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PUBLIC COMMENT DRAFT REPORT FOR THE

Reassessment of the Faroe Islands North East Arctic cold water prawn fishery

Maresco AS

Report No.: 2018-005, Rev. 00
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Date: 2018-06-04
Certificate code: F-DNV-146646

Report type:	Public Comment Draft Report for the
Report title:	Reassessment of the Faroe Islands North East Arctic cold water prawn fishery
Customer:	Maresco AS , Sydvestkajen, DK-9850 Hirtshals Denmark
Contact person:	Eydun Djurhuus
Date of issue:	2018-06-04
Project No.:	PRJC-514008-2014-MSC-NOR
Organisation unit:	ZNONO418
Report No.:	2018-005, Rev.00
Certificate No.:	F-DNV-146646

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Objective:

Re-assessment of the Faroe Islands North East Arctic cold water prawn fishery against MSC Fisheries Standards v2.0.

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☐ Secret

Keywords:

[Keywords]

Rev. No.	Date	Reason for Issue	Prepared by	Verified by
0	2018-04-26	Preliminary Draft Report for Client review	Julian Addison, Lucia Revenga, Bert Keus, Sigrun Bekkevold	
	2018-05-08	Peer Review Draft Report	Same as above	
	2018-06-04	Public Comment Draft Report	Same as above	
	[yyyy-mm-dd]	Final Report		
	[yyyy-mm-dd]	Public Certification Report		

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ABBREVIATIONS & ACRONYMS

ASCOBANS	Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas
AFWG	Arctic Fisheries Working Group
AIS	Automatic Identification System
AKO	Royal Danish Navy's Arctic Command
AMOVA	Analysis of molecular variance
BBTA	Barents and White Sea Territorial Administration
CAB	Conformity Assessment Body
CBD	Convention on Biological Diversity
CFP	(EU) Common Fisheries Policy
CITES	Convention on International Trade in Endangered Species
CL	Carapace length
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COE	Catch on entry
COX	Catch on exit
CPUE	Catch per unit effort
DCF	European Union Data Collection Framework
DNV GL	Det Norske Veritas GL
DoF	Directorate of Fisheries, Norway
DTU Aqua	Danish Technical University Aquatic Sciences Department
EEZ	Exclusive Economic Zone
EFCA	European Fisheries Control Agency
ERS	Electronic Reporting System
ESAM	Extension of single-species assessment Model
ETP	Endangered, threatened and protected species
FAM	Fisheries Assessment Methodology
FAO	Food and Agriculture Organisation (of the United Nations)
FCR	Fisheries Certification Requirements
FPZ	(Svalbard) Fishery Protection Zone
FSB	Russian Federal Security Service
FVE	Faroe Islands Ministry of Fisheries and Fisheries Inspection
GFLK	Greenland Fishery License Control Authority
GINR	Greenland Institute of Natural Resources
GLM	Generalised Linear Model
HCR	Harvest Control Rule
ICES	International Council for the Exploration of the Sea
IMR	Institute of Marine Research, Norway
IUCN	International Union for the Conservation of Nature
JNRFC	Joint Norway Russia Fisheries Commission
MCS	Monitoring Control and Surveillance
MFHA	Greenland Ministry of Fisheries, Hunting and Agriculture
MLS	Minimum Landing Size
MPA	Marine Protected Area
MRM	Minimum Realistic Model
MSC	Marine Stewardship Council
NAFO	Northwest Atlantic Fisheries Organisation
NAMMCO	North Atlantic Marine Mammal Organisation
NEA	North East Arctic
NEAFC	North East Atlantic Fisheries Commission
NGO	Non-Governmental Organisation
NIPAG	NAFO/ICES Pandalus Assessment Group

OSPAR	Oslo Paris Commission for protection of the marine environment in NE Atlantic
PI	Performance Indicator
PINRO	Russian Research Institute
PISG	Performance Indicator Scoring Guidepost
PSCF	Port State Control Form
RAPDSI	Random amplified polymorphic DNA
SSB	Scoring issue
TAC	Spawning stock biomass Total Allowable Catch
UoA	Unit of Assessment
UoC	Unit of Certification
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring System
WWF	World Wide Fund for Nature

STOCK ASSESSMENT REFERENCE POINTS

B_{lim}	Minimum biomass below which recruitment is expected to be impaired or the stock dynamics are unknown.
B_{msy}	Biomass corresponding to the maximum sustainable yield (biological reference point); the peak value on a domed yield-per-recruit curve.
$B_{trigger}$	Value of spawning stock biomass (SSB) that triggers a specific management action.
F	Instantaneous rate of fishing mortality.
F_{lim}	Fishing mortality rate that is expected to be associated with stock 'collapse' if maintained over a longer time (precautionary reference point).
F_{msy}	F giving maximum sustainable yield (biological reference point).
K	Carrying Capacity
MSY	Maximum Sustainable Yield
PA	Precautionary Approach

1 EXECUTIVE SUMMARY

This report provides information on the reassessment of the Faroe Islands North East Arctic cold water prawn fishery against the Marine Stewardship Council (MSC) Fisheries Standard.

The assessment was carried out using MSC Fisheries Certification Requirements and Guidance v2.0. For the assessment, the default assessment tree was used.

The Faroe Islands North East Arctic cold water prawn fishery was originally MSC certified on 5 December 2013 (FDNV - 146646) - valid to 5 December 2018. The certification included Maresco A/S (certificate owner) representing the Faroese companies P/F Thor, P/F Havborg and P/F Líðin. In 2016 the certificate was extended to cover two additional Faroese companies P/F Framherji and P/F JFK Trol. In April 2017 the certificate was extended to include the Greenland-based fishing companies Nanoq Seafood A/S and Royal Greenland A/S, and in May 2017 the certificate was extended to include the Lithuanian company JSC Seivalas. The Faroese company Maresco A/S remains the responsible client for the Faroe Islands North East Arctic cold water prawn fishery. The Greenland and Lithuanian companies are part of the client group, but not co-owners of the certificate.

Table 1 Assessment team

Role	Name
Team leader	Julian Addison
Principle 1 expert:	Julian Addison
Principle 2 expert:	Lucia Revenga
Principle 3 expert:	Bert Keus
DNV GL project manager and Chain of custody responsible:	Sigrun Bekkevold

Table 2 Assessment timeline

Event	Date
Announcement of initial assessment:	5 September 2017
Site visit and stakeholder consultations:	17-19 October 2017
Publication of Public Certification Report	
Eligibility date:	5 December 2018

1.1 Main strengths and weaknesses of the client's operation

1.1.1 Main strengths

Principle	Performance Indicator	Comment
1	1.1.1	The shrimp stock has been above Bmsy since the start of the fishery.

1	1.2.3 & 1.2.4	Good data availability to support robust stock assessment for shrimp
2	2.1.1 & 2.2.1	Minimal impact on bycatch species
2	2.3.1	Minimal interaction with ETP species
3	3.1.3	Clear long-term management objectives incorporating the precautionary approach
3	3.2.3	Rigorous enforcement regime and strong compliance

1.1.2 Main weaknesses

Principle	Performance Indicator	Comment
1	1.2.1	Lack of control of fishing effort for shrimp in International waters
1	1.2.2	Lack of well-defined harvest control rule
2	2.4.1	Deficiency in evidence of impact of fishery on VME habitats
2	2.4.2	Insufficient measures to manage impact of fishery on VME habitats

1.2 Determination / draft determination

[PCDR: Draft determination with supporting rationale. FR: Final determination. PCR: formal statement from decision making entity]

The Faroe Islands Northeast Arctic cold water prawn 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 evaluation of the fishery presented in this report the assessment team recommends the re-certification of the Faroe Islands North East Arctic cold water prawn fishery for the client Maresco A/S.

As the fishery achieved a score of below 80 against 4 scoring indicators, the assessment team has set 4 conditions (Table 3) for the continued certification that the client is required to address. The conditions are applicable to improve performance to at least the 80 level within the period set by the assessment team.

The assessment team also makes 3 recommendations for the fishery (Table 4).

Table 3 Conditions for certification (full text in Appendix 1.3)

Condition number	PI	Condition	Time-scale for compliance
1	1.2.1	No scope for limiting fishing effort within NEAFC region	By the 4th surveillance audit
2	1.2.2	Lack of well-defined harvest control rule	By the 3rd surveillance audit
3	2.4.1	Lack of evidence that fishery does not reduce structure and function of the VME habitats	By the 4th surveillance audit
4	2.4.2	Lack of partial strategy to manage impact of fishery on all VMEs in Russian EEZ and on seapen fields and burrowing megafauna communities in Svalbard FPZ and international waters	By the 4th surveillance audit

Table 4 Recommendations (full text in Appendix 1.3)

Recommendation number	PI	Recommendation
1	1.2.3	Implementation of observer programme for Faroe Islands vessels
2	2.3.3	Recording of interactions between UoA and ETP species
3	2.4.3	Recording of interactions between UoA and VME habitats

2 AUTHORSHIP AND PEER REVIEWERS

2.1 Assessment team

Table 5 Assessment team

Role	Name	Qualifications
Team leader and Principle 1 expert	Julian Addison	Julian holds a Ph.D. in population ecology and modelling from Imperial College of Science and Technology, University of London, and also a BSc in Zoology from Kings College, University of London. He has 30 years' experience of stock assessment and provision of management advice on shellfish fisheries and scientific research on crustacean biology and population dynamics and inshore fisheries. Until December 2010 when he left the organisation to become an independent consultant, he worked at the Centre for Environment, Fisheries and Aquaculture Science (Cefas) in Lowestoft, England where he was Senior Shellfish Advisor to Government policy makers, which involved working closely with marine managers, legislators and stakeholders, Government Statutory Nature Conservation Organisations and environmental NGOs. He has also worked as a visiting scientist at DFO in Halifax, Nova Scotia and at NMFS in Woods Hole, Massachusetts where he experienced shellfish management approaches in North America. For four years he was a member of the Scientific Committee and the UK delegation to the International Whaling Commission providing scientific advice to the UK Commissioner. He has worked extensively with ICES and most recently was Chair of the Working Group on the Biology and Life History of Crabs, a member of the Working Group on Crangon Fisheries and Life History and a member of the Steering Group on Ecosystems Function. He has extensive experience of the MSC certification process primarily as a P1 team member but also as a P2 team member and team leader undertaking MSC full assessments for the Ireland and Northern Ireland bottom grown mussel fisheries, the Newfoundland and Labrador snow crab fishery, Estonia and Faroe Islands North East Arctic Cold Water prawn fisheries, Swedish Skagerrak and Norwegian Deep cold water prawn fishery, the Eastern Canada offshore lobster fishery and the Limfjord mussel and cockle fisheries. He has also undertaken MSC pre-assessments and numerous annual surveillance audits being responsible also for P3 issues and has carried out peer reviews of MSC assessments in both Europe and North America of lobster, cold water prawn, razorfish, cockle and scallop fisheries. Other recent work includes a review of the stock assessment model for blue crabs in Chesapeake Bay, USA, and an assessment of three Alaskan crab fisheries under the FAO-based Responsible Fisheries Management scheme. He was a P1 expert of the team for the initial assessment of both Estonia and Faroe Islands NEA cold water prawn fisheries, and also team leader and principle expert for all the surveillance audits.

Principle 2 expert	Lucia Revenga is a marine scientific, specialized in Fisheries Biology who holds degrees in Marine Sciences and in Environmental Sciences. For 5 years she worked with TRAGSA for the Spanish General Marine Secretariat, conducting researches on the biology and stock status of different species, such as bluefin tunas, skipjack tunas, albacores, mackerels, sardines, eels, prawns, Norway lobsters, halibuts, … She has also taken part in oceanographic surveys focused in the search of vulnerable marine ecosystems. Since 2011 she works for IFAPA (Institute for Research and Training in Fisheries) as a Fisheries biology teacher for fishermen. She also conducts research in fishery local activities with the aim of increasing community awareness of the conservation of coastal ecosystems and encouraging sustainable fishing practices. She has been involved as a P2 expert in several MSC assessments/reassessments/-surveillances, e.g. Danish Swedish Nephrops fisheries, Norwegian Antarctic krill fisheries, FIUN Barents Sea cod and Haddock fishery, Swedish rope grown mussel and Dutch cockle fisheries and Medfish Spain. She is also P2 expert on the full assessment of the Iceland North East Atlantic Blue Whiting fishery and Norway sandeel, pout and north sea sprat
Principle 3 expert	Bert Keus is an independent consultant based in Leiden, the Netherlands. He holds degrees in both biology and law, and started his career at the Netherlands Institute for Fisheries Investigation (RIVO-DLO). Later he held the position of Head of the Environ-mental Division of the Dutch Fisheries Board (Productschap Vis). Particular areas of expertise are environmental impact assessments of fisheries in the Natura 2000 framework, fisheries management plans, natural resource policy, and programme and project evaluations. He has long association with the several fisheries in the Netherlands, and he has been involved in efforts to achieve MSC certification of the North Sea brown shrimp fishery – acting as technical advisor to this multi-stakeholder initiative. Through this work and several other MSC certifications he has become particularly familiar with the MSC certification process. Between the years 1998 and 2003 he was a Member of the European Sustainable Use Specialist Group (ESUSG), Fisheries Working Group of IUCN. He has been the team member of MSC assessment teams for Dutch North Sea gill net fishery for sole, Ekofish twin rigged trawl plaice fishery, Dutch suspended and bottom mussel culture, North Sea sea bass, DFPO North Sea sole and haddock and Shetland suspended mussel culture. He has also been Principle 2/3 expert in the Estonia and Faroe Islands Barents Sea cold water prawn, and team leader and Principle 2/3 expert of the Sweden Skagerrak and Norwegian Deep cold water prawn fishery.

DNV GL project manager and Chain of custody responsible	Sigrun Bekkevold is a subcontractor for DNV GL Business Assurance and holds a Master of Science in industrial chemistry and biochemistry from the Norwegian University of Science and Technology in Trondheim. She has 25 years of experience in leading projects for sustainable development of the marine sector. She was employed in DNV GL until October 2016, and after that is hired as a subcontractor on MSC fisheries projects. She has been working with the MSC standard for sustainable fisheries as project manager and chain of custody responsible for pre-assessments, initial assessments and surveillance assessments. This includes e.g. Norwegian, Swedish and Danish shrimp fisheries in Skagerrak and the North Sea, Norwegian, Faroese and Estonian shrimps fisheries in the Barents Sea, Norwegian krill fishery in Antarctica, Greenland halibut and lumpfish fisheries in West Greenland and fisheries in the Baltic sea. She has also been project manager in developing product certification standard for marine ingredients in for Norwegian Food industry and has also been working with strategies for sustainability services in the marine sector. Before 2012 her main focus was on research, innovation and business development within total utilization of fish. This includes compiling strategies, action plans, feasibility analysis and market analysis, organizing project teams, performing mass flow analysis, networking with industry, research and authorities, evaluating regulatory issues and communication of results. She held a position as a general manager in RUBIN Foundation, aiming for value adding and better utilization of fish by-products. RUBIN has been owned by the seafood industry in Norway and supported by Ministry of Fishery and Coastal Affairs and the Norwegian Seafood Research Fund. The work has included the whole value chain, from the fishing vessel and all the way to the marked. She has been project manager and chain of custody responsible in the two last surveillance audits on the Faroe Islands NEA CWP fishery.

2.2 Peer reviewers

Based on experience with the relevant MSC Fishery programme and components of the Unit of Certification, the peer reviewers listed in Table 6 were selected in accordance with MSC Fishery Certification Requirements on qualifications and competencies.

Table 6 Peer reviewers

Peer reviewer	Name
Peer reviewer 1	Deidre Hoare
Peer reviewer 2	Chris Grieve

3 DESCRIPTION OF THE FISHERY

3.1 Unit(s) of Assessment (UoA) and scope of certification sought

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 stock, no amphibians, reptiles, birds or mammals are target species.
- The fishery does not use poisons or explosives.
- The fishery is not conducted under a controversial unilateral exemption to an international agreement.
- The Client Group has not been prosecuted for violation of laws on forced labour.
- There is no enhancement of the Northern shrimp stock.
- 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 has mechanisms for resolving disputes and disputes do not overwhelm the fishery.

The fishery is not an enhanced fishery or based on introduced species.

3.2 UoA and Proposed Unit of Certification (UoC)

MSC certification is specific to the fishery holding the certificate, the Unit of Certification. The assessment team may choose to assess a wider unit, the Unit of Assessment, to which the certificate may be extended under specific circumstances.

3.2.1 Unit of Assessment

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 7.

Table 7 Unit of Assessment (UoA)

Fishery Name	Faroe Islands North East Arctic Cold Water Prawn
Species	Northern shrimp, or cold water prawn (*Pandalus borealis*)
Geographical area	Barents Sea and Svalbard in FAO statistical area 27, ICES Ia,b and IIa
Method of capture	Bottom trawl with sorting grid
Stock	Barents Sea shrimp (ICES Division I and II)/FAO 27
Management	• Faroe Islands and Greenland Fisheries Management • Lithuanian Fisheries Management / EU Commission • NEAFC • Norwegian Fisheries Management (Svalbard FPZ) • Russian Fisheries Management (EEZ of Russian Federation) The stock is managed according to ICES advice.
Client group	Maresco A/S (certificate owner) represented by the following vessels: • P/F Thor with shrimp trawler Kappin (formerly Sermilik II) • P/F Líðin with shrimp trawler Arctic Viking. Faroese company P/F Framherji represented by the vessel Akraberg Faroese company P/F JFK Trol represented by the vessel Sjurdarberg Greenland company Royal Greenland represented by the vessels Akamalik, Qaqqatsiaq and Natarnaq Greenland company Nanoq Seafood represented by the vessel Tasermiut Lithuanian company JSC Seivalas. Owned the vessel Plutonas which was sold in 2017. Currently no new vessel, but planning for purchase.
Eligible fishers	The Faroese client group represents the entire Faroe Islands fishery for shrimp in the Barents Sea. If at a later date more vessels are added to the Faroe Islands shrimp fishery in the Barents Sea, their eligibility to share the certificate will be considered upon the application. New vessels owned by the client group will automatically (subject to full compliance with MSC requirements) be eligible to share the MSC certificate. There are currently no Greenland or Lithuanian vessels other than the above mentioned included in the UoC. If at a later date more vessels are added to the Greenland shrimp fishery in the Barents Sea, their eligibility to share the certificate will be considered upon the application. If at a later date the vessel owners add more vessels to their fleet that fish in the Barents Sea for cold water shrimp under Greenland or Lithuanian management, they will automatically (subject to full compliance with MSC requirements) be eligible to share the MSC certificate. Vessels outside the client group in Lithuania are not eligible to share the MSC certificate.

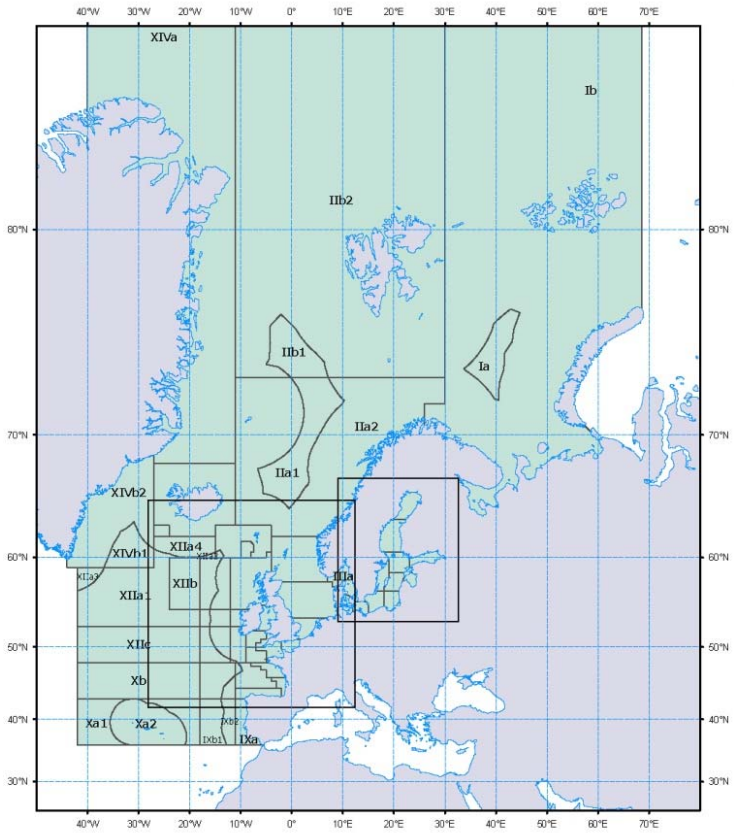

Figure 1. ICES Areas in the Barents Sea

3.2.2 Proposed Unit of Certification

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

The proposed Unit of Certification includes 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 FCR v2.0 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 equivalent to the Unit of Assessment with exclusion of Other eligible fishers.

3.2.3 Other eligible fishers at the start of the certificate (prior to any certificate sharing)

The Faroese client group represents the entire Faroe Islands fishery for shrimp in the Barents Sea. If at a later date more vessels are added to the Faroe Islands shrimp fishery in the Barents Sea, their eligibility to share the certificate will be considered upon the application. New vessels owned by the client group will automatically (subject to full compliance with MSC requirements) be eligible to share the MSC certificate.

There are currently no Greenland or Lithuanian vessels other than the vessels mentioned in Table 7 included in the UoC. If at a later date more vessels are added to the Greenland shrimp fishery in the Barents Sea, their eligibility to share the certificate will be considered upon the application. If at a later date the vessel owners in the client group add more vessels to their fleet that fish in the Barents Sea for cold water shrimp under Greenland or Lithuanian management, they will automatically (subject to full compliance with MSC requirements) be eligible to share the MSC certificate. Vessels outside the client group in Lithuania are not eligible to share the MSC certificate.

3.2.4 Total Allowable Catch (TAC) and Catch Data

Table 8 TAC and catch data for cold water prawn in the *Pandalus borealis* trawl fishery

TAC	Year	2017	Amount	N/A
UoA share of TAC	Year	2017	Amount	N/A
UoC share of TAC	Year	2017	Amount	N/A
Total green weight catch by UoC	Year (most recent)	2016	Amount	4899 tonnes
Total green weight catch by UoC	Year (second most recent)	2015	Amount	4665 tonnes

Note that the Greenland vessels and the Lithuanian vessel did not enter the UoC until 2017, so the figures in Table 8 above do not include landings from these vessels. Provisional Faroe Islands and Greenland landings data for 2017 up to October 2017 are 4523 and 3490 tonnes respectively, suggesting that overall landings are going to be higher in 2017 than in the previous two years. In 2017, prior to being sold and therefore leaving the certificate, the Lithuanian vessel Plutonas landed 383 tonnes of shrimps from the Svalbard FPZ.

3.3 Overview of the fishery

3.3.1 Client name and contact information

The Faroese company Maresco AS is the responsible client for the Faroe Islands North East Arctic cold water prawn fishery. The Greenland companies Nanoq Seafood and Royal Greenland and the Lithuanian company JSC Seivalas are part of the client group, but not co-owners of the certificate.

