The report shall include the Client Action Plan from the fishery client to address conditions.

Reference(s): FCP v2.1 Section 7.19

The Client Action Plan is inserted in the Conditions Tables.

8.7 Surveillance

To be drafted from Client and Peer Review Draft Report

The report shall include the program for surveillance, timing of surveillance audits and a supporting rationale.

Reference(s): FCP v2.1 Section 7.28

Table 33 Fishery surveillance program

Surveillance level	Year 1	Year 2	Year 3	Year 4
Level 4	Off-site surveillance audit	Off-site surveillance audit	On-site surveillance audit	On-site surveillance audit & re- certification audit

Table 34 Timing of surveillance audit

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale	
1	May 2017	May 2018	Scientific advice to be released in	
2	May 2017	September 2019	August 2017, therefore necessary information available at certificate	
3	May 2017	August-September 2020	anniversary date	
4	May 2017	May 2021	Re-assessment.	

Table 35 Surveillance level rationale

Year	Surveillance activity	Number of auditors	Rationale
1& 2	Off-site audit	2 auditors remote	Actions for year 1 & year 2 milestones are limited with evidence of discussions required and a research proposal, which can be provided by email and discussed with the client remotely

8.8 Harmonised fishery assessments – delete if not applicable

To be completed at Public Certification Report stage

Harmonisation is required in cases where assessments overlap, or new assessments overlap with pre-existing fisheries.

If relevant, in accordance with FCP v2.1 Annex PB requirements, the report shall describe processes, activities and specific outcomes of efforts to harmonise fishery assessments. The report shall identify the fisheries and Performance Indicators subject to harmonisation.

Reference(s): FCP v2.1 Annex PB

The original assessment was harmonised the MSC certified Greenlandic Shrimp fishery in NAFO subarea 1 which operates under the same management system as the Greenland halibut fishery. Aspects of 2.3, 2.5 and 3.1 were harmonised where relevant. However, the shrimp assessment was against version 1.2 of the standard and there were some differences that made a simple harmonisation difficult.

This scope extension is harmonised with the fisheries listed in Table 33 The only other long line fishery is the underassessment AQIP Gulf of St Lawrence Greenland halibut fixed gear fishery which does not have any report published yet but will be included in harmonisation activities during the assessment.

Fishery name	Certification status and date	Assessment tree	Gear.	Performance Indicators to harmonise
West Greenland offshore Greenland halibut fishery	Certified 2017- DNV GL	FCR v 2.0	Trawls-bottom trawl, longline	
West Greenland cold water prawn	Certified 2013 – Lloyds Regiser	FCR v2.0	Trawls - Bottom trawls - otter trawls	2.3; 2.5 & 3.1
Canada 0AB 2+3KLMNO Greenland Halibut Bottom Trawl and Gillnet	In assessment- Acoura		Gillnets and Entangling Nets - Gillnets, Trawls - Bottom trawls	In assessment, 1.1.1 for the Greenland halibut in the Davis Strait and Baffin Bay (NAFO subareas 0+1)
Doggerbank Seefischerei West Greenland Halibut	Certified Jun 2019 – Control Union Pesca	FCR v2.0	Trawls - Bottom trawls - otter trawls	
AQIP Gulf of St Lawrence Greenland halibut fixed gear fishery	In assessment - Lloyds Register		Gillnets And Entangling Nets - Gillnets, Hooks And Lines - Longlines	2.3; 2.5 & 3.1

Table 36 Overlapping fisheries

Table 37 Overlapping fisheries

Supporting information

- Describe any background or supporting information relevant to the harmonisation activities, processes and outcomes.
| Was either FCP v2.1 Annex PB1.3.3.4 or PB1.3.4.5 applied when harmonising? | Yes / No | |
|--|--------------|--|
| Date of harmonisation meeting | DD / MM / YY | |
| If applicable, describe the meeting outcome | | |
| - e.g. Agreement found among teams or lowest score adopted. | | |
| | | |

Table X – Scoring differences

Performance Indicators (PIs)	Fishery name	Fishery name	Fishery name	Fishery name
PI	Score	Score	Score	Score
PI	Score	Score	Score	Score
PI	Score	Score	Score	Score

Table X – Rationale for scoring differences

If applicable, explain and justify any difference in scoring and rationale for the relevant Performance Indicators (FCP v2.1 Annex PB1.3.6)

If exceptional circumstances apply, outline the situation and whether there is agreement between or among teams on this determination

8.9 **Objection Procedure – delete if not applicable**

To be added at Public Certification Report stage

The report shall include all written decisions arising from a 'Notice of Objection', if received and accepted by the Independent Adjudicator.

Reference(s): FCP v2.1 Annex PD

8.10 Client agreement

From:	Kristina Guldbæk
To:	Chaudhury, Sandhya
Subject:	ACDR report - Greenland halibut
Date:	mandag 12. august 2019 13:00:36

Dear Sandhya,

Thanks again for the conversation and the explanations regarding the ACDR report and the scope extension for the Greenland halibut MSC certificate.

I can confirm that SFG accepts the ACDR report with the comments I sent earlier, and that we want to continue with the scope extension.

As mentioned, the Greenland shark is not present on any Greenlandic list regarding vulnerable or endangered animals. The Greenlandic redlist was updated in 2018. No sharks.

See link below. http://www.natur.gl/roedliste/1-roedlisten/

Med venlig hilsen / Best regards

Kristina Guldbæk

Sustainable Fisheries Greenland



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8.11 Vessel list

Company:	Vessel:	Licens no:
Sigguk Greenland A/S	"Polar	GHL-43-1-H
	Nanoq"	GHL-43-2-H
Royal Greenland A/S	"Sisimiut"	GHL-39-1-H
		GHL-39-2-H
Polar Seafood GRL.	"Polar	GHL-24715-1-H
A/S	Princess"	GHL-24715-2-H
Qaleralik A/S	"Tuugaalik"	GHL-29-1-H
		GHL-29-2-H
	Masilik	

9 Template information and copyright

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Template version control

Version	Date of publication	Description of amendment
1.0	17 December 2018	Date of first release
1.1	29 March 2019	Minor document changes for usability

A controlled document list of MSC program documents is available on the MSC website (msc.org)

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