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Sydvestkajen 7G,
9850 Hirtshals,
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Contact person:
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MSC certificate sharing with :

Nanoq Seafood A/S
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Royal Greenland A/S
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Website: http://rekvizitai.vz.lt/en/company/uab_seivalas/

Contact person:
Vytas Ramanauskas (Chairman)
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Email: v.ramanauskas@rplaw.lt

3.3.2 Client information

Maresco A/S is a sales company located in Hirtshals (Denmark) and specializing in shellfish. The company's main product is shell-on cold water shrimp from the North Atlantic. Faroese shrimp trawlers, landing their catch in mainly Tromsø and delivering their catches to Maresco, pack shrimp in Maresco branded boxes at sea. In 2012, three trawlers from Faroe Islands joined their forces and applied for MSC Fisheries certification under coordination of Maresco AS. In 2016 two other Faroese trawlers joined the certificate, under the same conditions as the vessels included in the initial assessment. These trawlers were owned by **P/F Framherji** and **P/F JFK Trol.** P/F Havborg was sold in October 2017 and therefore is no longer part of the certificate. However the licence rights for the vessel are retained by the owner for two years allowing the replacement of Havborg on the certificate if the owner purchases or builds a new vessel.

In 2016 Maresco A/S went into an agreement of certificate sharing with the Greenland based fishing companies **Nanoq Seafood A/S** and **Royal Greenland A/S**. The companies joined the certificate in April 2017.

Nanoq Seafood A/S vessels fish in waters east of Greenland and in the Barents Sea for cold water prawn but at times other species such as mackerel are targeted. The vessel Tasermiut has been fishing in the Barents Sea for several years but under different ownership. In 2014 Tasermiut was bought by Nanoq Seafood.

Royal Greenland A/S is a fishing and fish processing company with a long history; based in Nuuk and owned by the Government of Greenland. The company is vertically integrated and manages the entire value chain from catch to production and sales; and the global presence of Royal Greenland has its origins in the vast areas of the North Atlantic and the Arctic Ocean. The Royal Greenland fleet of large ocean-going trawlers fish between Greenland and Eastern Canada, east of Greenland and as far to the North East as the Barents Sea.

Key species are Coldwater prawns (*Pandalus borealis*), Greenland halibut (*Reinhardtius hippoglossoides*), Atlantic cod (*Gadus morhua*), Snow crab (*Chionoecetes opilio*) and roe from Lumpfish (*Cyclopterus lumpus*).

In 2016 Maresco A/S also went into an agreement of certificate sharing with the Lithuania based fishing company **JSC Seivalas**. The company joined the certificate in May 2017.

JSC Seivalas was incorporated on 29 January 1998 and in June of the same year started fishing for Northern shrimps in the Barents Sea (NEAFC and Svalbard areas) with the fishing trawler "Polaris" under Lithuanian fishing license. Since then the company have had no other business activities but fishing shrimps by their own or chartered trawlers. In various years the company operated from 1 to 4 fishing trawlers. For shrimp fishing in the Barents Sea the Company employs mainly Lithuanian crews. The fishing captains are from Norway, Denmark, Iceland and Faroes Islands. From 2011 the company owned and operated only one fishing trawler "PLUTONAS", which was added to the certificate in May 2017. Shortly after joining the certificate however the vessel was sold to Russia, and is no longer on the certificate.

JSC Seivalas is planning to buy another vessel as a replacement for Plutonas, but as yet no new vessel has been purchased. All official data on the company can be found at: http://rekvizitai.vz.lt/en/company/uab_seivalas/

The extended client group is currently represented by shipowners/ *vessels specified below:*

Ship owner: P/F Thor Vessel: Kappin (former Sermilik II) Vessel reg.N: VN 668 (OW2202) Gross tonnage:776 ton Length: 53,78 m **General info:** P/F Thor was founded in 1994. The company currently owns and operates 25 vessels, of which around 10 are fishing vessels. The fishing vessels operate in different areas and catch more than 10 species, one being shrimp (*Pandalus borealis*). The company has a strong focus on sustainability in all areas of their operations.	
Ship owner: P/F Líðin. Vessel: Arctic Viking Vessel reg.N: VN 123 (OW2399) Gross tonnage:1720 ton Length: 58,00 m **General info:** P/F Lidin was established in 1985 and in 1986 the company received a purpose built shrimp trawler F/V Arctic Viking. F/V Arctic Viking's crew have remained almost unchanged since 1986. 40 years of fishing experience and processing of cold water shrimps ensures the best quality of shrimp products originating from P/F Lidin company. Company has also a strong focus on sustainability of their fishing operations.	

Ship owner: P/F Framherji Vessel: Akraberg Vessel reg.N: FD 10 (XPLH) Gross tonnage:2898 ton **General info:** Akraberg entered the Faroese fleet in June 2013. Akraberg replaced Vesturvón. The first year Akraberg has been fishing shrimps is in 2016.	
Ship owner: P/F JFK Trol Vessel: Sjurdarberg Vessel reg.N: KG 183 (OW2408) Gross tonnage:1856ton **General info:** Sjúrðarberg entered the Faroese fleet in 2013. The first year Sjúrðarberg caught shrimp was in 2015.	
Ship owner: Nanoq Seafood A/S Vessel: Tasermiut Vessel reg.N: GR 6-395 Gross tonnage:2549 ton Length: 75,90 m **General info:** Nanoq Seafood is a fishing company based in Nuuk Greenland. The company owns a single fishing vessel namely the vessel Tasermiut which was purchased by the company in 2014. Tasermiut fishes in Greenland waters and part of the year in the Barents Sea.	

Ship owner: Royal Greenland A/S Vessel: Akamalik Vessel reg.N: GR 6-6 Gross tonnage: 3207 GT Length: 75,8 m **General info:** Royal Greenland A/S is a fishing company based in Nuuk Greenland. The company owns 3 shrimp trawlers. The Royal Greenland fleet of large ocean-going trawlers fish between Greenland and Eastern Canada, east of Greenland and as far to the North East as the Barents Sea.	
Ship owner: Royal Greenland A/S Vessel: Qaqqatsiaq Vessel reg.N: GR 6-403 Gross tonnage: 2772 GT Length: 70,0 m **General info:** Royal Greenland A/S is a fishing company based in Nuuk Greenland. The company owns 3 shrimp trawlers. The Royal Greenland fleet of large ocean-going trawlers fish between Greenland and Eastern Canada, east of Greenland and as far to the North East as the Barents Sea.	
Ship owner: Royal Greenland A/S Vessel: Nartarnaq Vessel reg.N: GR 6-325 Gross tonnage: 2838 GT Length: 67,5 m **General info:** Royal Greenland A/S is a fishing company based in Nuuk Greenland. The company owns 3 shrimp trawlers. The Royal Greenland fleet of large ocean-going trawlers fish between Greenland and Eastern Canada, east of Greenland and as far to the North East as the Barents Sea.	

3.3.3 General overview of the fishery

3.3.3.1 History of the fishery

The fishery for *Pandalus borealis* in the Barents Sea and Svalbard Fishery Protection Zone (FPZ) was started by vessels from Norway in 1970, and as the fishery developed, vessels from Russia, Iceland, Greenland, Faroe Islands and the EU countries also entered the fishery. Norwegian and Russian vessels exploit the *Pandalus borealis* stock across the entire region, although Russian vessels declared zero landings each year from 2009 to 2012 and only minimal landings since then. Vessels from other countries, including those from Faroe Islands, Greenland and Lithuania are not permitted to fish in the Norwegian EEZ. Under a bilateral agreement, vessels from Faroe Islands have recently been allowed access to fish in Russian waters with an annual overall quota of 5000 tonnes. Vessels from Faroe Islands are therefore now permitted to fish within the Svalbard FPZ, in an area of international waters to the south east of Svalbard known as the 'Loop Hole', and in the Russian EEZ (Figures 2 & 3). Greenland vessels are permitted to fish in the Svalbard FPZ but are not permitted to fish in the international waters of the Loop Hole. Greenlandic vessels have not recently been fishing in Russian waters, although shrimp quotas have been allocated to Qaqqatsiaq and Natarnaq (250 tonnes) in the Russian EEZ. Lithuanian vessels are permitted to fish in the Svalbard FPZ and in the international waters of the Loop Hole. Previously the fishery occurred mainly in the central Barents Sea (the Hopen area) and on the Svalbard Shelf, although in recent years the distribution of shrimp has moved northwards and eastwards possibly driven by observed changes in water temperatures, and to some area closures due to high bycatches of juvenile fish. Consequently fishing activity has increased further eastwards in the international waters in the "Loophole" as demonstrated by changing catch distributions of the Norwegian fleet (Figure 4) (NAFO/ICES, 2017). Around 70% of the catch in 2016 was taken from the Loophole.

Figure 2: Map of the North east Atlantic, Norwegian Sea and Barents Sea identifying NEAFC regulatory areas (orange).

As the fishery developed, catches reached a peak of 128,000 tonnes in 1984, but since 2000 catches have declined from around 80,000 tonnes to 20-30,000 tonnes per annum (Figure 5).

Up until 2010 the majority of the landings were by Norwegian vessels, but in recent years there has been an increase in fishing effort by vessels from EU countries, Faroe Islands and Greenland, such that these countries now land approximately half of the total landings (Table 9). The decline in landings since 2000 is due to reductions in fishing effort caused by

increased vessel operating costs, primarily high fuel prices, and low market prices and consequent low profitability of the fishery (NAFO/ICES, 2014). Since 2006, the total catch in the fishery has been significantly below the TAC recommended by ICES. Landings then declined further to 19,249 tonnes in 2013 and increased slightly to 20,964 tonnes in 2014. In 2013 and 2014 catches remained relatively low in comparison with historical catches for a number of reasons. Shrimp are more widely distributed than in previous years (with less ice opening up more grounds) creating problems in locating high densities of shrimp, there were a number of areas closed to fishing in 2014 due to high bycatches of redfish, cod and haddock, and the high value and large catches of cod mean that the fleet has been targeting most effort on more profitable groundfish stocks, as shrimp fishing requires greater effort and more fuel. Since then landings have increased significantly to 34,002 tonnes in 2015 due to increased fishing effort and favourable market conditions for both raw and processed shrimps, with Norwegian and EU landings both accounting for over 16,000 tonnes and Russian landings just over 1,000 tonnes (Table 9) (ICES, 2017). In 2016 total landings from the fishery were 29,609 tonnes of which EU vessels landed 16,000 tonnes, landings from Russia increased to 2,500 tonnes, but reduced participation by both offshore and inshore Norwegian vessels with less vessels fishing and reduced prices in 2016 due to over-supply of cold-water prawns globally, resulted in landings for Norwegian vessels declining to around 11,000 tonnes (Table 9) (ICES, 2017). For 2017 ICES projected landings to be 28,000 tonnes (Figure 5, Table 9).

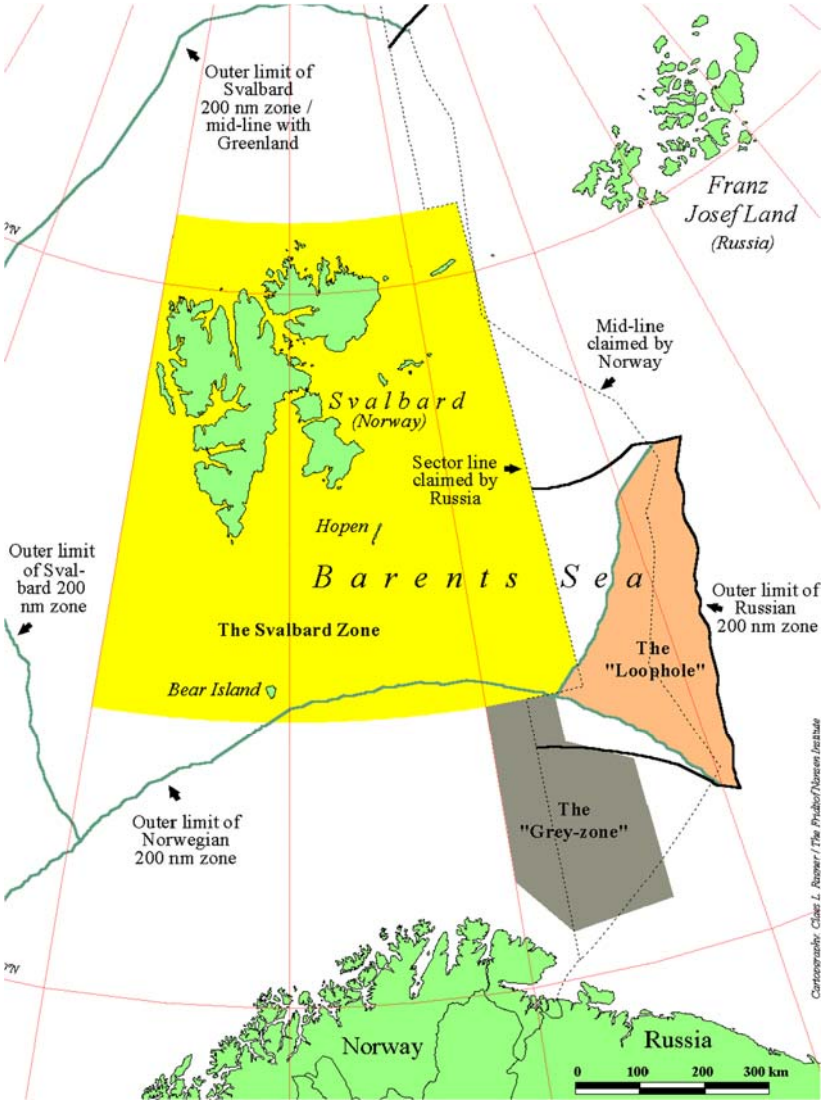


Figure 3. Map of the Barents Sea identifying the Svalbard Area, the NEAFC zone (The Loophole) and the former "Grey-zone".

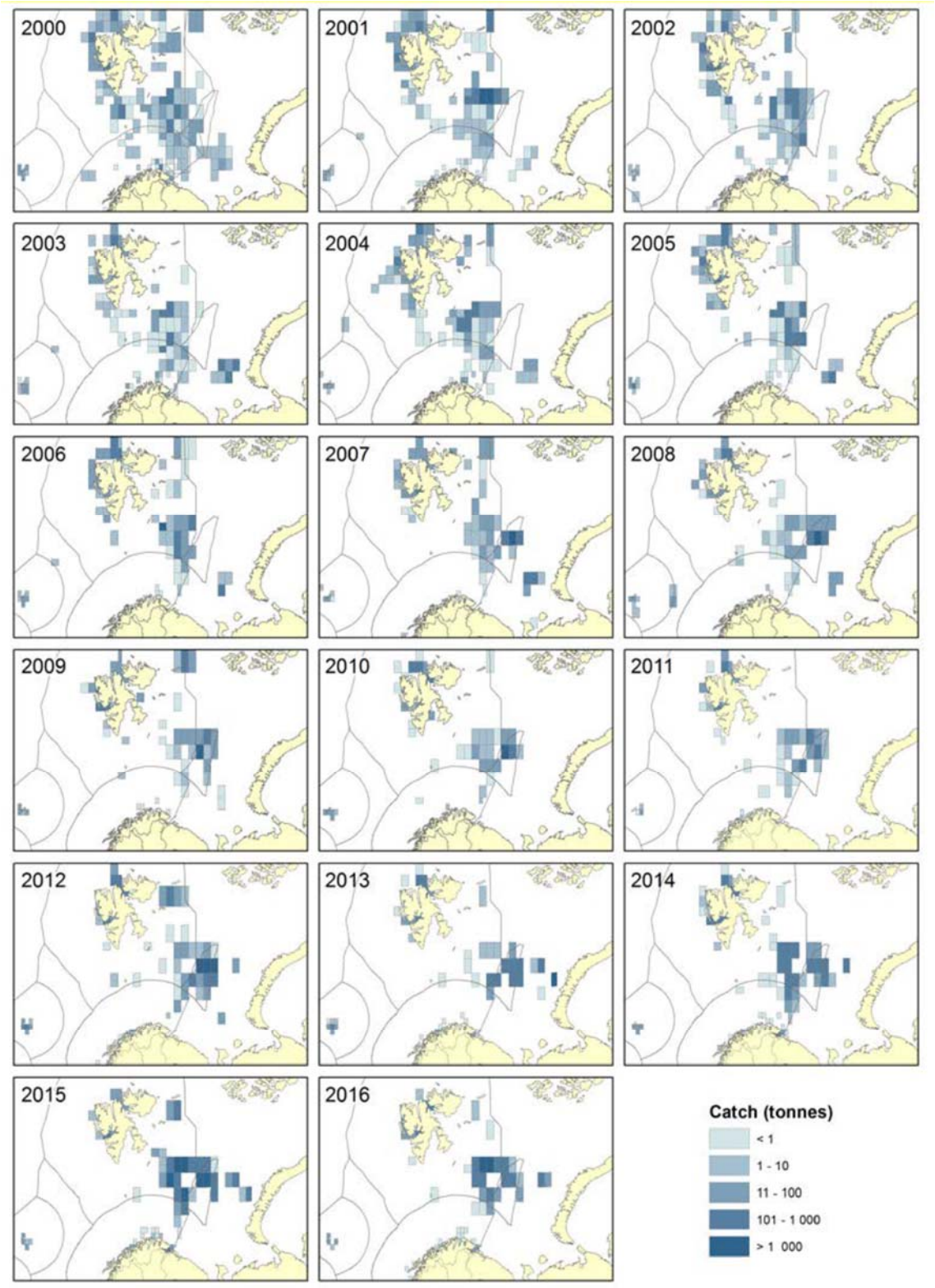


Figure 4. Barents Sea shrimps. Distribution of catches by Norwegian vessels since 2000 based on log books. (Source: NAFO / ICES, 2017)

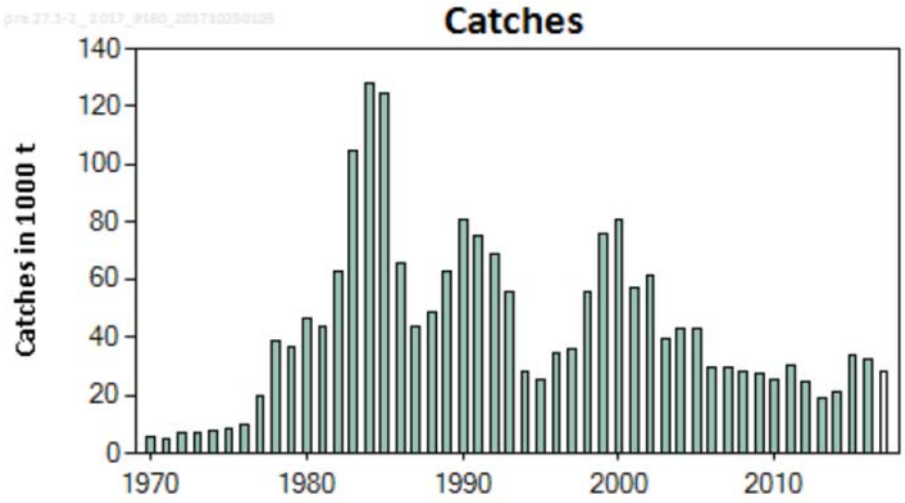


Figure 5. Barents Sea shrimps. Total annual landings from 1970 to 2017. The 2017 projected value is estimated based on data until July and information from the industry. (Source: ICES, 2017).

Table 9. Shrimp in the Barents Sea: recent catches (tonnes) in relation to maximum catch recommended by ICES. * 2017 catches are projected to the end of the year. (Source: ICES, 2017)

Year	Recommended maximum catch	Norway	Russia	Other nations	Total
2006	40 000	27352	4	2271	29627
2007	50 000	25558	192	4181	29931
2008	50 000	20662	417	7109	28188
2009	50 000	19784	0	7488	27272
2010	50 000	16779	0	8419	25198
2011	60 000	19928	0	10298	30226
2012	60 000	14158	0	10598	24756
2013	60 000	8864	1067	9336	19249
2014	60 000	10234	741	9989	20964
2015	70 000	16618	1151	16253	34002
2016	70 000	10896	2490	16223	29609
2017	70 000				28000*

3.3.3.2 The client group fishery

In 2013, there were three Faroe Islands vessels licensed to fish in the Barents Sea: Havborg (OW2163), Kappin (former Sermilik II - OW2202) and Arctic Viking (OW2399), although in 2013 Kappin did not fish for shrimps. At the end of 2016 two new vessels joined the Faroese certificate; Akraberg owned by P/F Framherji and Sjurdarberg owned by P/F JFK Trol. Akraberg entered the Faroese fleet for shrimp fishing in the Barents Sea in 2016, while Sjúrðarberg started in 2015. In 2017 Havborg was sold to a Russian company. In April 2017 four Greenland vessels joined the Faroese certificate: Tasermiut, owned by Nanoq Seafood A/S and Akamalik, Qaqqatsiaq and Natarnaq owned by Royal Greenland. In May 2017 the Lithuanian vessel, Plutonas, also joined the Faroese certificate.

Faroe Islands vessels landed 4219, 4666 and 4899 tonnes of shrimps in ICES Area I and II in 2014, 2015 and 2016 respectively, equating to approximately 20%, 14% and 17% of the overall landings from the Barents Sea stock in the respective years. Provisional figures for 2017 up to the end of September 2017 show landings were 4523 tonnes, suggesting that landings may be higher in 2017 than in the last few years. In 2014, 2015 and 2016 over 80% of landings were from the Russian zone and the Svalbard FPZ, and provisional figures for 2017 show that the majority of landings have come from the Russian zone. Greenland vessels landed 1958 and 2054 tonnes of shrimps in ICES Area I and II (primarily the Svalbard area) in 2015 and 2016 respectively, equating to approximately 6% and 7% of the overall landings from the Barents Sea stock in the respective years. Provisional figures for 2017 are around 3500 tonnes suggesting a significant increase in fishing activity of Greenland vessels in 2017. Landings of the Lithuanian vessel, Plutonas, as recorded on the vessel's log book were 366, 686 and 766 tonnes in 2014, 2015 and 2016 respectively. In 2014 the majority of the landings were from the NEAFC zone, whereas in 2015 and 2016 the majority of the landings were from the Svalbard FPZ. In 2017, prior to being sold, the Plutonas landed 383 tonnes of shrimps from the Svalbard FPZ. (Note that official statistics for landings of shrimp by the Lithuanian vessel will be slightly different as the vessel log book figures are skipper's estimates of landings whereas the official statistics are landing declarations after weighing the catch at the time of delivery to the processing factory. Under EU regulations a 10% tolerance between log book declarations and landings declarations is permitted.) Plutonas is now fishing under Russian flag and is no longer included in the certificate. The owner, JSC Seivalas, is planning to buy another vessel for replacement of Plutonas.

3.3.3.3 Fishing practices and gear used

The Barents Sea shrimp fishery occurs primarily from 250 – 400 m depth, although recently some vessels have been fishing at depths of up to 800m in more northerly areas up to 82 degrees North. According to fishermen, shrimp can be found almost everywhere, though not always in the same volumes. Fishing takes place throughout the year, but in some areas it will be restricted by ice conditions, with the main fishing season being March to October. Some vessels with higher ice class are able to operate all year round if ice conditions allow.

The majority of vessels operate on the soft sea bed, allowing no lasting damage to the sea bottom. Some vessels operate in the areas with a harder sea-bottom and use light-weight rock–hopper gear. In both cases, trawl doors have contact with the sea bottom and result in a direct impact on habitat structure. Some vessels have been experimenting with pelagic doors, which are kept off the bottom. It is expected that this practice would be used more

frequently in the future to reduce the environmental impact on the sea bottom. There are also several on-going projects in Norway which are aimed at developing more effective and environmentally-friendly trawl gear for shrimp fisheries which are looking at improving the effectiveness of sorting grids in existing trawls and reducing the weight of the gear in order to limit impact and reduce fuel use (Modulf Overvik, Norwegian Directorate of Fisheries, pers. comm.).

Currently the shrimp fishing fleet comprises primarily of large vessels with on average 6000 HP in comparison with the 1980s when the average vessel was around 1000 HP (NAFO/ICES, 2017). Traditionally vessels used single trawls only, but since 1996, vessels have increasingly used both double and triple trawls, and in 2010 approximately 90% of the largest fleet of vessels from Norway were using multiple trawls.

Shrimp is caught by small-mesh trawl gear with a minimum stretched mesh size of 35 mm. The mesh size used by all UoC vessels in the cod end is 44 mm although a smaller mesh size is allowed in the Svalbard Area (Table 10). All trawls are equipped with obligatory sorting grids (Figures 6 & 7), which stream by-catch of fish out of the shrimp trawl, allowing maximum reduction of by-catch of juvenile fish. The spacing between the grid bars on the sorting grid is determined by regulation in both the Svalbard FPZ and the NEAFC Regulatory area (Table 10). Under Faroe Islands legislation, the vessels are licensed only for the capture of shrimps, and as the vessels have no quota for other species such as cod, the use of an additional net (sack) to catch large fish is not permitted. Similarly the Greenland vessels and the Lithuanian vessel do not retain any other bycatch species.

The net is an otter (twin-rig) trawl net (Figure 8), which is held open by trawl doors. In the middle between the nets a clump is used to keep the net near the bottom. The weight of the doors is between 4 and 7 tonnes and the weight of the clump is between 5 and 10 tonnes. The ground rope is prevented from making contact with the sea bottom by rubber discs which vary in size between national fleets from 0.5 to 0.8m in diameter. Most of the fishing vessels use double trawling, although one Faroe Islands vessel, Kappin (formerly Sermilik II) uses only a single trawl. The Lithuanian vessel, Plutonas, used only a single trawl, which is one of the reasons why the vessel has now been sold and is no longer within the certificate. The length of towing is around 4-6 hours, with approximately 7-8 tonnes of shrimp being taken in 1 day. Longer towing is not recommended due to quality considerations. Vessels will undertake fishing trips of up to 4-5 weeks.

Table 10. Technical measures/requirements in the Svalbard FPZ and NEAFC regulatory area.

	Minimum mesh size	Cod end	Sorting grid bar space
Svalbard FPZ	35 mm	42 mm	19 mm
NEAFC Regulatory area	40 mm	44 mm	22 mm

Figure 6. Sorting grid used by client vessels.

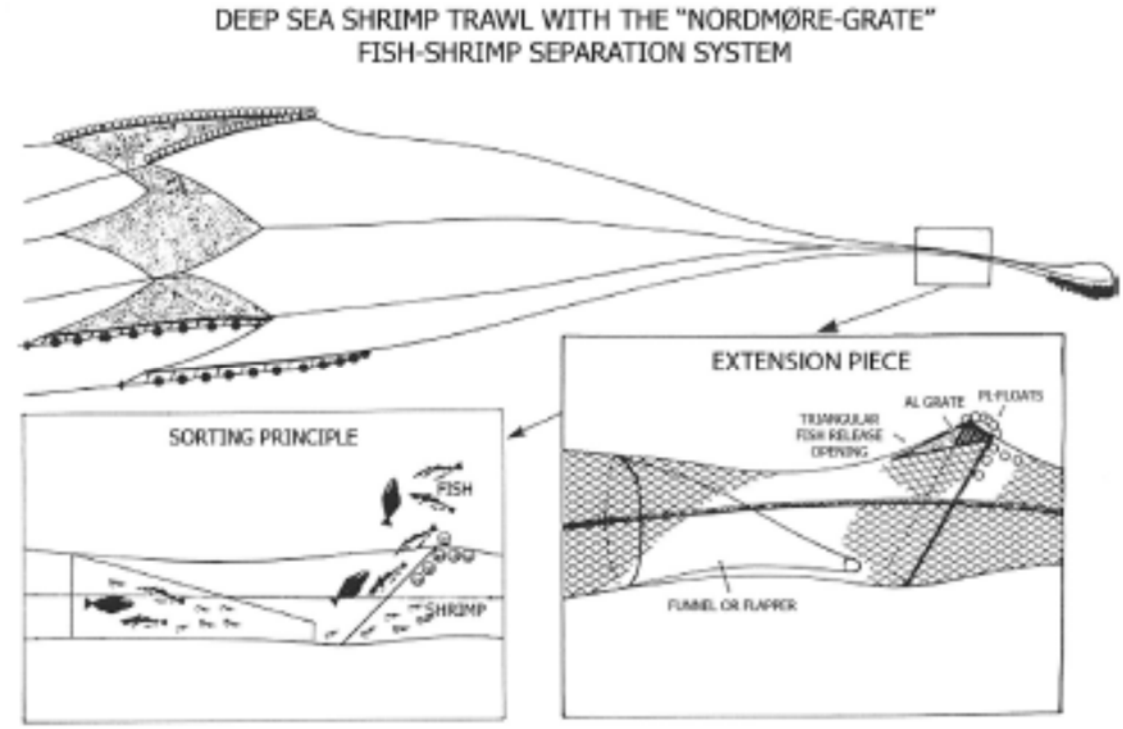


Figure 7. Sorting grid installed in a Northern shrimp (*Pandalus borealis*) to separate and release fish from shrimp catches. (Source: Gullestad *et al.* 2015)

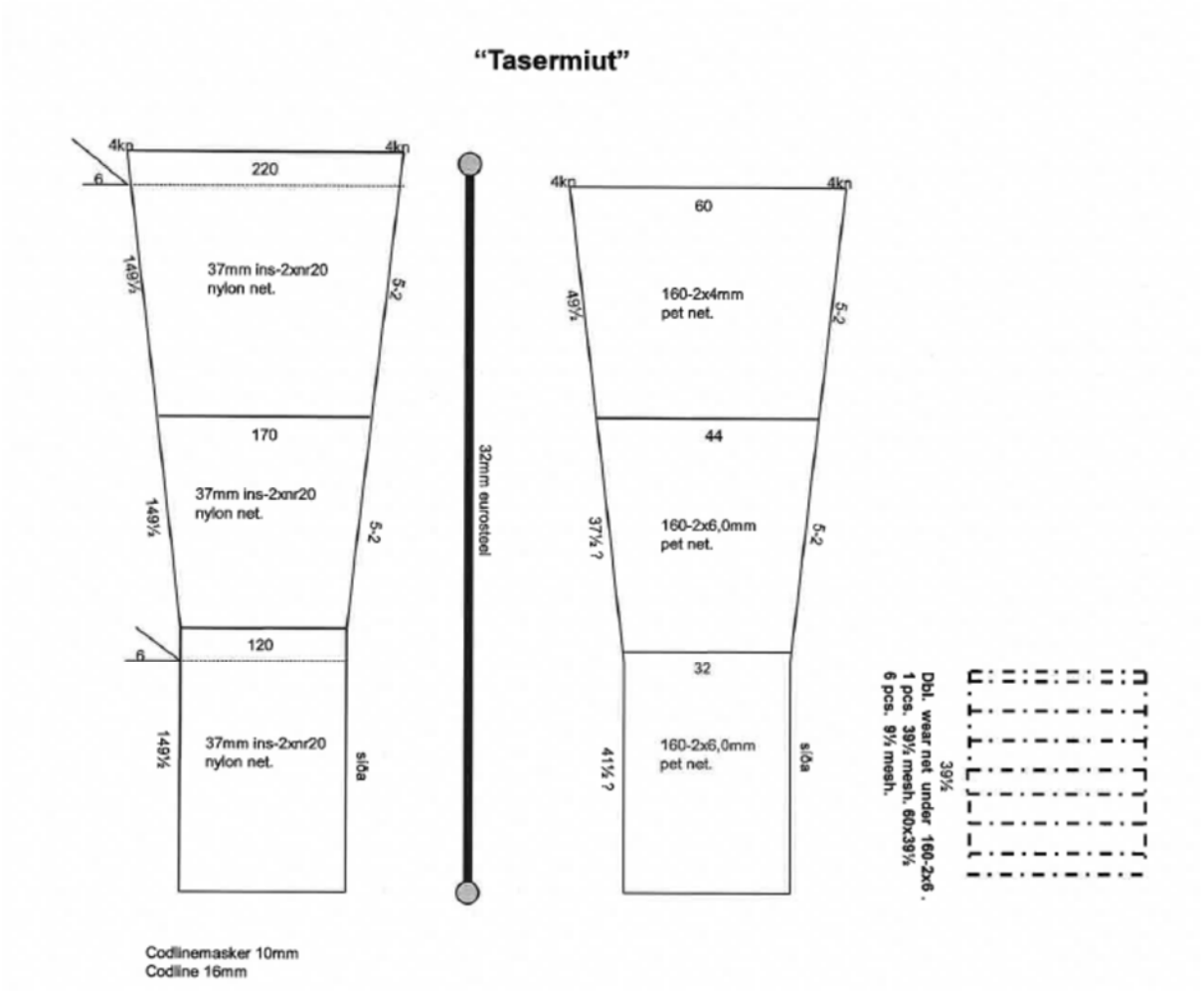


Figure 8. Trawl details of the trawl used by the Greenland vessel Tasermiut in the Barents Sea.

The minimum landing size of shrimp in Norwegian waters (i.e. in the Svalbard area fished by Client vessels) was previously 6cm total length (15mm carapace length, CL), but after an interim increase to 7cm, it has now been reduced back to 6.5 cm. The mesh size used in the fishery and the current practice of targeting larger shrimps means that the fishable stock is considered to be shrimps of 17mm CL. These two elements of the fishing practice ensure that there are minimal small shrimps caught, and so along with the landings obligation (prohibition of discards) in the Svalbard area, the minimum landing size has essentially become redundant, as all shrimp, including undersized shrimp is landed. There is however a derogation in the Svalbard FPZ (i.e. in Norwegian waters) under which 5% of the catch may be discarded if too small. There are some areas in the Barents Sea where a high concentration of small sized shrimp may occur. In these areas, there is a move-on rule in place if more than 10% of the catch are under the minimum landing size.

3.3.3.4 Management and Regulations

The Barents Sea shrimp fishery operates in the Norwegian and Russian EEZs, the Svalbard FPZ and international waters managed by NEAFC. Management regulations differ therefore across the various fishing zones. Management regulations that are relevant to the harvest strategy are described in section 3.4.4.2 and the areas of operation, jurisdiction and management systems are described fully in section 3.6.

3.4 Principle One: Target Species Background

3.4.1 Fishery Resources

3.4.1.1 Taxonomic and geographic range

The cold water prawn *Pandalus borealis* (Krøyer, 1838), also known as the pink or northern shrimp, is a caridean shrimp of the family Pandalidae. It is distributed across the North Atlantic around the Barents Sea, Svalbard, Iceland and Greenland and south to the North Sea in the Northeast Atlantic and Massachusetts in the Northwest Atlantic, and across the North Pacific from the Bering Sea south to Japan and Oregon (Holthuis, 1980). In all these areas there are important commercial fisheries for *Pandalus borealis*.

3.4.1.2 Stock structure

Migration of egg-carrying females into shallower waters in connection with egg-hatching has been observed (Horsted, 1978) and juveniles may migrate from shallower to deeper water (Smidt, 1981). In addition the larvae of *P. borealis* may be transported as far as 300km during the pelagic phase as revealed by particle tracking models (Pedersen *et al*. 2003) suggesting some connectivity between populations within the main fishing areas. Martinez *et al.* (2006) studied the genetic structure of *Pandalus borealis* in the Northeast Atlantic analysing variation in the genomic DNA by random amplified polymorphic DNA (RAPD) markers. The study used analysis of molecular variance (AMOVA) and principal component analysis on 34 genetic markers obtained by RAPD fingerprint analysis from shrimps captured in the Barents Sea, Svalbard, Jan Mayen and in two Norwegian fjords. There was no significant genetic variation among shrimp samples from the Barents Sea and Svalbard, although there may be some sub-population structure in environmentally extreme areas due to selection at the larvae and juvenile stages exerted by migration distance and water temperature. Martinez *et al*. concluded that the populations of the Barents Sea and Svalbard can be considered to be a single population, confirming the conclusions of previous genetic analyses of shrimp samples from the region using allozyme studies of Kartavtsev *et al*. (1991) and Drengstig *et al*. (2000), and in accordance with the model of larvae dispersion and mother populations postulated by Pedersen *et al*. (2003). To date there have been no studies of the genetic structure of *P. borealis* populations in the Northeast Atlantic using the more powerful method of analysing DNA microsatellites that has been used to investigate genetic structure of populations of *P. borealis* in the Northwest Atlantic (Jorde *et al*., 2014).

3.4.1.3 Biology and life history

The North East Arctic cold water prawn, *Pandalus borealis* is distributed throughout the Barents Sea and in the Svalbard Fishery Protection Zone (ICES Sub-areas I and II) primarily in areas with soft, muddy sediments. *P. borealis* is found primarily on the continental shelves in the North Atlantic, usually at depths between 50 and 500 m (Shumway et al., 1985). The highest shrimp densities observed on the joint Norwegian-Russian ecosystem survey in the Barents Sea are at temperatures between zero and 4 degrees C. Shrimp were not caught in areas where bottom temperatures were below zero and the upper temperature limit seems to lie between 6 and 8 degrees C (Hvingel and Thangstad, 2016b). *Pandalus borealis* is a protandric hermaphrodite (Bergstrøm, 2000). Individuals start out as males,

mature as males and mate for two years but, after about 3 to 4 years they change sex and complete their lives as females (NAFO/ICES, 2010). Shrimp spawn in autumn, and females carry their eggs until spring when the larvae hatch. The fishery takes place throughout the year, although ice conditions may restrict the fishery in the winter months. The lowest fishing effort is generally from October to March, so the main fishery occurs outside the period when females are carrying eggs (Figure 9), which potentially reduces the impact of exploitation on recruitment. The species has five pelagic larval stages which drift with ocean currents and within a period of approximately 2 months, the shrimp larvae settle to the bottom (Aschan and Ingvalsen, 2009), although particle tracking models reveal that the larvae of *P. borealis* may be transported as far as 300km during the pelagic phase (Pedersen *et al*. 2003). Shrimp feed both on the ocean floor and in the water column. Their diet will therefore include both benthic and pelagic organisms. Recruitment of one year old shrimp appears to be dependent on spawning stock biomass, but it may also be affected by the timing and duration of the phytoplankton bloom (Aschan and Ingvalsen, 2009). Small and medium-sized shrimp (mostly males) predominate in southern and eastern areas in depths of 200 – 350 m while larger individuals (mostly females) occur in northern and western regions in depths of 350 -500 m (Aschan, 2000). Recruitment to the fishery as 3-4 year olds, when the shrimps are greater than 15 mm carapace length (6 cm total length), is influenced by temperature, competition with other species and predation. Numerous fish and marine mammal species are predators of *P. borealis* (Parsons, 2005) and predation mortality is thought to be an important factor in shrimp stock dynamics (Sten Munch-Petersen, DTU Aqua, pers. comm.). Cod in particular can consume large amounts of shrimp, and the cod stock in the Barents Sea has increased considerably in the last ten years, but as yet it has not been possible to establish a relationship between the density of cod and the stock dynamics of *P. borealis* in the Barents Sea (NAFO/ICES, 2016).

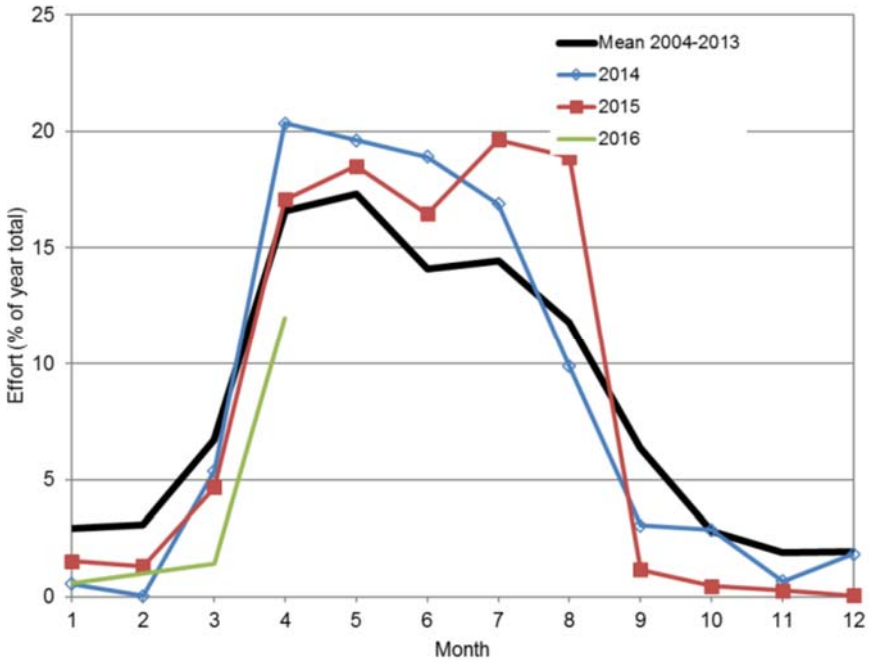


Figure 9. Shrimp in the Barents Sea: seasonal distribution of Norwegian fishing effort (hours trawled in a month as a percentage of total effort of the year) from 2014-2016 and mean of 2004-2013. (Source: Hvingel and Thangstad 2016a)

Pandalus borealis is not a key trophic level species in the Barents Sea ecosystem, as it does not meet all the criteria set out in paragraphs SA2.2.8-SA2.2.10 of the MSC Fisheries Certification Requirements v2.0 (MSC, 2014). In particular, *P. borealis* do not form dense schools. *Pandalus borealis* are prey for cod, saithe and other predators. Although they are widely distributed within the Barents Sea and Northeast Atlantic ecosystem, catches are low on an ecosystem scale and *Pandalus borealis* is unlikely to play an important role in energy transfer in the ecosystem as shrimp predators will consume other prey species.

3.4.2 Harvest Strategy

3.4.2.1 General harvest strategy

The fishery for *Pandalus borealis* takes place within the Norwegian and Russian exclusive economic zones (EEZs), in the Svalbard Fishery Protection Zone (FPZ) which is under Norwegian jurisdiction and within an area of international waters known as the "Loophole". The harvest strategy is underpinned therefore by the regulations pertaining to the four separate areas. Faroe Islands vessels are not permitted to fish in the Norwegian EEZ and so are restricted to fishing within the Svalbard FPZ, in the international waters of the 'Loop Hole', and in the Russian EEZ. Greenland vessels are not permitted to fish in the Loop Hole, so are restricted to fishing in the Svalbard FPZ and the Russian EEZ. Lithuanian vessels are restricted to fishing in the Svalbard FPZ and the Loop Hole. In the Svalbard FPZ there is a limit for each country on the number of vessels permitted and an overall limit on effective fishing days set by the Norwegian authorities. There is a limit of 11 vessels in the Faroe Islands with an overall limit of 922 effective fishing days. A maximum of 5 Greenland vessels are permitted to fish in the Svalbard FPZ with a limit of 450 fishing days. Lithuania has a limit of 6 vessels with an overall limit of 647 fishing days of which 228 days have been allocated to the Client JSC Seivalas. These numbers have been agreed in Bilateral Agreements and are incorporated in Norwegian regulations (J-190-2005: Forskrift om fiske etter reker med fartøy fra Grønland i fiskevernsonen ved Svalbard). Fishing by Faroe Islands and Lithuanian vessels in the international waters of the Loophole is under the management of the North East Atlantic Fisheries Commission (NEAFC). Denmark is a contracting party to NEAFC, which allows Faroe Islands vessels to fish in the Loop Hole. Faroe Islands and Lithuania restrict the number of licences to fish in this area, but there is no overall quota and no limits on effective fishing days for Faroe Islands or Lithuanian vessels, and there is potential for new licences to be taken up in the future by other vessels wishing to fish in this area. However Faroe Islands vessels are currently limited to 1250 tonnes in the Loop Hole. Under a bilateral agreement, vessels from Faroe Islands have recently been allowed access to fish in Russian waters with an annual overall quota of 5000 tonnes. Greenlandic vessels have not recently been fishing in Russian waters, although shrimp quotas have been allocated to Qaqqatsiaq and Natarnaq (250 tonnes) in the Russian EEZ. Lithuanian vessels are not permitted to fish in the Russian EEZ.

Within the Svalbard FPZ area the objectives for the protection of fish stocks are formulated within the Fishery Protection Zone Act and fisheries are administered under the Norwegian fisheries management system through the Norwegian Marine Resources Act, which states that:

"The purpose of this Act is to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them and to promote employment and settlement in coastal communities".

The NEAFC convention states:

"The objective of this Convention is to ensure the long-term conservation and optimum utilisation of the fishery resources in the Convention Area, providing sustainable economic, environmental and social benefits (Article 2.)

The Russian Federation Fisheries Act defines the concept of 'protection and rational use' of aquatic biological resources as the main objective of Russian fisheries management.

The Faroe Islands Act on Management of Marine Resources (2017) states that:
A long-term strategy for the management and utilization of marine resources is to be designed and implemented for each stock in order to maintain the industry and the fish stocks at sustainable levels. The strategy should take into account the recommendations of experts in the field.

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".

Lithuania is a Member State of the European Union and therefore the overarching legislation governing Lithuania's fishing activities is the EU's Common Fisheries Policy (CFP) which was revised under EU Regulation No. 1380/2013 and came into effect on 1 January 2014. One of the key objectives of the CFP is that:

"The CFP shall apply the precautionary approach to fisheries management, and shall aim to ensure that exploitation of living marine biological resources restores and maintains populations of harvested species above levels which can produce the maximum sustainable yield."

Implementation of the CFP at a national level is carried out through the individual Member States.

The Lithuania Law on Fisheries (2000, revised 2016) regulates fishing, aquaculture, processing and marketing of fish. The objective of the Law is "to ensure sustainable fishing, protection of fish resources and their restocking, fishing control, with account of the ecological conditions, economy of fisheries and the interests of the fishermen, fish producers, processors and consumers. There is also a Fisheries Management Plan for 2014-2020.

3.4.2.2 Elements of the harvest strategy

Management regulations differ across the various fishing zones – the Norwegian and Russian EEZs, the Svalbard FPZ and the international zone managed by NEAFC. In the Russian EEZ, vessels from other nations must have a Russian observer on board at all times. The fishery is regulated primarily through effort control and technical measures. There is no TAC for the

Barents Sea stock as a whole, but there is a TAC in the Russian zone allocated by country. Faroe Islands vessels require a separate licence to fish in each area issued by the Ministry of Fisheries and Fisheries Inspection (FVE). These licences are valid for one year only, so the Faroe Islands authorities can react rapidly to any change in stock status. Any new vessel wishing to enter the shrimp fishery must first obtain a general harvesting licence which is valid for 10 years, and then request an annual licence to fish for shrimps. Greenland vessels are issued with separate licences for fishing in the Svalbard FPZ and Russian waters by the Greenlandic authorities, and require an additional licence from the Russian authorities to fish in Russian waters. Lithuanian vessels are issued with a single licence which states the areas in which the vessel is permitted to fish for shrimp. In the Svalbard and NEAFC areas and in the Russian EEZ, vessels must have a Vessel Monitoring System (VMS) on board and operate an electronic logbook system (ERS). Logbook entries are sent automatically to the relevant Ministries within each country and for Lithuanian vessels then forwarded to the EU. The Greenland Fishery License Control Authority (GFLK) operates an integrated VMS, logbook and vessel reporting system whereby vessels are required to have a VMS system onboard and to submit daily catch reports as well as entry/exit hails for certain areas.

In the Svalbard area vessels must notify Norwegian authorities prior to commencement of fishing, and weekly catch reports in the form of a Port State Control Form (PSC) must be made to both Norwegian and the relevant national authorities. In Norwegian waters there is a minimum landing size of 6.5cm total length. (Previously the minimum landing size was 6cm, equivalent to 15mm carapace length, and this was raised initially to 7cm, before being reduced back down to 6.5 cm). Additional management measures include a minimum mesh size of 35mm (although most vessels voluntarily use a larger mesh size to reduce the catch of undersized shrimp), and the mandatory use of a sorting grid with a maximum bar spacing of 19mm in the fishery.

Within Norwegian waters including the Svalbard FPZ there are area closures which may be permanent or temporary due to high bycatches of fish or small shrimps or due to the presence of corals or sponges. Vessels must cease fishing in areas where the bycatch of cod and haddock is over 10% or when more than 10% of the catch of shrimps are undersized (<15mm CL) or when the numbers of undersized cod, haddock or redfish reach prescribed numbers per 10kg of shrimps caught. In addition, there are 'move-on rules' in place if the vessel encounters 30 kg of corals or 400 kg of sponges in a single haul (previously 60kg and 800kg respectively). When a vessel encounters the given quantities, the vessel shall cease fishing activities and relocate to a position at least two nautical miles from the position. There is a requirement for vessels to record the weight in kilograms of any corals or sponges caught during shrimp fishing operations, although there does not appear to be strict compliance with this regulation. There were a number of temporary area closures implemented in 2015 (regulations J-220-2015 and J-225-2015), three areas were closed in 2016, and there have been two closures in 2017, one in the Svalbard FPZ and one in the Hopen area. A detailed description and maps of temporary closed areas are published on the Directorate of Fisheries website:

http://www.fiskeridir.no/Yrkesfiske/Regelverk-og-reguleringer/Stenging-og-aapning

In the Svalbard FPZ, the regulations have established a distinction between existing fishing areas (where the water depth is less than 1000 m) and new fishing areas (where the water depth is more than 1000 meters). For new fishing areas all vessels must hold a special permit from the Directorate of Fisheries in order to fish in new fishing areas. A special

permit may only be issued if the vessel has submitted the following to the Directorate for approval:

- a detailed protocol for the exploratory fishery, including a harvesting plan describing fishing gear, target species, bycatches, dates and areas,
- a mitigation plan for avoiding damage to sensitive marine ecosystems,
- a plan for log-keeping and reporting, and
- a plan for collection of data on vulnerable benthic habitats.

In the international waters of the 'Loophole' managed by NEAFC, there is no effective limit on the overall level of fishing effort or an overall quota although Faroe Islands and Lithuania currently limit the number of licences issued, and landings by Faroe Islands vessels are currently limited to 1250 tonnes. NEAFC regulations require a minimum mesh size of 40mm, a cod end of 44mm and an obligatory sorting grid bar space of 22mm. In this area fishing by Faroe Islands and Lithuanian vessels must be undertaken as set out in the NEAFC Scheme of Control and Enforcement which includes the completion of catch on entry (COE) and catch on exit (COX) forms when entering or exiting the area, a Port State Control Form (PSC) when landing shrimps in another country, and an EU catch certificate if the shrimps are destined for the EU market. There are move-on rules if vessels catch large numbers of small cod, haddock and redfish, although the thresholds are slightly different from those in the Svalbard FPZ. The move-on rules if the vessel encounters corals and sponges have been harmonised with Norwegian waters with thresholds set at 30 kg of corals and 400 kg of sponges.

Similar to Norwegian regulations, NEAFC has established a distinction between existing and new fishery areas. All bottom fishing activities in new bottom fishing areas or with bottom gear not previously used in the area concerned shall be considered as exploratory fisheries and shall be conducted in accordance with an Exploratory Bottom Fisheries Protocol. These strategies imply that in existing fishing areas, where fishing has taken place for decades, the perceived impact on the ecosystem is considered tolerable and thus the fishing activity can continue, but with stricter monitoring and reporting requirements. In new fishing areas, additional restrictions apply to protect vulnerable marine ecosystems (VME). There has been a recent change in the bottom areas which may be fished with an area on the eastern side of the Loop Hole closed to bottom fishing since 2015. In addition there is a potential problem with gear conflict in the Loophole between shrimp trawling and the Russian snow crab fleet. The Loophole is in International waters, but as the area is part of the Russian continental shelf, priority is given to the snow crab fishery as it uses static gear (traps). As a result, there is further restriction on shrimp trawling within the Loophole.

In Russian waters bycatch levels are regulated through a bi-lateral agreement between Faroe Islands and Russia. Bycatch of juvenile cod, haddock, redfish and Greenland halibut in the shrimp fishery in Russian waters should not exceed 800, 2000, 300 and 300 individuals respectively per one tonne of shrimp.

In addition to the formal management regulations for the fishery, key elements of the harvest strategy are the monitoring and assessment of the status of the stocks. As described above, fishing activity is monitored rigorously through recording of fishing position by VMS, although at very high latitudes there may be no internet connection and data must be sent by other means, and through electronic (ERS) log book data. The Barents Sea Pandalus stock is also monitored through an annual fishery-independent stock survey (see

section 3.4.3). There is also a rigorous control and enforcement regime. Inspections at sea are carried out through a surveillance programme and all landings are monitored. Client vessels are subject to inspections by Norwegian Coastguard inspectors in the Svalbard FPZ, by EU control vessels, Norwegian and Russian vessels or any other NEAFC contracting party's inspectors in the international waters. In practice inspections are usually undertaken by Norwegian and Russian vessels. The Faroe Islands, Greenlandic and Lithuanian clients report regular boardings by inspection vessels in 2016 and 2017. Reports from all surveys and inspections in Svalbard by the Norwegian Directorate of Fisheries can be found on the website: http://www.fiskeridir.no/fiske-og-fangst/stenging-og-aapning/overvaakning-av-fiskefelt/reketraal

An important element of the harvest strategy for the *Pandalus borealis* fishery is the assessment of stock status against pre-determined reference points. A full description of the reference points and their underlying rationale is given below in section 3.4.4.

3.4.2.3 Review of harvest strategy

There is continuous review of elements of the harvest strategy within Norwegian waters including the Svalbard FPZ by the Norwegian Ministry of Trade, Industry and Fisheries and the Directorate of Fisheries, and through the biannual Advisory meetings for fisheries regulation between the fisheries authorities and stakeholders, including NGOs. The meetings cover policy and regulatory issues, and also include discussions of the annual scientific recommendations by the Institute for Marine Research (IMR). There are also occasional reviews of the management system for the Barents Sea *Pandalus* fishery by the National Audit Office, and through bilateral negotiations between Norway and Russia. Elements of the harvest strategy in Norwegian waters that have been revised recently include changes in the threshold levels for move-on rules, changes in recording requirements of catch and effort data, and changes in the minimum landing size. However there is no overall management authority for the *P. borealis* fishery in the Barents Sea as a whole. Indeed, shrimp is not currently included within the list of species in Annex 1 (Regulated Resources) of the NEAFC Scheme of Control and Enforcement thereby ensuring that shrimps are not currently subject to management recommendations under the NEAFC Convention.

The EU's Common Fisheries Policy has been regularly revised with the latest revision coming into force in 2014. There is also regular review of the overall national fishing strategies including shrimp fisheries in Faroe Islands, Greenland and Lithuania. In the Faroe Islands, The Act on the Management of Marine Resources, which came into effect in December 2017 represents a major reform of national fisheries management in the Faroe Islands and replaces the Faroe Islands Commercial Fisheries Act 1994 with its subsequent amendments. The new Act has three main pillars of sustainable fishing and conservation of fish stocks, rights and access to fishing licences and industry requirements and value-adding and includes the requirement that all fishing licences are public property, and that landings must be made in the Faroe Islands. The new legislation provides for an annual review. In Greenland, the Fisheries Act is regularly reviewed and updated and the Lithuanian Law on Fisheries was revised in 2016.

3.4.3 Data / Information

There are two main sources of data that contribute to the stock assessment process - data on fishing activity and research survey data.

Fishing activity. Faroe Islands, Greenland and Lithuanian vessels must complete log books (electronic or paper) which record catch and fishing effort data for all species landed. In all areas, Faroe Islands and Lithuanian vessels have a Vessel Monitoring System (VMS) on board and must complete electronic log books (ERS), but paper log books are also required in some of the more northerly areas of the fishery where there are no internet connections. Logbook entries are sent automatically to the relevant Ministries within each country and for Lithuanian vessels then forwarded to the EU. There is currently no requirement for Greenland vessels to complete electronic log books, but they are required to provide detailed haul-by-haul data on paper records, producing daily and weekly catch reports. There is a 'remarks' box on the Faroe Islands electronic log book where interactions with corals and sponges can be recorded. Whilst vessel owners have requested skippers to record interactions with corals and sponges, it is not clear whether this facility is used consistently, as zero interactions are not usually recorded. There is currently no scope on the log book for Greenland vessels to record interactions with VMEs. When still fishing. the Lithuanian vessel recorded any interactions with VMEs in the 'Remarks' column on their log book as requested by the owner, but there is no formal requirement to record such interactions.

Logbook data from fishing vessels are used to monitor effort spatially and identify areas where shrimp concentrations occur. Logbook data from Norwegian vessels are used in a multiplicative model to produce a standardized annual catch rate index. This index, which is reflective of changes in fishable stock abundance/biomass (i.e. older males and females) over time, is included in the assessment model (NAFO/ICES, 2017). Log book data from Faroe Islands, Greenlandic and Lithuanian vessels are not included in the stock assessment model which currently uses only Norwegian log book data, and data from the annual joint Norwegian/Russian stock survey.

All vessels are required to make landings declarations and sales notes will also be available. The respective Ministries undertake cross-checks of VMS records, log book records, landings declarations and sales notes (PSC1 forms in the NEAFC area) and these cross-checks confirm that there has been no systematic misreporting of fishing activity and landings since the original certification.

There is no formal observer programme in the Faroe Islands, Greenland or Lithuania fishery. However an observer programme was initiated in 2015 for the Estonian fleet as part of the EU Data Collection Framework (DCF). As all vessels will fish in approximately the same areas as the Estonian vessels, the Estonian observer programme provides a representative record of catches across all the countries. To date, information from the Estonian observer programme has not been included in the stock assessment model.

Research survey data. Shrimp surveys by Russia and Norway have been conducted in their respective EEZs since 1982. These provide indices of stock biomass, abundance, recruitment and stock demographics. In 2004, these national surveys were replaced by a joint Norwegian-Russian "Ecosystem survey" which monitors shrimp along with other ecosystem variables (NAFO/ICES, 2016). The Joint Norway/Russia ecosystem survey involves 4 research vessels on a fixed grid around the Barents Sea and Svalbard FPZ and is conducted every year from August for two months. For more details of the survey methodology, see

Hvingel and Thangstad (2016b). The Norwegian shrimp surveys from 1982 to 2004 and the Joint Russian Norwegian Ecosystem surveys from 2004 to present are used as input for the assessment model.

Specific studies on shrimp fecundity have been conducted (e.g. Thomassen, 1977; Teigsmark, 1983), and the research surveys provide a recruitment index for shrimp from 13 to 16 mm CL which are below commercial size and expected to enter the fishery one to two years later. Temperature is also important for stock dynamics, and the assessment considers near-bottom temperatures in the Barents Sea and relates the findings to changes in shrimp distribution.

3.4.4 Status of stocks

Pandalus borealis is distributed throughout the Barents Sea and around Svalbard (Figure 10) and is considered to be a single stock (Martinez *et al*. 2006). The stock in the Barents Sea and Svalbard area (ICES Sub-areas I and II) is assessed annually along with other Northwest Atlantic Fisheries Organization (NAFO) and International Council for the Exploration of the Sea (ICES) stocks by the joint NAFO/ICES *Pandalus* Assessment Group (NIPAG).

3.4.4.1 Stock assessment methods

The stock assessment model used by NIPAG is a stochastic version of a surplus production model. The model is formulated in a state-space framework and Bayesian methods are used to derive posterior likelihood distributions of the parameters (Hvingel and Kingsley, 2006). The model synthesises information from input priors including the initial population biomass in 1969, the carrying capacity (K) and Maximum Sustainable Yield (MSY), a series of shrimp catches and four independent series of shrimp biomasses (Hvingel, 2016). Further details on the methodology can be found in the most recent stock assessment report (NAFO/ICES, 2017) and Hvingel (2016).

Total reported catch from all vessels in the fishery is used as yield data. The four series of shrimp biomasses are a series of commercial catch rates and three trawl survey biomass indices. Log book data from Norwegian vessels are used in a multiplicative model to calculate standardised annual catch rate data (Hvingel and Thangstad, 2016a). The GLM model includes vessel, season, area and gear type (single, double or triple trawl) as variables and is considered to be a good index of the biomass of shrimps over 17mm CL, i.e. of the older male and female stock combined. From 2005 to 2010, the CPUE index fluctuated above the long term average, but then declined significantly from 2010-2012. However in the last three years, CPUE has increased back towards the long term mean (Figure 11). Norwegian and Russian shrimp trawl surveys were conducted from 1982-2004 and 1984-2005 respectively and provided indices of stock biomass, recruitment and size composition. In 2004 these two trawl surveys were superseded by the joint Norwegian-Russian ecosystem survey which surveys shrimp and monitors other ecosystem variables (Hvingel and Thangstad, 2016b). Biomass indices from all three trawl surveys used in the model fluctuated without any obvious trend (Figure 12). Recruitment indices (estimated abundance of shrimp between 13 and 16mm CL which are expected to enter the fishery in the following 1-2 years) derived from Norwegian (Hvingel and Thangstad, 2016b) and Russian (Zakharov,

2014) surveys showed no major changes from 2004 to 2013 (Figure 13). No explicit information on recruitment indices is available since 2013 (NAFO/ICES, 2017).

Absolute biomass estimates have relatively high variances, and so the assessment model estimates biomass in relation to Bmsy and fishing mortality in relation to Fmsy, and considers two other reference points that ICES uses within its MSY framework for providing advice: Btrigger (50% of Bmsy), a biomass encountered with low probability if Fmsy is implemented and set by NIPAG at 50% of Bmsy corresponding approximately to the 10th percentile of the Bmsy estimate, and Blim (30% of Bmsy), the biomass below which recruitment is expected to be impaired. The assessment also considers Flim (170% of Fmsy), the fishing mortality that would drive the stock to Blim. There is an implicit harvest control rule that regulations would be changed if the stock dropped below the target or limit reference points. However there is no formal explicit harvest control rule for this fishery.

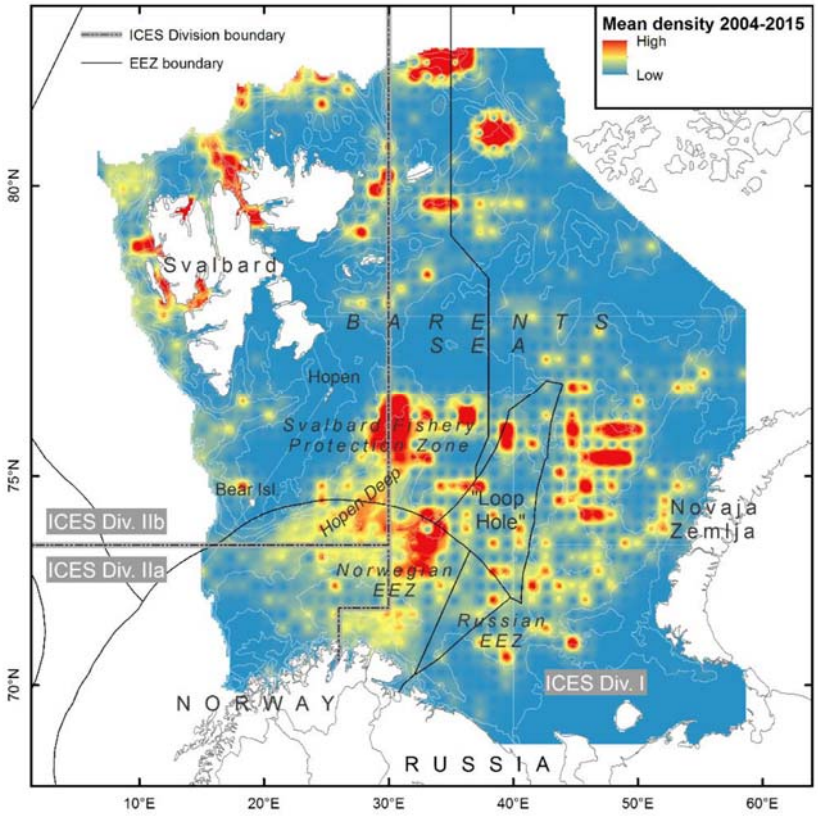


Figure 10: Shrimp in the Barents Sea: stock distribution, survey density index (kg/km2), based on survey data from 2004-2015. (Source: Hvingel and Thangstad, 2016a).

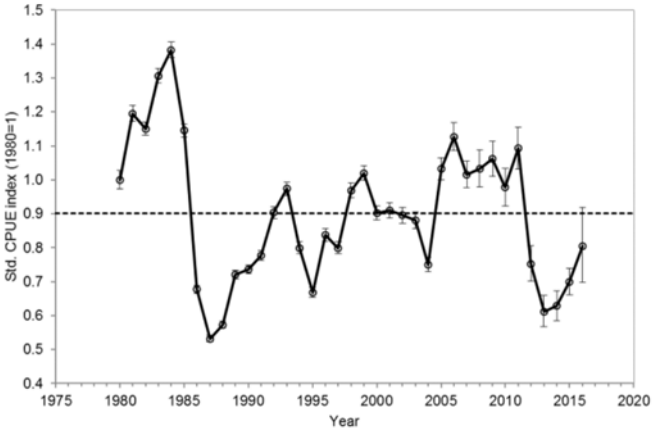


Figure 11. Shrimp in the Barents Sea: standardised CPUE based on Norwegian data. Error bars represent one standard error, dotted line is the mean of the series. (Source: Hvingel and Thangstad, 2016a).

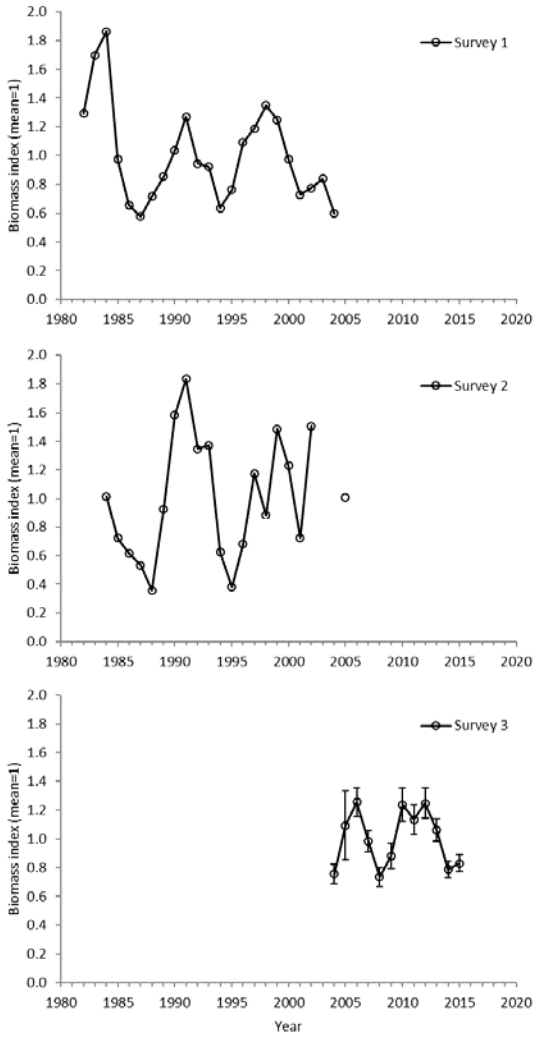


Figure 12. Shrimp in the Barents Sea: indices of total stock biomass from (1) the 1982-2004 Norwegian shrimp survey, (2) the 1984-2005 Russian survey and (3)

the joint Norwegian-Russian ecosystem survey. Error bars represent one standard error. (Source: Hvingel and Thangstad, 2016b)

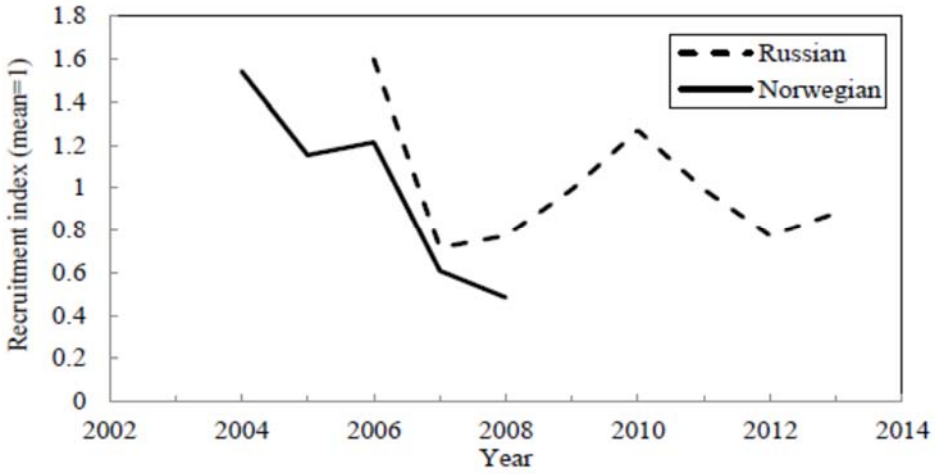


Figure 13. Shrimps in the Barents Sea. Recruitment indices. Estimated abundance of shrimps between 13 and 16 mm CL derived from Norwegian and Russian survey samples. (Source: NAFO / ICES, 2016)

3.4.4.2 Results of assessment

The model provides good simulations of the observed biomass data and the results are not sensitive to the setting of the priors for the initial stock biomass and carrying capacity. The model does not necessarily capture major short-term changes in recruitment. The most recent assessment in 2017 (NAFO/ICES, 2017) shows that there has been no change in stock status since the original assessment. The estimated biomass has been above Bmsy since the start of the fishery in the 1970s, and the fishing mortality rate has been well below Fmsy throughout the duration of the fishery (Figures 14 and 15). Assuming a catch of 28,000 tonnes in 2017, the assessment estimated that fishing mortality in 2017 would be 0.08 x Fmsy, and that biomass in 2018 is projected to be 1.68 x Bmsy. The assessment estimates the risk associated with exceeding the various reference points. In 2017, the risk of F being above Fmsy was 2.1%, the risk of biomass falling below Btrigger and Blim was 0.4% and 0.0% respectively, and the risk of F exceeding Flim was 0.9% (NAFO/ICES, 2017). Plots of annual relative biomass against annual relative fishing mortality estimated by the model confirm that throughout the history of the fishery, the stock has remained in a good state relative to limit reference points (Figure 16). The 2017 assessment also provides model predictions of risk associated with a range of catch levels up to 350,000 tonnes per annum. Assuming a catch of 28,000 tonnes for 2017, catch options up to 80,000 tonnes for 2018 have a low probability of exceeding Fmsy (<10%) and Flim (<5%), or of the biomass going below Btrigger (<1%) by the end of 2018, and all are likely to maintain the stock at its current high level (NAFO/ICES, 2017). Although the stock is in a good state and does not currently require re-building, the model estimates that it would take 4-15 years to rebuild the stock from Blim to Bmsy in the absence of fishing (NAFO/ICES, 2016).

In conclusion, the most recent stock assessment by NIPAG shows that there is no change in the status of the stock. More detail of the most recent values of the various stock indices can be found in the 2017 stock assessment report (NAFO/ICES, 2017).

The NIPAG report cautions however that shrimp are vulnerable to high levels of predation by fish species, particularly cod. The cod stock in the Barents Sea has increased considerably in the last ten years and therefore the model's predictions of stock size could be inaccurate if predation rates increased significantly due to increased predator abundance. To date, it has not been possible to establish the relationship between shrimp and cod densities, and so predation has not been explicitly incorporated in the assessment model.

The stock assessments described in the annual NIPAG reports are undertaken by Norwegian scientists (Hvingel, 2016), but undergo a peer review at the NIPAG by scientists working on *Pandalus borealis* across the Northwest and Northeast Atlantic. Following the review within NIPAG, the assessment is peer-reviewed within ICES by an ICES Review Group. The Review Group involves stock assessment scientists not involved with the *Pandalus borealis* assessments and, from time to time, scientists who are outside the ICES assessment process. The Group may query aspects of the assessment model, the current assessment and the presentation of the results. The Review Group will then recommend to ACOM, the Advisory Committee, that the assessment could be accepted as the basis for advice. All stocks managed by ICES undergo periodic "benchmarks". The aim of benchmarking is to reach a consensus agreement on an assessment methodology that is to be used in future assessments and the process is reviewed by independent experts and is open to stakeholders. ICES has recommended that a benchmark for the Barents Sea *Pandalus borealis* assessment should be carried out no later than 2019. An external peer review of the 2016 NIPAG assessment was undertaken by the University of Maine Review Group (see NAFO/ICES, 2016 for further details). The Review Group concluded that the assessment should be accepted but that transition towards a better modelling framework should be considered at the next ICES benchmark. The issues highlighted by the external peer review where the assessment methodology could be improved were not considered to be serious flaws in the methodology and the peer review recommended that they be considered at the next ICES benchmark. The peer review did not suggest that the overall evaluation of stock status would be significantly changed by making any agreed minor changes to the methodology.

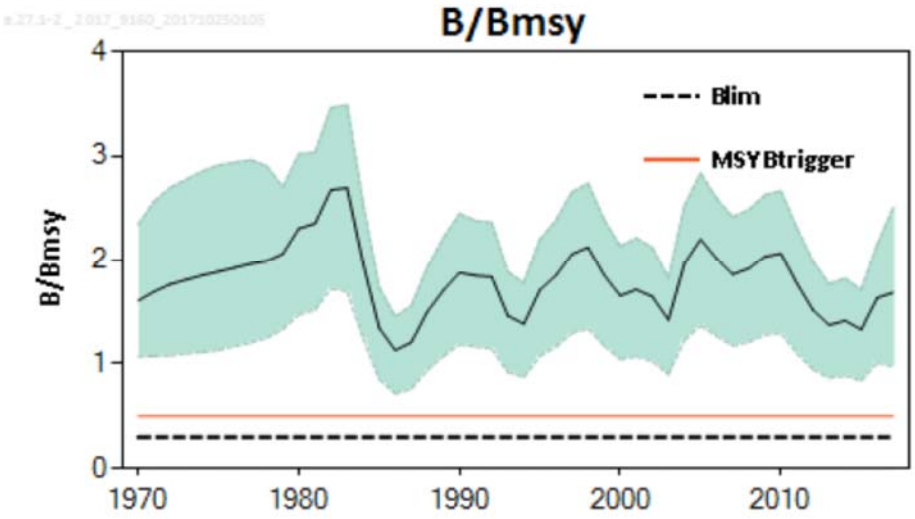


Figure 14. Northern shrimp in subareas 1 and 2. Summary of the stock assessment. Biomass relative to Bmsy with 90% probability intervals. (Source: ICES, 2017)

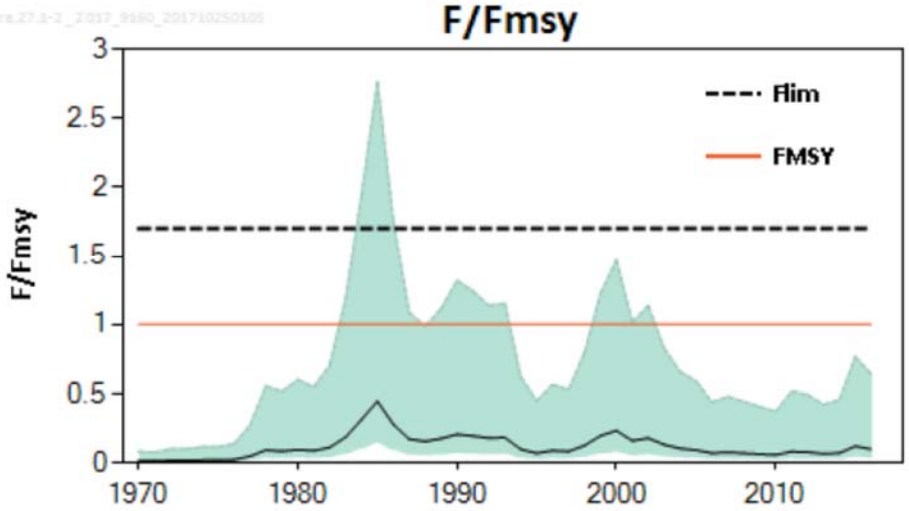


Figure 15. Northern shrimp in subareas 1 and 2. Summary of the stock assessment. Fishing mortality relative to Fmsy with 90% probability intervals. (Source: ICES, 2017).

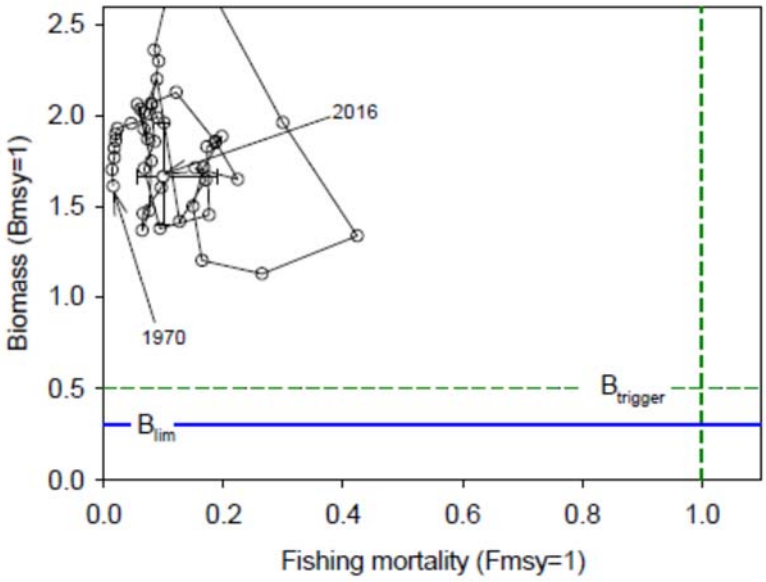


Figure 16. Estimated annual median biomass ratio (B/Bmsy) and fishing mortality ratio (F/Fmsy) from 1970 to 2016. The MSY reference points for stock biomass, Btrigger, and fishing mortality, Fmsy, are indicated by green dashed lines. The PA reference point, Blim, is indicated by the blue line. (Source: Hvingel, 2016)

3.4.4.3 Management advice based on assessment of status

The management advice for the Barents Sea and Svalbard stock based on the NIPAG assessment is formulated by the ICES Advisory Committee (ACOM) on behalf of the Council of ICES. The annual ICES Advice Book contains a general section (Book 1) which contains the conceptual framework for the assessments and advice including the maximum sustainable yield (MSY) concept and the setting of reference points under the precautionary approach (PA) to fisheries management.

http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/Introduction_to_advice_2016.pdf

In addition there are a series of books containing regional reports on the various marine eco-regions. Book 3 covers the Barents Sea and the Norwegian Sea including the Sub-areas I and II (Barents Sea) *Pandalus borealis* stock.

The ICES advice for the Barents Sea *Pandalus borealis* stock (ICES, 2017), based upon the stock assessment described within the latest NIPAG report (NAFO/ICES, 2017), is that annual catches of up to 70,000 tonnes would maintain stock biomass well above Bmsy and move stock exploitation in the direction of Fmsy. (Note that the NIPAG assessment in 2017 concluded that catches of up to 80,000 tonnes are likely to maintain the stock at its current high level (NAFO/ICES, 2017), but as the stock assessment produced a very similar output to that in 2016, ICES concluded that the advice given in 2016 – catches should not exceed 70,000 tonnes – should be maintained in 2017 (ICES, 2017)). Catches are again forecast to be much lower than 70,000 tonnes. The advice lists the various reference points that are used to assess the status of the stock (Table 11) and confirms that within the MSY approach, the stock is well above Btrigger and that F is well below Fmsy (Table 12), and that within the

Precautionary Approach there is a low risk in 2017 of the stock falling below Blim or of F exceeding Flim. Annual ICES advice for this stock over recent years is shown in Table 13.

Table 11. Northern shrimp, *Pandalus borealis*, in sub-areas 1 and 2 (Barents Sea). Reference points, values and their technical basis. (Source: ICES, 2017).

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	$0.5 \times B_{MSY}$ = $0.25 \times K$ *	Relative value. B_{MSY} is estimated directly from the assessment model and changes when the assessment is updated.	ICES (2013)
	F_{MSY}	$1 = r/2$ *	Relative value. F_{MSY} is estimated directly from the assessment model and changes when the assessment is updated.	ICES (2013)
Precautionary approach	B_{lim}	$0.3 \times B_{MSY}$	Relative value (equilibrium yield at this biomass is 50% of MSY).	ICES (2013)
	B_{pa}	Not defined	**	
	F_{lim}	1.7	Relative value (the F that drives the stock to B_{lim}).	ICES (2013)
	F_{pa}	Not defined	**	

Table 12. Northern shrimp, *Pandalus borealis*, in sub-areas 1 and 2 (Barents Sea). State of the stock and fishery relative to reference points. (Source: ICES, 2017)

	Fishing pressure				Stock size			
		2014	2015	2016		2015	2016	2017
Maximum Sustainable Yield	F_{MSY}	✓	✓	✓ Below	MSY $B_{Trigger}$	✓	✓	✓ Above trigger
Precautionary Approach	F_{pa}, F_{lim}	✓	✓	✓ Harvested sustainably	B_{pa}, B_{lim}	✓	✓	✓ Full reproductive capacity
Management plan	F_{MGT}	–	–	– Not applicable	B_{MGT}	–	–	– Not applicable

Table 13. Northern shrimp, *Pandalus borealis*, in sub-areas 1 and 2 (Barents Sea). History of ICES advice, the agreed TAC, and ICES estimates of landings (weights in thousand tonnes). (Source: ICES, 2017)

Year	ICES advice / Single-stock exploitation boundaries	Predicted catches corresp. to single-stock exploitation boundaries	Agreed TAC	ICES landings
2005	No increase compared to 2004	43600	-	42618
2006	No increase in catch above recent level	40000	-	29627
2007	Catch that will prevent exceeding F_{lim} in the long term	50000	-	29931
2008	Catch that will prevent exceeding F_{lim} in the long term	50000	-	28188
2009	Catch that will prevent exceeding F_{lim} in the long term	50000	-	27272
2010	Catch that will prevent exceeding F_{lim} in the long term	50000	-	25198
2011	Catch that will prevent exceeding F_{MSY} in the long term	60000	-	30226
2012	Catch that will prevent exceeding F_{MSY} in the long term	60000	-	24756
2013	Catch that will maintain stock at current high biomass	60000	-	19249
2014	No new advice, same as for 2013	60000	-	20964
2015	Move exploitation towards F_{MSY}	< 70000	-	34022
2016	Move exploitation towards F_{MSY}	< 70000	-	29609
2017	Move exploitation towards F_{MSY}	≤ 70000	-	
2018	MSY approach: move exploitation towards F_{MSY}	≤ 70000		

3.5 Principle Two: Ecosystem Background

3.5.1 Primary and secondary species

The use of Nordmøre sorting grids in the shrimp fishery (North of 62º North) is mandatory since 1992 in all fishing grounds under assessment, and since its implementation the UoA has limited interaction with other non-targeted species. Expected bycatch for the UoA would be mostly comprised by small individuals of cod, haddock, Greenland halibut, and redfish (mainly *Sebastes mentella*), in the 5–25 cm size range, which could pass through the sorting grid and be caught as bycatch. (Vessels from some nations which fish for shrimps in the NEAFC region have bycatch quotas for other fish species and are therefore permitted to use a large-meshed tunnel or sack attached to the shrimp trawl to catch large individuals of quota-managed fish species. Faroe Islands, Greenland and Lithuanian vessels do not have such quotas and are therefore not permitted to use a tunnel or sack attached to the net). According to the Norwegian IMR, interactions of the shrimp fishery with polar cod are also expected. Interactions with these bycatch species are regulated by move-on rules which apply to the different jurisdictions in the UoA. These move on rules establish that vessels shall move position if the number of juvenile individuals of certain species (specifically redfish, cod, Greenland halibut and haddock) exceeds a given number. Bycatch rates of non-target species are recorded in landing records but also estimated from at-sea inspections by a comprehensive enforcement programme by the Norwegian Coast Guard in the Svalbard FPZ and the Russian Federal Fisheries Agency in the Russian EEZ. At-sea inspections in NEAFC waters are taken by both agencies. Besides, there are joint research surveys by Norwegian IMR and PINRO.

According to Norwegian Regulation J-209-2011, paragraph 22, and only for the shrimp fishery in the Svalbard area, the landing obligation does not apply when the aggregation of species other than shrimp does not exceed 5% by weight of shrimp catch in the individual haul. Therefore, some discarding is allowed and interactions with these species in those waters (which would mostly be polar cod and beaked redfish, according to IMR research) do not appear in catch records.

While not referring to the UoA under assessment, the Norwegian Directorate of Fisheries reports that, for the past 3 years, and for the Norwegian shrimp fishery in the Barents Sea with the same fishing gear, there were no records of species other than shrimps in the catch composition. Figure 17 below shows the estimated bycatch of cod, haddock and redfish for the shrimp fishery in ICES areas I and II. The vertical red line highlights when the sorting grid became implemented.

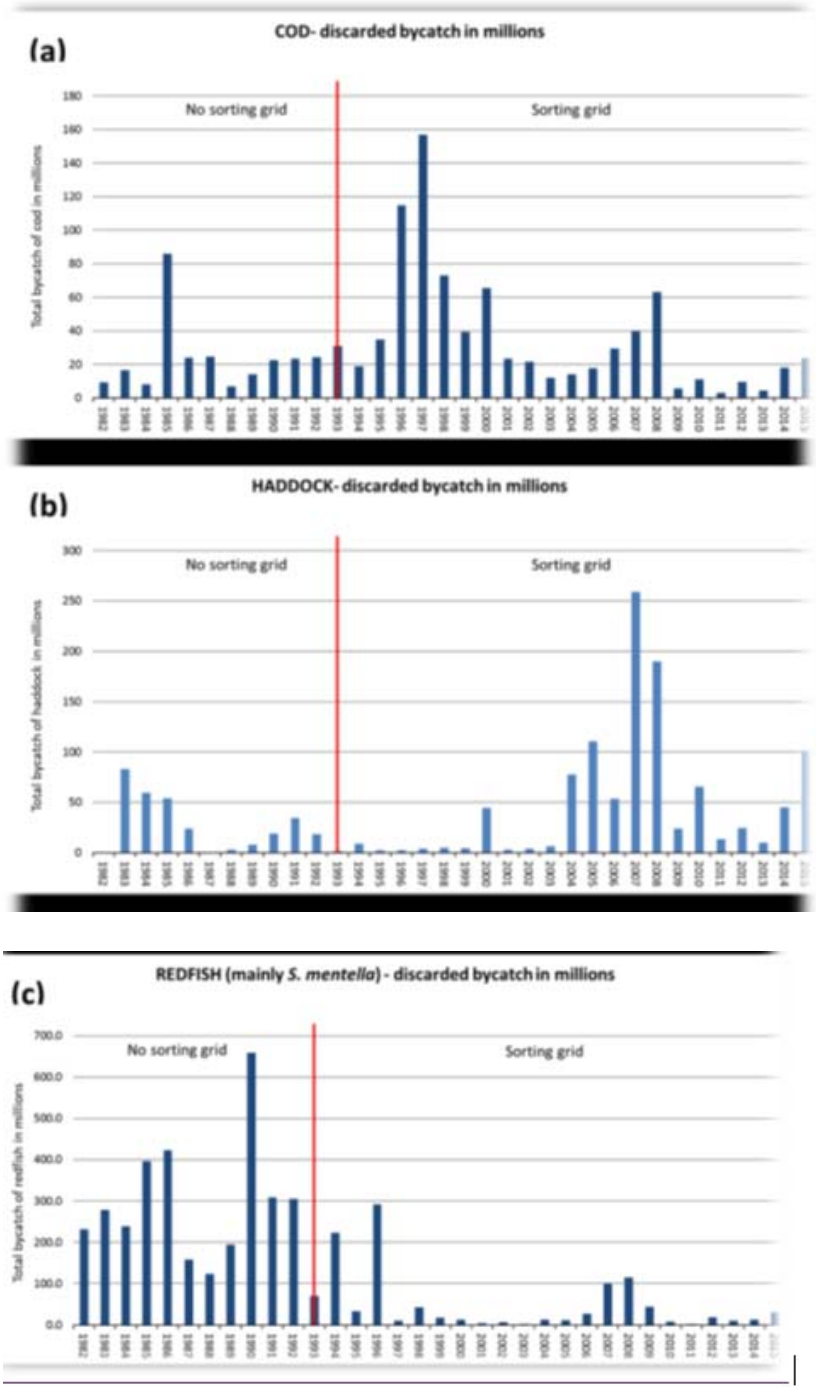


Figure 17: Historical estimation of bycatch of (a) cod, (b) haddock and (c) redfish in the Norwegian shrimp fishery in ICES SA I and II (million individuals). (Source: NAFO / ICES, 2016)

The UoA covers 10 vessels of different nationalities. While they all target shrimp in the Barents Sea they are allowed to enter different jurisdictions depending on the flag they hold and the different international agreements. None of the vessels in the UoA go into the Norwegian mainland EEZ. Faroese vessels can fish in the Svalbard FPZ, in NEAFC waters, and in the Russian EEZ. Greenlandic vessels can fish in the Svalbard FPZ and in the Russian

EEZ, but not in NEAFC waters. And the Lithuanian vessel would be allowed to fish in the Svalbard FPZ and in NEAFC waters, but not inside the Russian EEZ. For those vessels allowed to fish in the Russian EEZ (Faroese and Greenlandic), they would need to take on board a Russian Federal Fisheries Agency enforcement observer before entering the Russian EEZ. This enforcement observer does not conduct any biological research. For 2016, 70% of the prawn landings of the present UoA under assessment were taken by Faroese vessels, while 30% were taken by Greenlandic vessels.

The shrimp fishery is subject to both permanent and temporary closed areas in order to protect juvenile fish of different species. Since 1978 there is a permanent closed area closed for all bottom trawling in the 20 nautical miles zone around Bear Island (Figure 18). Besides, since 1984 there is a Real Time Closure system in the Barents Sea (Figure 19), which imposes temporary closures on areas where the number of fish below the minimum legal size or the level of bycatches exceeds permitted limits (Jakobsen and Ozhigin, 2011).

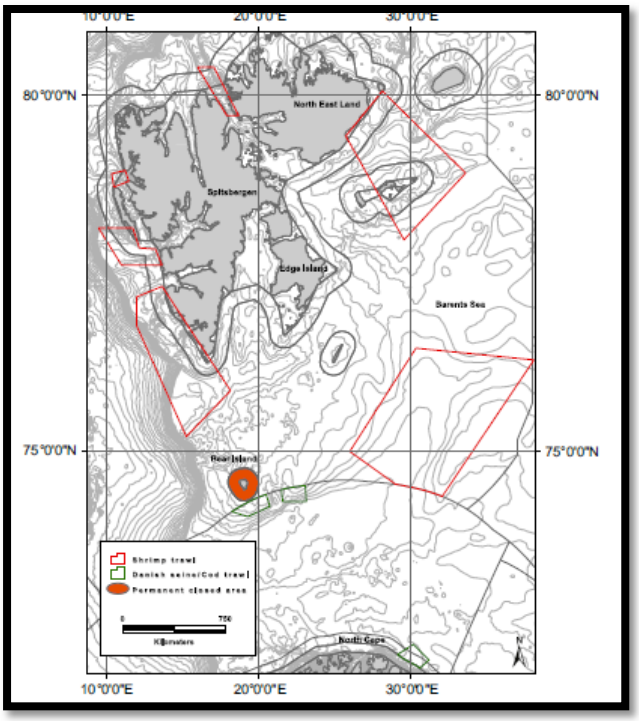


Figure 18: Permanent closed area around Bear Island (in orange). The figure also includes temporary closed areas for the shrimp fishery (in red) and for the cod fishery (in green) in 2005. (Source: Gullestad et al., 2015)

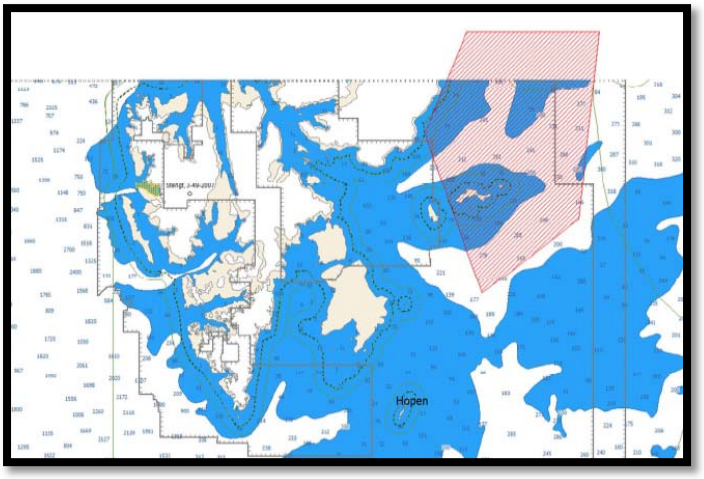


Figure 19: Temporary closed areas for the shrimp fishery (at 8th February 2017, in red). (Source: Directorate of Fisheries)

As shown in Table 14 below (sum of the catch composition by all vessels in the UoA in 2016), catch in previous years show similar ratios of non-targeted species. The 10 vessels in the UoA hold different flags, with 5 vessels being Faroese, 4 vessels being Greenlandic and 1 (now sold) vessel being Lithuanian. There are other cold-water prawn fisheries in the Barents Sea, mainly the Norwegian cold-water prawn fishery, and the joint Estonian & Danish & Lithuanian and UK cold water prawn fishery in the Barents Sea. Estonian vessels targeting shrimp in the same fishing grounds participate in a research program by the Estonian IMR, and take an observer on board in some trips, with a total of 4 trips being observed per year (covering about 10% of Estonian prawn fishing trips). Estonian observers collect information on the gears used, the position, duration and catch composition of each haul, discardings if any, sex and length of prawns, and biological information of the fish species, such as sex, maturity, size, weight and otolith sampling. These observers would also collect information on interactions with ETP species should these occur. However, records from Estonian observers for the past years show no direct interactions of the Estonian CWP fishery with ETP species.

Table 14: Catch composition for all vessels in the UoA. All catches of redfish were taken by the same Greenlandic vessel and represent a 0.40% of the catch of that vessel. It wasn't possible to determine if catches referred to beaked or golden redfish.

Catch 2016 (kg)	All vessels in the UoA	% All vessels
Miscellaneous fish	1.893	0,03
Prawn	6.511.738	99,95
Redfish	1.063	0,02
Total	6.514.694	100

According to MSC CR v2.0, SA 3.1.3, primary species are those where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit or target reference points. These measures can vary from an allocated TAC to

specific management plans. Secondary species are those species of the catch that are neither considered as primary species (covered under PI 2.1) nor as endangered, threatened or protected species (covered under PI 2.3). MSC CR v2.0, SA 3.4.2, establishes when the species shall be considered as main (when the catch of a species comprises 5% or more by weight of the total catch of all species, or when the catch of a species comprises 2% or more of the total catch as long as the species is considered 'less resilient'). As the species in the catch do not meet the requirements set out in SA 3.4.2, they can be considered as "minor primary" or "minor secondary" species in accordance with SA3.4.5 and SA3.7.1.1. of MSC CR v2.0.

There are no main primary or secondary species in the catch. Beaked redfish is a minor primary species in the catch. Cod, Greenland halibut and haddock are also considered as minor primary species, as, while not present in landing records (miscellanea fish), research indicates that these species may be present in small proportions in the shrimp fishery. Polar cod can be considered as a minor secondary species, as although it does not appear in landing records, is expected to be part of the catch in the shrimp fishery (IMR). Moreover, J-209-2011 allows for the discarding of these species as long as they represent less than 5% of the catch. Such catch and discarding would not appear in landing records.

PRIMARY SPECIES:

- **Beaked redfish**: ICES 2017 advice in subareas 1 and 2.

  Spawning–stock biomass (SSB) increased steadily from 1992 to 2005 and stabilized thereafter. Following a period of low recruitment in 1998–2005, strong year classes have become evident from 2006. Since 1997 fishing mortality has been at a relatively low level and has been increasing in the last four years. There are no defined reference points for the stock.

  ICES advises that when the precautionary approach is applied, catches in 2018 should be no more than 32 658 tonnes. There is no international agreement on the sharing of TAC among countries and between national and international waters, and it is anticipated that the sum of the catches allocated to individual nations will exceed the recommended TAC. The stock is subject to protection measures (originally intended for the protection of golden redfish but which also benefit beaked redfish) such as move on rules in the prawn fishery to avoid the catch of redfish species. All catches are assumed to be landed.

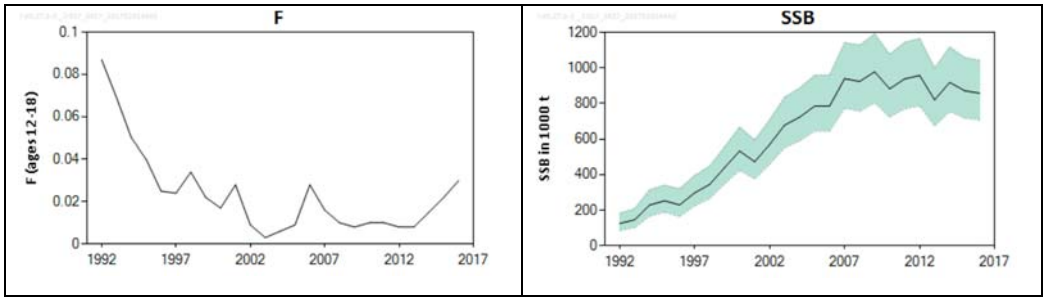


Figure 20: Fishing mortality and stock biomass trends.

		Fishing pressure				Stock size			
		2014	2015	2016			2014	2015	2016
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	MSY $B_{trigger}$	?	?	? Undefined
Precautionary approach	F_{pa},F_{lim}	?	?	?	Undefined	B_{pa},B_{lim}	?	?	? Undefined
Management plan	F_{MGT}	–	–	–	Not applicable	B_{MGT}	–	–	– Not applicable
Qualitative evaluation	-	↗	↗	↗	Increasing	Quallitative evaluation	→	→	→ Stable

Figure 21: Status of the stock relative to reference points.

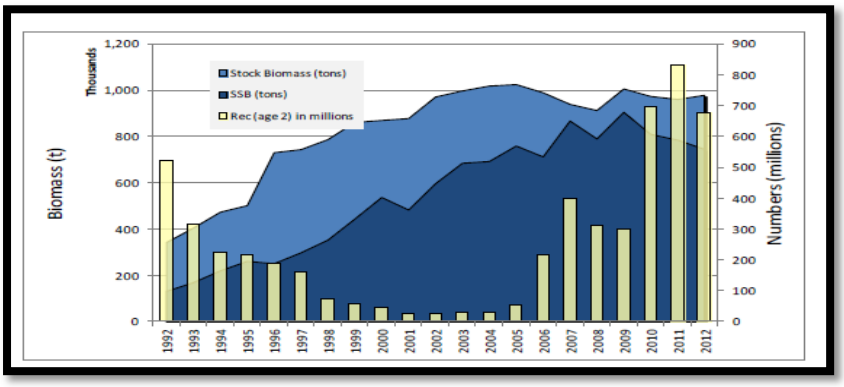


Figure 22: Results from the statistical catch-at-age model showing the development of total biomass, spawning stock biomass and recruitment at age 2 for the period 1992-2012, for beaked redfish in subareas I and II. (Source: ICES 2014 advice for beaked redfish)

- **Cod:** ICES 2017 advice in subareas 1 and 2.

  The spawning–stock biomass (SSB) has been above MSY Btrigger since 2002. The SSB reached a peak in 2013 and now shows a downward trend but it is still well above BMSY. Fishing mortality (F) was reduced from well above Flim in 1997 to below FMSY in 2008, and the most recent estimate is likely to be below FMSY. There has been no strong recruitment since the 2004 and 2005 year-classes. The stock is subject to a Joint Russian–Norwegian Fisheries Commission Management Plan. When applied, catches in 2018 should be no more than 712000 tonnes. Besides, there are area closures intended for the protection of juvenile cod in the Barents Sea.

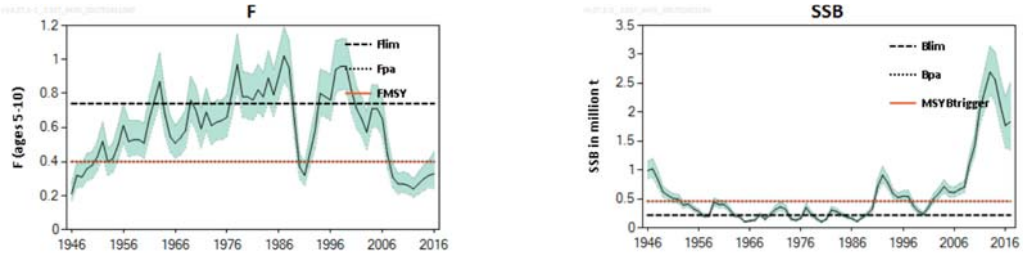


Figure 23: Fishing mortality and biomass relative to FMSY and BMSY reference points.

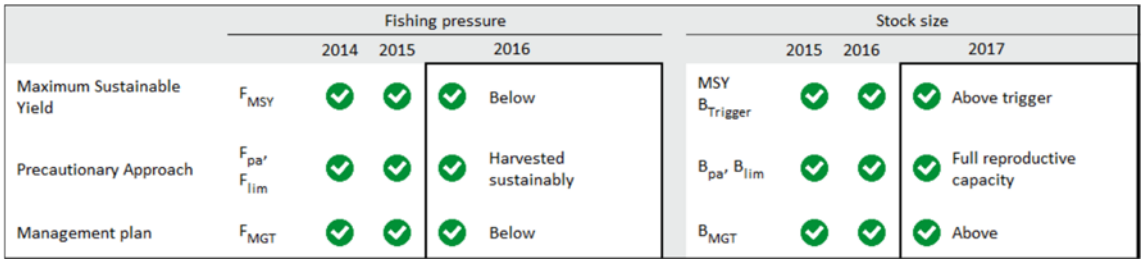


Figure 24: State of the stock in relation to reference points.

- **Greenland halibut**: ICES 2017 advice in subareas 1 and 2.

  The fishable population (length ≥45 cm) has increased from 1992 to 2013 and has been stable since then. The harvest rate has been relatively stable since 1992 but has been increasing since a low value in 2009. ICES advises that when the precautionary approach is applied, catches should be no more than 23000 tonnes in each of the years 2018 and 2019. European vessels have a bycatch quota to take this stock in NEAFC waters of the Loophole. All catches are assumed to be landed. There are no reference points for the stock.

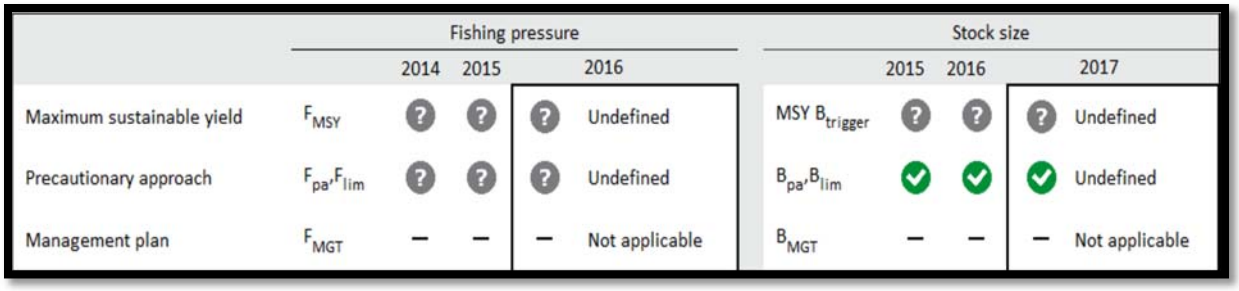


Figure 25: State of the Greenland halibut stock and fishery relative to reference points.

- **Haddock**: ICES 2017 advice for haddock in subareas 1 and 2.

  The spawning-stock biomass (SSB) has been above MSY Btrigger since 1989, increasing since 2000, and reaching the series maximum in 2015. Fishing mortality (F) was around FMSY from the mid-1990s to 2011 but has declined substantially afterwards and has been below FMSY since 2008. The exceptionally strong year classes of 2004–2006 have contributed to the strong increase in all-time high levels of SSB seen in later years; however, the SSB in 2017 is declining.

  Recruitment-at-age 3 has been at or above the long-term average since 2000 but in 2016 became slightly below average.

  The stock is subject to a Joint Russian–Norwegian Fisheries Commission Management Plan. According to it, catches in 2018 should be no more than 202305 tonnes. The haddock fishery is subject to permanent and temporary area closures to protect juvenile fish.

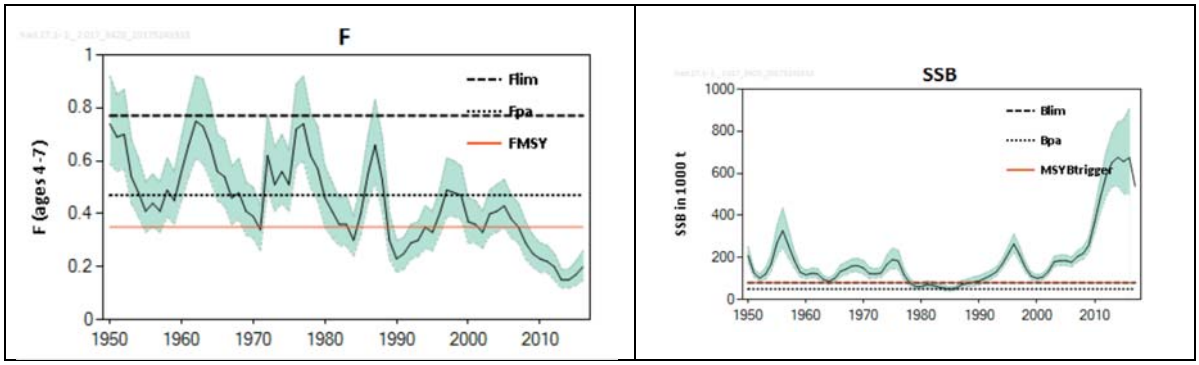


Figure 26: Fishing mortality and biomass relative to FMSY and BMSY reference points.

		Fishing pressure				Stock size			
		2014	2015	2016		2015	2016	2017	
Maximum Sustainable Yield	F_{MSY}	✓	✓	✓	Below	MSY $B_{Trigger}$	✓	✓	✓ Above trigger
Precautionary Approach	F_{pa}, F_{lim}	✓	✓	✓	Harvested sustainably	B_{pa}, B_{lim}	✓	✓	✓ Full reproductive capacity
Management plan	F_{MGT}	✓	✓	✓	Below	B_{MGT}	✓	✓	✓ Above

Figure 27: State of the stock and fishery relative to reference points.

SECONDARY SPECIES:

According to MSC FCR v2.0 SA 3.1.4, secondary species would be those that do not fall into the definitions of target, primary or ETP species.

- **Polar cod**: There is no ICES advice for this species.
  According to information on polar cod by the Norwegian IMR, the stock in the Barents Sea is probably between 1.5 and 2.0 million tonnes. This estimate is uncertain, however, due to incomplete sampling coverage for the stock. The stock has not been exploited to any noticeable degree since the early 1970s. The distribution area and the size of the stock are mapped by acoustic methods during the IMR annual ecosystem survey in the Autumn.
  The species plays an important role in the area. It is not clear whether polar cod found further north and east belong to the Barents Sea stock, which seems to spawn (from December to March) in two separate areas: east of the Spitsbergen Archipelago; and in the southeastern regions of the Barents Sea.

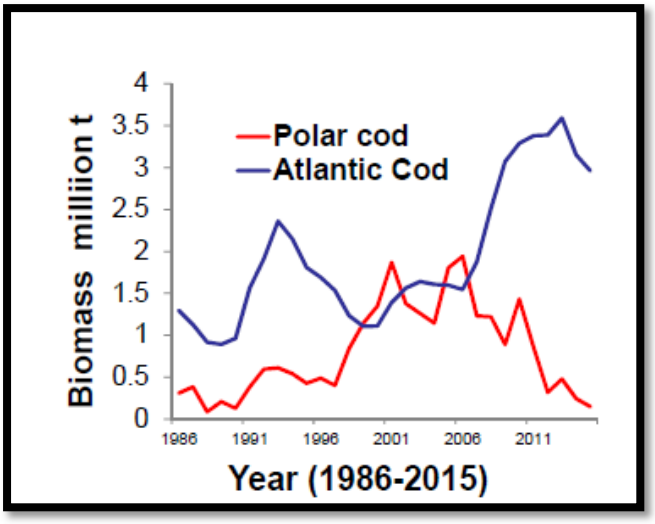


Figure 28: Estimated time-series evolution of cod and polar cod biomass. (Source: www.imr.no)

According to information provided by the Norwegian IMR (as a result of the Barents Sea ecosystem survey) on the geographical distribution of the polar cod stock, there is little spatial overlap between the distribution of the polar cod and the shrimp fishery. It is therefore expected that bycatch of polar cod will be insignificant. Moreover, IMR has estimated the percentage bycatch (by weight) of polar cod in the shrimp fishery from 2013 to 2015, showing results that range from 0.05% to 4.00%, providing further evidence that there is a very low bycatch of polar cod in the shrimp fishery (Table 15).

Table 15: Estimate of the percentage bycatch (by weight) of polar cod in the Barents Sea shrimp fishery from 2013 – 2015 (estimate is based on the ratio of polar cod to shrimp in survey hauls in which there were > 25Kg of commercial sized shrimps). Source: IMR.

Bycatch of polar cod per year	Percentage of polar cod in the catch	Polar cod catch (tones)
2013	4%	702
2014	0.40%	94
2015	0.05%	13

Norwegian IMR's ecosystem trawl survey, which samples in the same areas annually, suggests that polar cod has moved northwards and eastwards in recent years.

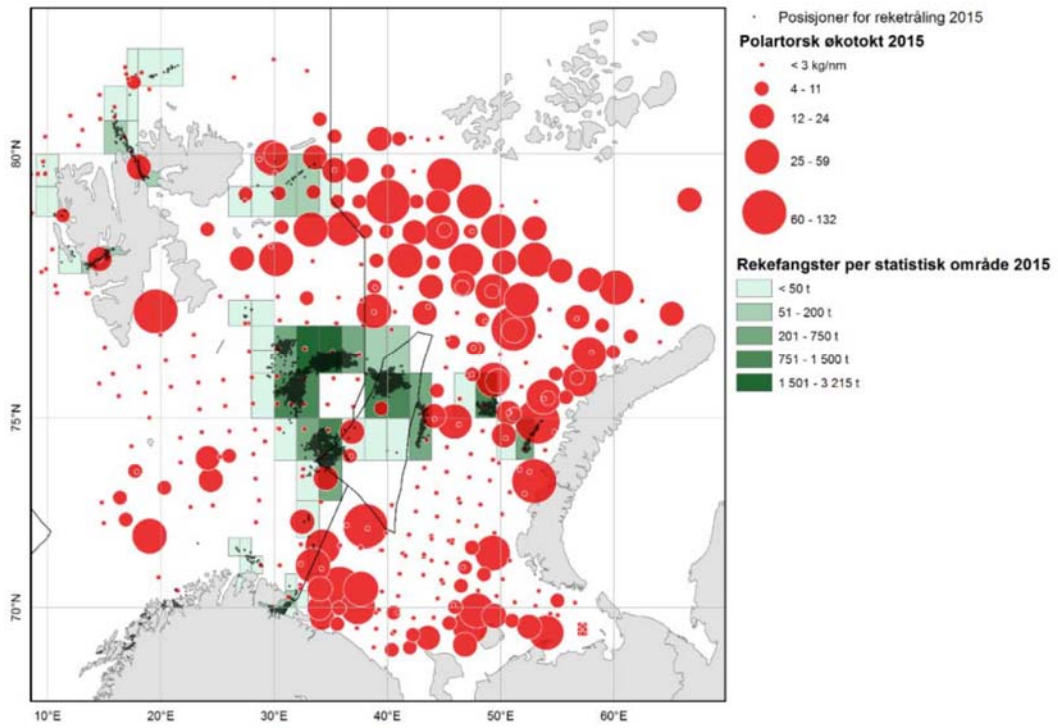


Figure 29: Distribution of polar cod from the IMR ecosystem survey (in red) and geographical distribution of the shrimp fishery in 2015 (in green). Source: IMR.

3.5.2 ETP species

According to MSC CR v2.0, ETP Species are those that are recognised by national ETP legislation or by an international binding agreement. It also includes species classified by MSC as "out of scope" (amphibians, reptiles, birds and mammals) that are listed in the IUCN Redlist as vulnerable (VU), endangered (EN) or critically endangered (CE). The UoA covers Lithuanian, Greenlandic and Faroese vessels fishing in the Svalbard FPZ, the NEAFC region, and in the Russian EEZ. Therefore, EU, Norwegian and Russian legislation shall be considered to determined which are the ETP species under assessment.

Both Russia and Norway have signed several international agreements and conventions on species protection and management of relevance to the Barents Sea Fisheries:

- the Convention on Biological Diversity (CBD)
- the Convention on Trade in Endangered Species of Wild Animals (CITES)

Specific management measures affecting ETP species in the Svalbard FPZ are:

- the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention / CMS). (While Russian is not a signatory member, it participates in CMS agreements).
- the Agreement on North Atlantic Marine Mammal Commission (NAMMCO).
- the OSPAR Agreement, Annex V ("on the protection and conservation of the ecosystems and Biological Diversity in the maritime area"), listing threatened and declining species in the Barents Sea.

- Norwegian Regulation J-250-2013 specifically protects basking sharks, spurdogs, porbeagles and silky sharks, and requires their release if still alive when hauled on board. While useful, there are no records by the commercial fleet about the identification or number of individuals released every year, so there is no option to measure trends of these interactions.

- Report No. 8 (2005-2006) for species management in the Barents Sea – Lofoten area.

Besides, there is a Norwegian red list for species which demands the protection of threatened species in the Norwegian territory. The Norwegian Marine Resources Act, through the precautionary approach principle, ensure that management action is taken to avoid red-listing of species. Norwegian Regulation J-250-2013 specifically protects basking sharks, spurdogs, portbeagle and silky sharks. Russia also publishes the Russian red book of species in the Murmansk region (http://portal.kgilc.ru/redbook/?q=docs_en) which describes threatened species in the region and has associated regulation through regulation nº 221 and 421 (2014). For more information see http://portal.kgilc.ru/redbook/?q=post325p1.

As the UoA under assessment includes EU fishing vessels, EU Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) shall also be taken into consideration, as well as the ASCOBANS Agreement (Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas) to which EU (but not Norway) is a signatory country.

Table 16 below lists ETP species for the UoA in the Svalbard FPZ, Russia EEZ and NEAFC waters.

Information on birds present in the Barents Sea can be found at the Barents portal website, while marine mammals present in the Barents Sea are listed in the NAMMCO website (North Atlantic Marine Mammal Commission). Marine mammal abundance is estimated through counting surveys by NAMMCO. The NAMMCO NASS 2015 surveys (Figure 30) covered the Northern part of the North Atlantic (however it wasn't focused on the Barents Sea). These surveys include areal sightings and vessel observations. Monitoring of seabirds is carried out through monitoring of the breeding success of birds.

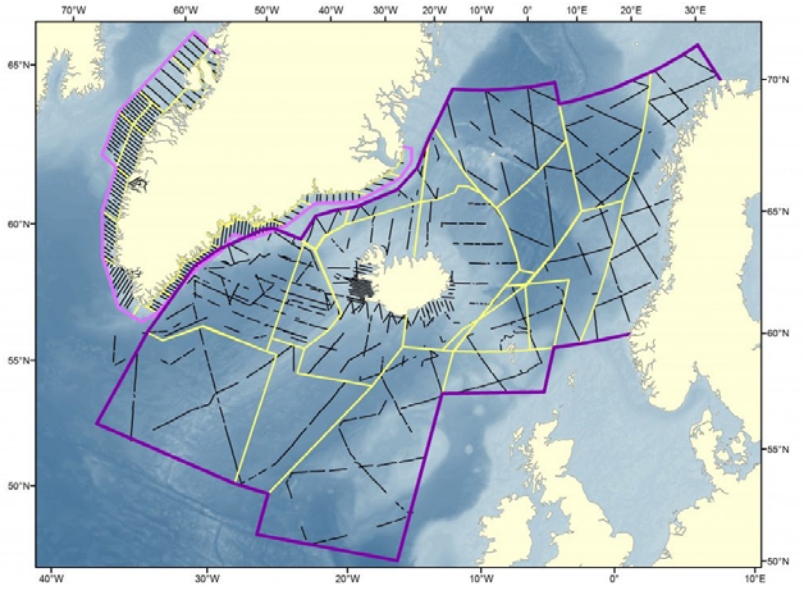


Figure 30: Transects that were surveyed during NASS2015. (Source: NAMMCO website)

Table 16: ETP species in the UoA (as for January 2018)

SCIENTIFIC NAME	COMMON NAME	Protected by							
		Norwegian red list 2015	OSPAR Region I	IUCN red list	CITES Appendix I	Bonn Convention	ASCOBANS Agreement	EU Council Directive 92/43/EEC	Russian red book of the Murmansk region.
INVERTEBRATES									
Arctica islandica	Ocean quahog	N/A	Yes	N/A	No	No	No	No	N/A
Nucella lapillus	Dog whelk	LC	Yes	N/A	No	No	No	No	N/A
SEABIRDS									
Alca torda	Razor bill	Endangered	No	NT	No	No	No	No	N/A
Branta bernicla hrota	Pale-bellied brant	N/A	No	N/A	No	No	No	No	Yes
Branta leucopsis	Barnacle goose	N/A	No	LC	No	No	No	No	Yes
Fratercula arctica	Atlantic puffin	Vulnerable	N/A	Vulnerable	No	No	No	No	N/A
Fulmarus glacialis	Fulmar	Endangered	No	LC	No	No	No	No	N/A
Gavia adamsii	Yellow-billed loon	N/A	No	NT	No	Yes (Annex II)	No	No	Yes
Larus fuscus	Lesser blackbacked gull	LC	Yes	LC	No	No	No	No	N/A
Morus bassanus (Sula bassana)	Northern gannet	N/A	No	LC	No	No	No	No	Yes
Pagophila eburnea	Ivory gull	Vulnerable	Yes	NT	No	No	No	No	N/A
Phalacrocorax aristotelis	European shag	LC	No	LC	No	No	No	No	Yes
Phalacrocorax carbo	Great cormorant	N/A	No	LC	No	No	No	No	Yes
Polysticta stelleri	Steller's eider	Vulnerable	Yes	Vulnerable	No	Yes	No	No	Yes
Rissa tridactyla	Black-legged kittiwake	Endangered	Yes	LC	No	No	No	No	N/A
Somateria mollissima	Common eider	N/A	No	NT	No	No	No	No	Yes
Stercorarius skua	Great skua	N/A	No	LC	No	No	No	No	Yes
Tadorna tadorna	Common shelduck	N/A	No	LC	No	No	No	No	Yes
Uria aalge	Common guillemot	Critically Endangered	No	LC	No	No	No	No	N/A
Uria lomvia	Thick-billed murre (or Brünnich's guillemot)	Critically Endangered	Yes	LC	No	No	No	No	N/A
FISH									
Amblyraja radiata	Starry ray	LC	No	Vulnerable	No	No	No	No	N/A
Acipenser sturio	Sturgeon	N/A	Yes	Critically Endangered	Yes	Yes	No	Annex II and IV	N/A
Alosa alosa	Allis shad	N/A	Yes	LC	No	No	No	Annex II	N/A
Anguilla anguilla	European eel	Vulnerable	Yes	Critically Endangered	No	Yes (Annex II)	No	No	N/A
Carcharhinus falciformis	**Silky shark**	N/A	No	NT	No	Yes (Annex II)	No	No	N/A

SCIENTIFIC NAME	COMMON NAME	Protected by							
		Norwegian red list 2015	OSPAR Region I	IUCN red list	CITES Appendix I	Bonn Convention	ASCOBANS Agreement	EU Council Directive 92/43/EEC	Russian red book of the Murmansk region.
Cetorhinus maximus	**Basking shark**	Endangered	Yes	Vulnerable	No	Yes (Annex I and II)	No	No	N/A
Coregonus lavaretus	Lavaret	LC	Yes	Vulnerable	No	No	No	No	N/A
Dipturus batis	Common skate	Critically Endangered	Yes	Critically Endangered	No	No	No	No	N/A
Lamna nasus	**Porbeagle**	Vulnerable	Yes	Vulnerable	No	Yes (Annex II)	No	No	N/A
Petromyzon marinus	Sea lamprey	NT	Yes	LC	No	No	No	Annex II	N/A
Raja clavata	Thornback ray	LC	Yes	NT	No	No	No	No	N/A
Salmo salar	Salmon	LC	Yes	LC	No	No	No	Not in the Barents Sea	N/A
Sebastes norvegicus	Golden redfish	Endangered	N/A	N/A	No	No	No	No	N/A
Squalus acanthias	**Spurdog**	Endangered	Yes	Vulnerable	No	Yes (Annex II)	No	No	N/A
MARINE MAMMALS									
Balaena mysticetus	Bowhead whale	Critically Endangered	Yes	LC	Yes	Yes (Annex I)	No	Annex IV	N/A
Balaenoptera acutorostrata	Minke whale	LC	N/A	LC	Yes	No	No	Annex IV	N/A
Balaenoptera borealis	Sei whale	N/A	N/A	Endangered	Yes	Yes (Annex I)	No	Annex IV	N/A
Balaenoptera musculus	Blue whale	Vulnerable	Yes	Endangered	Yes	Yes (Annex I)	No	Annex IV	N/A
Balaenoptera physalus	Fin whale	LC	N/A	Endangered	Yes	Yes (Annex I)	No	Annex IV	N/A
Cystophora cristata	Hooded seal	Endangered	N/A	Vulnerable	No	No	No	Annex IV	N/A
Delphinapterus leucas	Beluga whale	DD	N/A	LC	No	Yes (Annex II)	Yes	No	N/A
Delphinus delphis	Short beaked common dolphin	N/A	N/A	LC	No	No	Yes	Annex IV	N/A
Eubalaena glacialis	Northern right whale	Regionally extinct	Yes	Endangered	Yes	Yes (Annex I)	No	Annex IV	N/A
Eschrichtius robustus	Gray whale	LC	N/A	LC	Yes	No	No	Annex IV	N/A
Globicephala melas	Long-finned pilot whales	LC	N/A	DD	No	No	Yes	Annex IV	N/A
Grampus griseus	Risso's dolphin	N/A	N/A	LC	No	No	Yes	Annex IV	N/A
Halichoerus gripus	Gray seal	LC	N/A	LC	No	No (Not in the Barents Sea)	No	Annex II	Yes
Hyperoodon ampullatus	Northern bottlenose whale	LC	N/A	DD	Yes	Yes (Annex II)	Yes	Annex IV	N/A
Kogia breviceps	Pygmy sperm whale	N/A	N/A	LC	No	No	Yes	Annex IV	N/A
Lagenorhynchus acutus	Atlantic white-sided	LC	N/A	LC	No	Not in the	Yes	Annex IV	N/A

SCIENTIFIC NAME	COMMON NAME	Protected by							
		Norwegian red list 2015	OSPAR Region I	IUCN red list	CITES Appendix I	Bonn Convention	ASCOBANS Agreement	EU Council Directive 92/43/EEC	Russian red book of the Murmansk region.
	dolphin					Barents Sea			
Lagenorhynchus albirostris	White beaked dolphins	LC	N/A	LC	No	Not in the Barents Sea	Yes	Annex IV	N/A
Megaptera novaeangliae	Humpback whale	LC	N/A	LC	Yes	Yes (Annex I)	No	Annex IV	N/A
Mesoplodon bidens	Sowerby's beaked whales	DD	N/A	No	No	No	Yes	Annex IV	N/A
Monodon monoceros	Narwhal	Endangered	N/A	LC	No	Yes (Annex II)	Yes	No	N/A
Odobenus rosmarus	Walrus	Vulnerable	N/A	Vulnerable	No	No	No	Annex IV	Yes
Orcinus orca	Killer whale	LC	N/A	DD	No	Yes	Yes	Annex IV	N/A
Phoca (Pusa) hispida	Ringed seal	Vulnerable	N/A	LC	No	No	No	Annex II	N/A
Phoca vitulina	Common seal	Vulnerable (Svalbard)	N/A	LC	No	No (Not in the Barents Sea)	No	Annex II	Yes
Phocoena phocoena	Harbour porpoise	LC	Yes	LC	No	No	Yes	Annex II	N/A
Physeter macrocephalus	Sperm whale	N/A	N/A	Vulnerable	Yes	Yes (Annex I)	No	Annex IV	N/A
Stenella coeruleoalba	Striped dolphins	N/A	N/A	LC	No	Not in the Barents Sea	Yes	Annex IV	N/A
Tursiops truncatus	Bottle nosed dolphins	N/A	N/A	LC	No	Not in the Barents Sea	Yes	Annex II	N/A
Ursus maritimus	Polar bear	Vulnerable (Svalbard)	N/A	Vulnerable	No	Yes (Annex II)	No	No	N/A

Species in bold are specifically protected by Norwegian Regulation J-250-2013 (silky shark, basking shark, porbeagle and spurdog).

Direct interactions would be those caused by the gear getting in touch with the animal. This may result in casualties or injuries for the individual and damage for the nets. Landing records show no reports of interactions or landings of ETP species. As regards indirect effects, these would be those related to biomass removal by the fishery, affecting prey availability for ETP species.

Of all species listed in Table 16, the UoA only has limited interaction with the golden redfish (*Sebastes norvegicus)* stock. As described in the catch composition table, during 2016, 1063 kg (this is, 1 tonne) of redfish were landed by one of the vessels, comprising 0.02% of the total catch by the UoA, and a 0.4% of the total catch by the vessel which caught it. It was not possible to determine if the 1 tonne landed referred to beaked or golden redfish. Interactions with other ETP Species are not expected. This is in concordance with data collected by the Norwegian high seas reference fleet North of 62º North.

The golden redfish stock is in a poor situation. The stock has been classified as Vulnerable by the 2015 Norwegian red list for species. As mentioned above, once a species is red-listed, management action shall be taken to improve the status of the affected stock. According to ICES AFWG 2016 Report (433-473) on Arctic Fisheries, catches of *Sebastes norvegicus* should remain as low as possible to bring the stock back to a safe level. The stock is managed trough move on rules which sets that vessels targeting shrimp shall move if more than 3 individuals of redfish are found in a 10 kg catch sample. The mandatory use of sorting grids ensures that interactions with fish species are minimised. The implementation of temporary and permanent closed areas to protect spawning and nursery grounds for cod and redfish are also effective in rebuilding the golden redfish stock.

Discarding is prohibited since the implementation of the Norwegian landing obligation for all species in 2009, however there is an exemption for the offshore shrimp fishery as long as bycatch of the different species does not exceed 5% of the shrimp catch, which can be then thrown back to the sea (see Regulation J-209-2011, which applies to the Svalbard area). This catch does not need to be recorded in the logbook. Russian Regulation 414/2014 also establishes in its article 14 a prohibition to discard any species caught for which there is a management quota (regardless of the vessel having such quota). In general, a 10% bycatch of species without management quota is allowed in Russian fisheries. The move on rule (implemented in all jurisdictions under assessment) obliges vessels to move when allowed bycatch levels for certain species are exceeded. Non-target species caught in the shrimp trawl with a chance of survival must be released. The system would benefit from records of interactions with released species. The Norwegian Coast Guard and the Directorate of Fisheries are responsible for the enforcement of these measures in the Fisheries Protection Zone of Svalbard. Enforcement in the Russian EEZ is taken care by the Russian Federal Fisheries Agency. Both Norwegian and Russian Fisheries bodies take care of enforcement in NEAFC waters. Conversations with the Norwegian Directorate of Fisheries and the Lithuanian, Danish and Faroese management representatives report no indication of serious violations.

3.5.3 Habitat

The Barents Sea area is about 1 600 000 km2 (Carmack et al. 2006). This estimation includes the surface of the different islands in the area (i.e. Svalbard, Franz Joseph Land and the Novaya

Zemlya archipelagos and other small islands), which account for more than 81 200 km2 (Terziev 1990).

First investigations on Barents Sea benthic species were made more than 200 years ago (Jakobsen T., Ozhigin V., 2011). Since then, both PINRO and IMR have undertaken research in the area through different means. Both institutions have a history of collaboration programs over the years. Since 2003, both institutions participate in an annual Joint Russian-Norwegian ecosystem survey using five research vessels and bottom trawlers. These surveys serve to gather information regarding the abundance of different fish species but also information on hydrographic conditions, endangered species or planktonic or benthic species. Information on the area can be found in the figures and maps below.

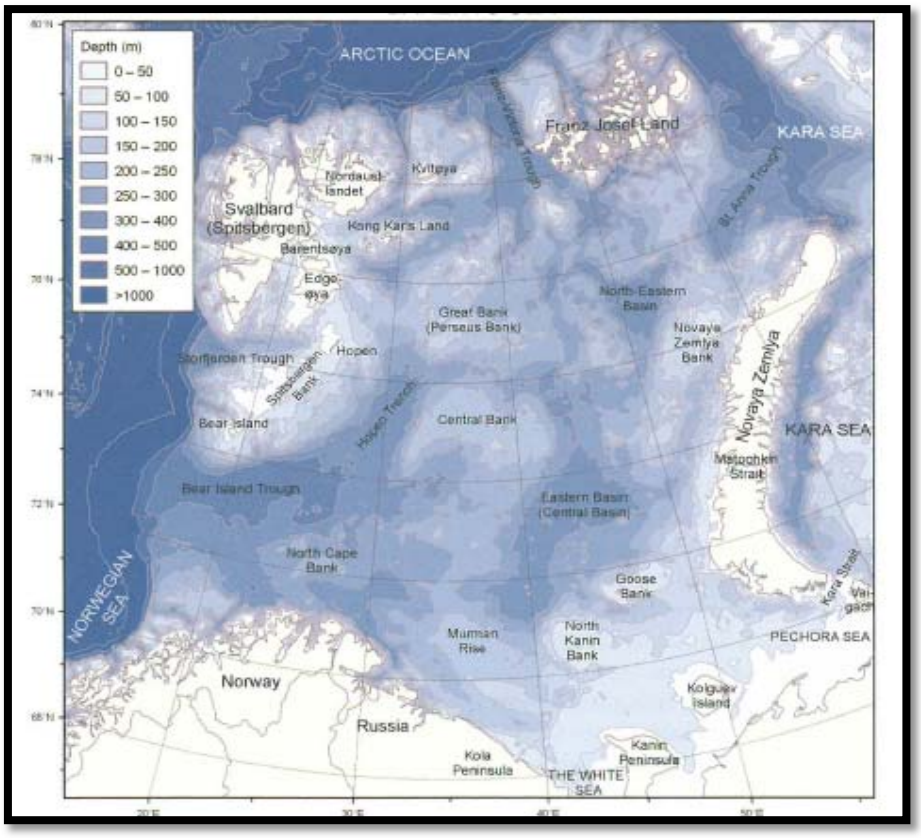


Figure 31: Barents Sea bottom topography and regional names. Source: Jakobsen T., Ozhigin V., 2011

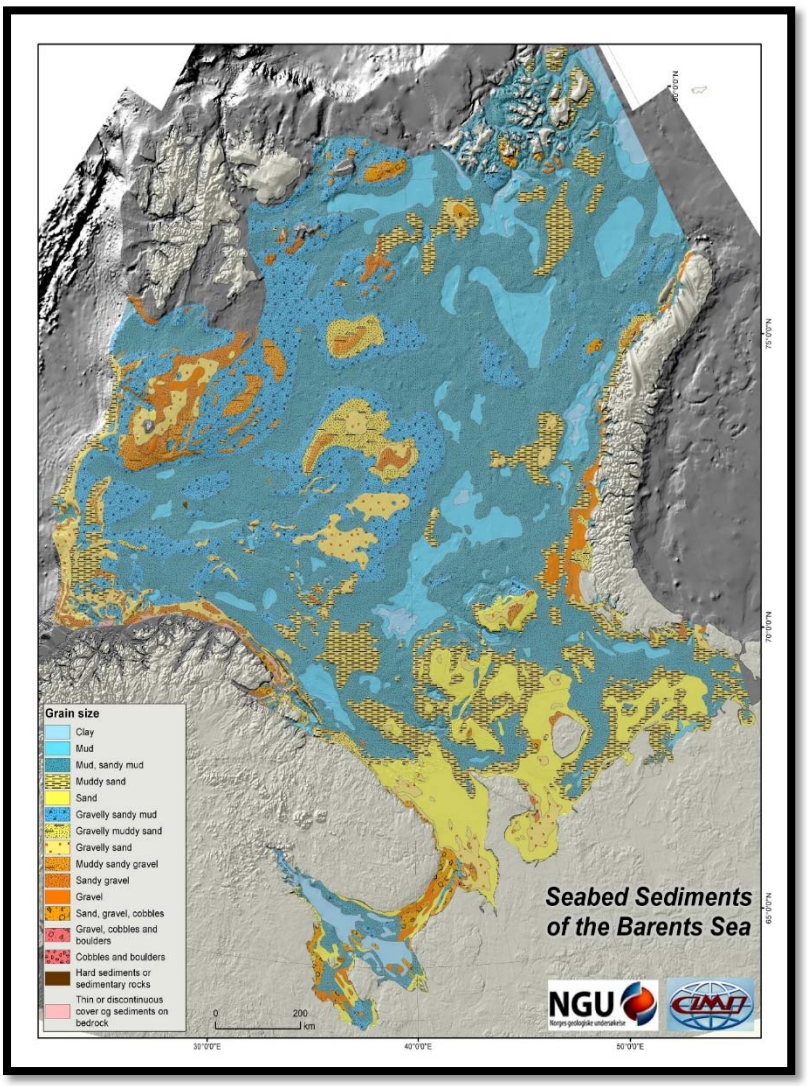


Figure 32: Seabed sediments of the Barents Sea. The area is dominated by soft sediments such as sandy mud or also by muddy sands, with occasional patches of gravels. There are no hard sediments in the area. Source: Lepland Aivo, Rybalko Aleksandr & Lepland Aave 2014: Seabed Sediments of the Barents Sea. Scale 1:3 000 000. Geological Survey of Norway (Trondheim) and SEVMORGEO (St. Petersburg).

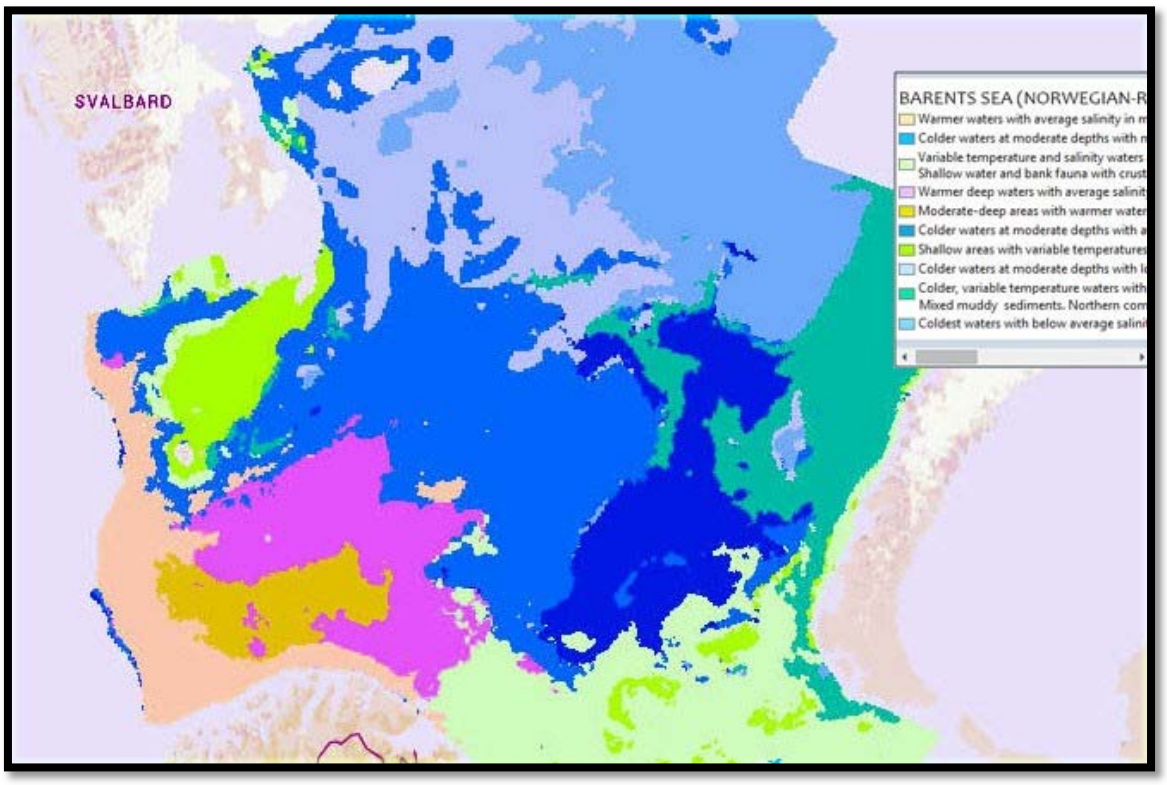
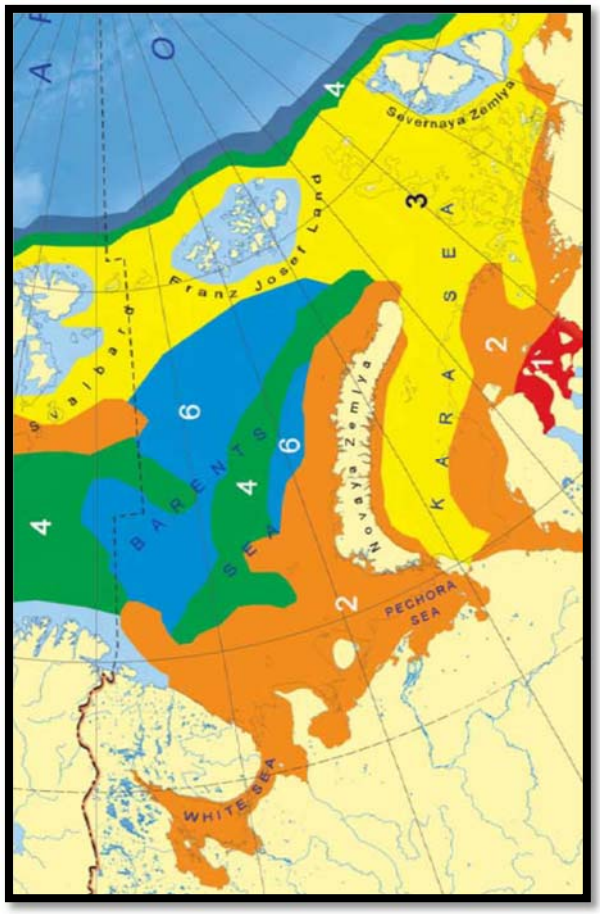


Figure 33: Biotopes of the Barents Sea. Blue areas represent cold water from the polar front while pink areas represent warmer waters from the Atlantic influx. (Source: http://www.ngu.no/nyheter/nytt-biotopkart-over-barentshavet. Dolan, M.F.J., Jørgensen, L.L., Lien, V.S., Ljubin, P., Lepland, A. 2015: Biotopes of the Barents Sea. Scale 1:3 000 000. Geological Survey of Norway (Trondheim), Institute of the Marine Research (Bergen) and Polar Research Institute of Marine Fisheries and Oceanography (Murmansk)).
http://geo.ngu.no/kart/marin/MARINEKART.html?kart=12&latlon=76.38&zoom=4#

The Barents Sea benthic communities have also been studied by other institutions, such as WWF Russia. Figure 34 below shows the distribution of the different types of macrobenthic communities, which relate to the different shelf zones. Some of the differences in the distribution of benthic community types in the Barents Sea from the circum-continental pattern can be explained by the complex topography of the seabed and the strong influence of the Atlantic waters (Sirenko, 1998).



Communities with domination by

1. Red: estuarine species (*Portladia aestuariorum, Cyrtodaria kurriana, Rhizomolgula globularis, Saduria entomon*)
2. **Orange: bivalves** (*Tridonta borealis, T. montagui, Macoma calcarea, Nuculana pernula,N. radiata, Leionucula belotti, L. inflata, Portlandia arctica, P. siligua, Astarte crenata, Yoldia hyperborea, Ciliatocardium ciliatum*)
3. **Yellow: ophiurans** (*Ophiocten sericeum, Ophiocantha bidentata, Ophiopleura borealis* and others)
4. **Green: polychaets** (Maldanidae, Chaetopteridae and others)
5. Dark blue: holothurians and sea urchins *(Elpidia glacialis, Kolga hyalina, Pourtalesia jeffreisi*)
6. **Light blue: Sipunculida (worms)**

Figure 34: Distribution of major types of macrobenthic communities in Russian Arctic seas and Arctic basin. Source: V.A. Spiridonov, V.A., Gavrilo, M.V., Krasnova E.D., and Nikolaeva, N.G. 2011. Atlas of marine and coastal biological diversity of the Russian Arctic. WWF Russia. Page 21 (from Sirenko 1998). Sirenko B.I. 1998. Marine fauna of the Arctic. Biologia moray, 24 (6): 341–350. (In Russian).

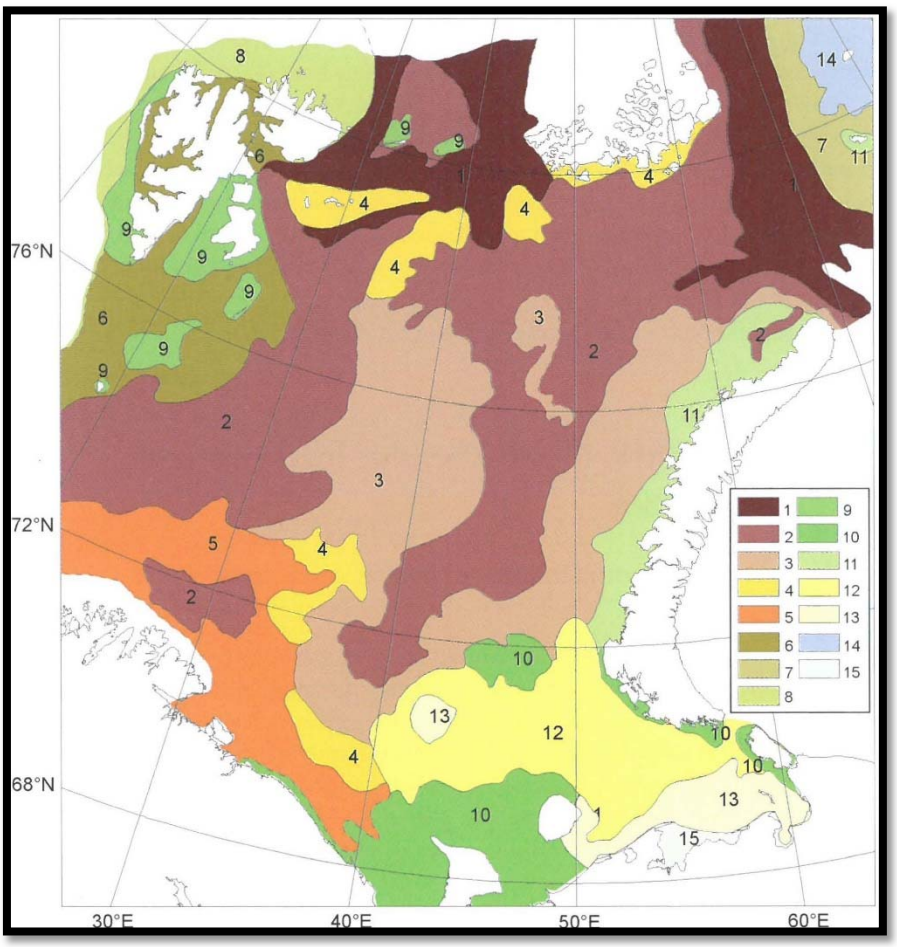


Figure 35: Distribution of benthic communities in the Barents Sea. Numbers from 1 to 15 represent communities dominated by different species.

1 - *Ophiopleura borealis* + *Hormosina globulifera;*
2 - Polychaeta + Sipunculoidea *(Gofjingia* spp.);
3 - *Trochostoma* spp.;
4 – *Elliptica elliptica* + *Astarte crenata;*
5 - *Brisaster fragilis;*
6 - soft-bottom community adjacent to Svalbard (Spitsbergen);
7 - community of St. Anna Trough slopes;
8 - *Strongylocentrotus* spp. + *Ophiopholis aculeata;*
9 - shallow-water coastal community of sessile filter-feeders adjacent to Svalbard;
10 - shallow-water coastal community of sessile filter-feeders on *Lithothamnion* spp.;
11 - shallow-water coastal community adjacent to western coast of Novaya Zemlya and Vise Island;
12 -*Astarte borealis;*
13 - *Clinocardium ciliatum* + *Macoma calcarea* + *Serripes groenlandicus;*
14- community of bivalves adjacent to Ushakov Island;
15 - *Macoma balthica.*

(Source: Jakobsen T., Ozhigin V., 2011)

In 2013, over approximately 35 000 km2 of the Barents Sea were affected by bottom trawling by Norwegian vessels in the area, corresponding to circa 1.6% of the ecoregion's spatial extent. The

proportion of swept seafloor increased by ca. 1% from 2009 until 2013. As seen below, bottom trawl activity concentrates close to the coastline and in the central Barents Sea. In the International waters of the Loop hole there is overlap between snow crab pots and bottom trawlers which may bring conflict between fleets.

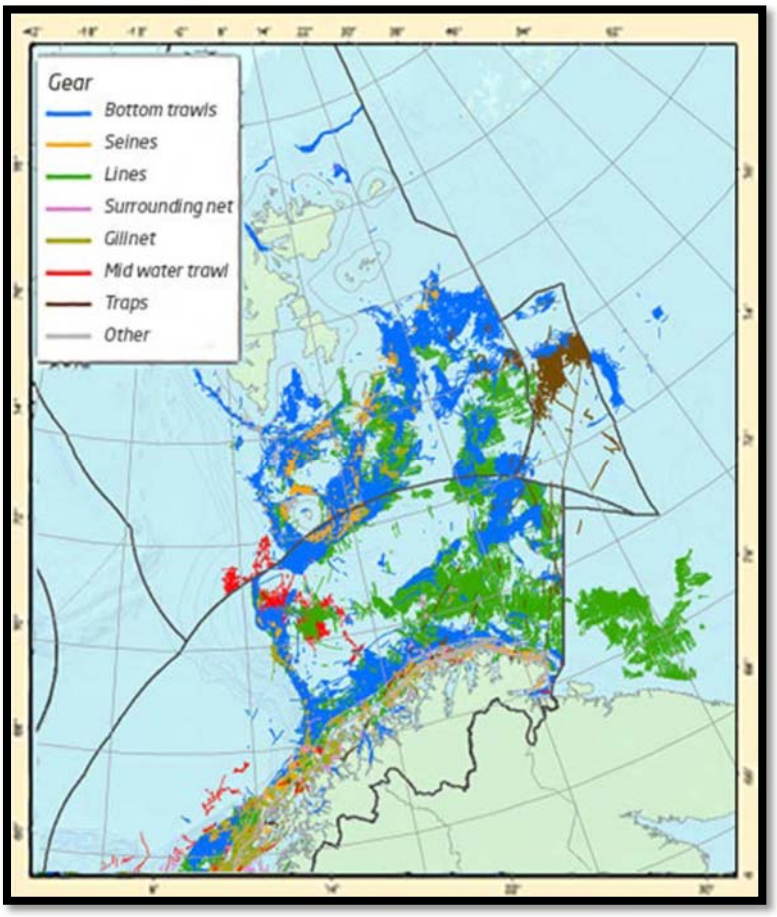


Figure 36: Location of Norwegian fishing activity in all waters, and non-Norwegian fishing activity within the Norwegian EEZ as reported (VMS) to Norwegian authorities. (Source: Jakobsen T., Ozhigin V., 2011)

The assessment team has had access to the UoA VMS maps since 2015. Such maps show that the catch is concentrated in the Loophole area, in the Russian EEZ and Svalbard FPZ around the Loophole, in the western coast of the Svalbard archipelago, close to the shoreline, and in an area that goes from Svalbard Islands to Franz Joseph Islands. There are no landings from the Norwegian mainland EEZ.

According to ICES Barents Sea Ecosystem overview, there are certain habitats in the Barents Sea (and in the Northeast Atlantic) at a threatened or declining situation. For MSC certification purposes, these will be considered as Vulnerable Marine Ecosystems. These habitats include:

- Coral gardens
- *Cymodocea* meadows
- Deep-sea sponge aggregations
- Intertidal mudflats
- *Lophelia pertusa* reefs
- *Modiolus modiolus* beds
- *Ostrea edulis* beds
- Seamounts
- *Zostera* beds.

NEAFC Recommendation 09 2015 lists which species should be considered as VME indicators when encountered in large fields. These species are listed based on traits related to functional significance, fragility, and the life-history traits of components that show slow recovery to disturbance.

NEAFC VME habitat types include the following taxa:

1 - Cold water coral reef:

- *Lophelia pertusa* reef
- *Solenosmilia variabilis* reef

2 - Coral garden:

a) Hard-bottom coral garden

- Hard-bottom gorgonian and black coral gardens: *Anthothelidae, Chrysogorgiidae, Isididae, Keratoisidinae, Plexauridae, Acanthogorgiidae, Coralliidae, Paragorgiidae, Primnoidae, Schizopathidae.*
- Colonial scleractinians on rocky outcrops: *Lophelia pertusa, Solenosmilia variabilis.*
- Non-reefal scleractinian aggregations: *Enallopsammia rostrate, Madrepora oculata*

b) Soft bottom coral gardens

- Soft-bottom gorgonian and black Chrysogorgiidae coral gardens
- Cup-coral fields *Caryophylliidae, Flabellidae*
- Cauliflower coral fields *Nephtheidae*

3 - Deep sea sponge aggregations

a) Other sponge aggregations: *Geodiidae, Ancorinidae, Pachastrellidae.*
b) Hard-bottom sponge gardens: *Axinellidae. Mycalidae*
c) Glass sponge communities *Rossellidae, Pheronematidae*

4 - Seapen fields: *Anthoptilidae, Pennatulidae, Funiculinidae, Halipteridae, Kophobelemnidae, Protoptilidae, Umbellulidae, and Vigulariidae*

5 - Tube dwelling anemone patches: *Cerianthidae*

6 - Mud and sand emergent fauna: *Bourgetcrinidae, Antedontidae, Hyocrinidae, Xenophyophora, Syringamminidae.*

7 - Bryozoan patches

The Norwegian MAREANO program is a comprehensive research program which aims to map Norwegian and Svalbard EEZ seafloor. The program was first launched in 2005 and since then has increased the area covered year by year. Much information about vulnerable habitat types can be found on its website, however, so far the program has focused on mapping the seabed along the coast of Norwegian mainland. Mapping of the seafloor in the Barents Sea began some years ago but the area covered is still small and does not fully overlap with the UoA fishing grounds, especially in the central Barents Sea region. The identification of certain vulnerable habitats such as coral reefs in the Norwegian mainland coastline has led to the designation of new marine protected areas in the zone.

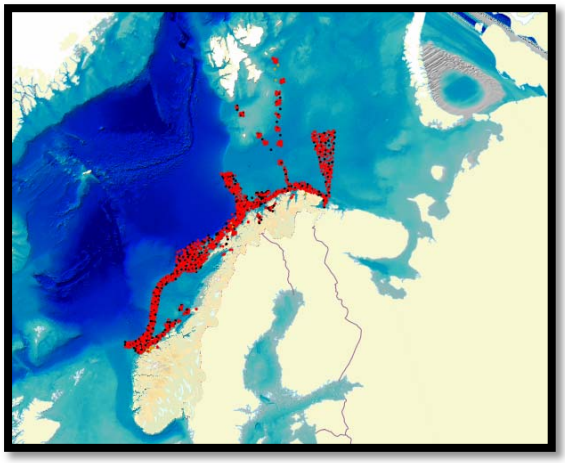


Figure 37: Area covered by the MAREANO program. Red dots show MAREANO stations. (Source: www.mareano.no)

Benthic species in the Barents Sea have however been studied by other research institutions such as the Norwegian IMR. Jørgensen *et al*. (2015) studied data collected in 2011 by bottom trawlers to assess the vulnerability of benthic species to trawling, based on the risk of being caught or damaged by a bottom trawl. This work identified 347 different benthic species in the Barents Sea. Of those, 23 were classified by the research group as "high-risk" species, due to their "large

weight and upraised" taxa and the ease of being caught by a bottom trawl. Jørgensen *et al*. (2015) research focuses on the distribution of these "high-risk" species, some of which are also considered as species indicators of VME by OSPAR and/or NEAFC.

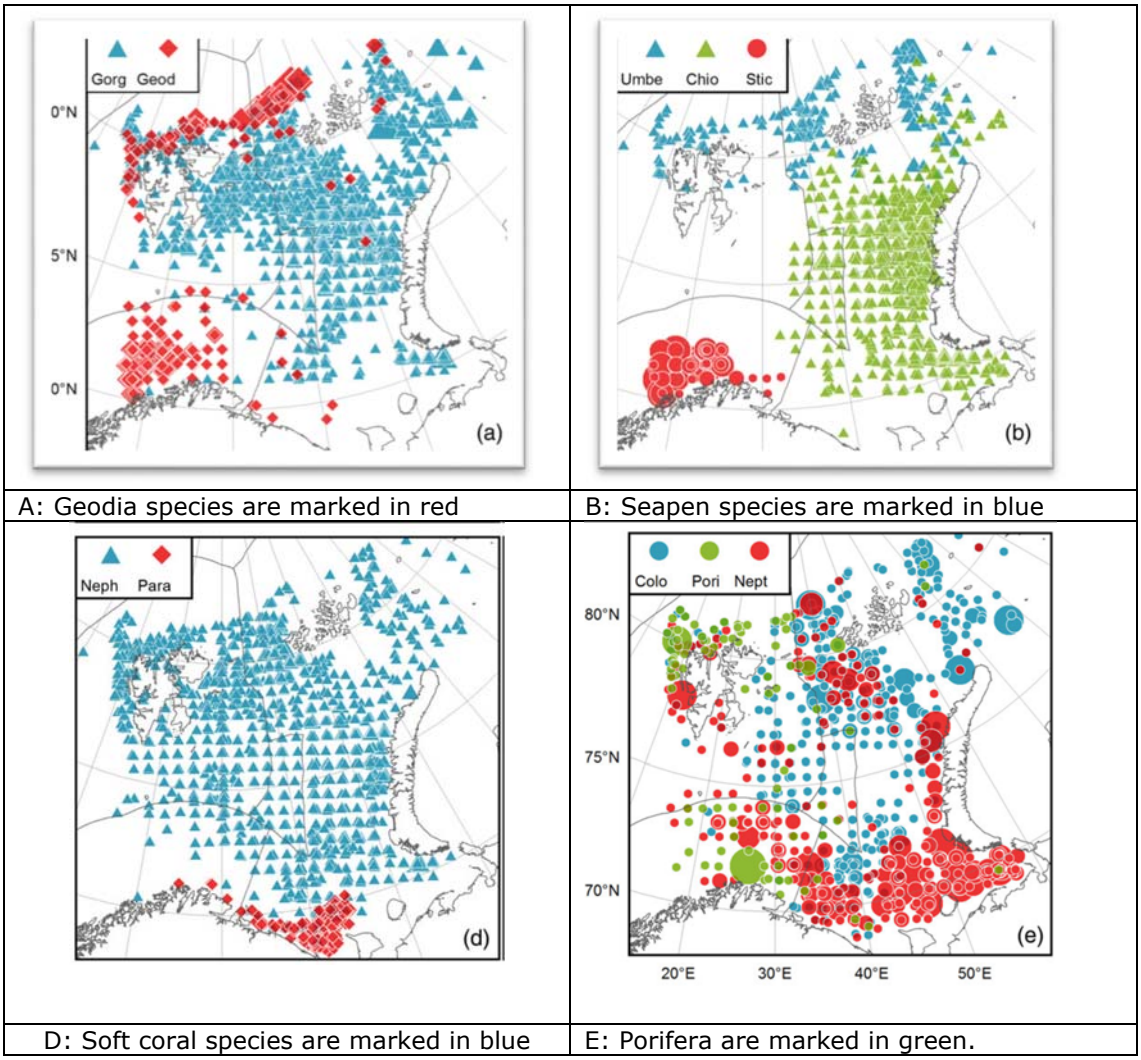
Table 17: Benthic species present in the Barents Sea with a high risk of catchability, as identified by Jørgensen *et al*. (2015).

Arthropods	Red king crab Snow crab	*Paralithodes camtschaticus* *Chionoecetes opilio*
	Sea spider	*Colossendeis spp.*
Cnidarian	Sea pen	*Umbellula encrinus*
	Nephtheidae soft corals	*Gersemia spp.* *Drifa glomerata*
Echinoderms	Basket stars	*Gorgonocephalus arcticus* *Gorgonocephalus eucnemis* *Gorgonocephalus lamarcki*
	Sea cucumbers	*Cucumaria frondosa* *Parastichopus tremulus*
	Sea lilies	*Heliometra glacialis* *Poliometra prolix*
Molluscs	Cephalopods	*Bathypolypus arcticus* *Benthoctopus spp.* *Rossia moelleri* *Rossia palpebrosa*
	Sea whelk	*Neptunea ventricosa*
Porifera	Surface-dwelling sponges	*Geodia barrette* *Geodia macandrewii*
	Other sponges	*Phakellia spp.* *Haliclona spp.* *Suberites spp.*

This study showed that *Geodia* sponges were dominant in the southwestern Barents Sea, basket stars (*Gorgonocephalus*) in the northern Barents Sea, sea pen (*Umbellula encrinus*) on the shelf facing the Arctic Ocean, and sea cucumber (*Cucumaria frondosa*) in shallow southern areas.

Of the species mentioned in Table 17 above, Porifera are considered by OSPAR as threatened and declining in the Barents Sea. NEAFC, in Recommendation 09:2015, considers both cnidarian and porifera species as representative of VME.

The following figures show the distribution of cnidarians and porifera as recorded by Jørgensen *et al*. (2015).



A: Geodia species are marked in red

B: Seapen species are marked in blue

D: Soft coral species are marked in blue

E: Porifera are marked in green.

Figure 38: Distribution (wet weight biomass after 15 min trawling) of benthic species in the Barents Sea. Of those, sponges, seapens and corals are considered as indicator species for vulnerable habitats by NEAFC:

(a) Basket star: *Gorgonocephalus spp.* (Gorg) and sponges: *Geodia spp.* (Geod); Indicator species of VME are marked in red.

(b) Seapens: *Umbellula encrinus* (Umbe), Snow crab: *Chionocetes opilio* (Chio), and sea cucumber: *Parasticopus spp.* (Stic); Indicator species of VME are marked in blue.

(d) Soft coral: Nephtheidae (Neph) and red king crab: *Paralithodes camtschaticus* (Para); Indicator species of VME are marked in blue.

(e) Sea spider: *Colossendeis spp.* (Colo), stalked Porifera (Pori: including *C. gigantean, S. borealis*, *Cladohriza spp.*, *Asbestopluma spp.*), and Sea whelk: *Neptunea spp.* (Nept: including *N. communis*, *N. despecta*, *N. ventricosa*, and *N. denselirata*); Indicator species of VME are marked in green.

(Source: Jørgensen *et al.* (2015)

Jakobsen and Ozhigin (2011) agree that large aggregations of sponges (e.g. *Geodia spp.*) can be found along the continental slope from Tromsøflaket and north along the west coast of West Spitsbergen, north of Svalbard (Spitsbergen) and east to Franz Josef Land. Porifera also appears to dominate the communities in terms of biomass north of the Finnmark coast, including the Bear

Island Channel, while cnidarians (mainly sea anemones and soft corals) and molluscs are more common in the Eastern part of the Barents Sea.

Besides, vulnerable bottom habitats in the Barents Sea north of 76°N and around Svalbard have been studied by IMR and described based on an evaluation of:

- the complexity of the benthos community (number of species, biomass, number of individuals),
- the sensitivity of the benthos community for climate warming (mean temperature preference and temperature tolerance),
- how exposed the benthos community are toward being hit/caught by a bottom trawl (height, body weight and mobility of species), and the geographical distribution of possible vulnerable species/species group.

The areas which are considered as vulnerable are:

- The deep regions on the continental slope around Svalbard
- The Yermack Plateau with the slopes
- The areas east of Svalbard including
    - The area between Nordøstlandet and Kvitøya
    - The area around Kong Karls Land
- Along the delimitation line between Norway and Russian on the Central Bank.

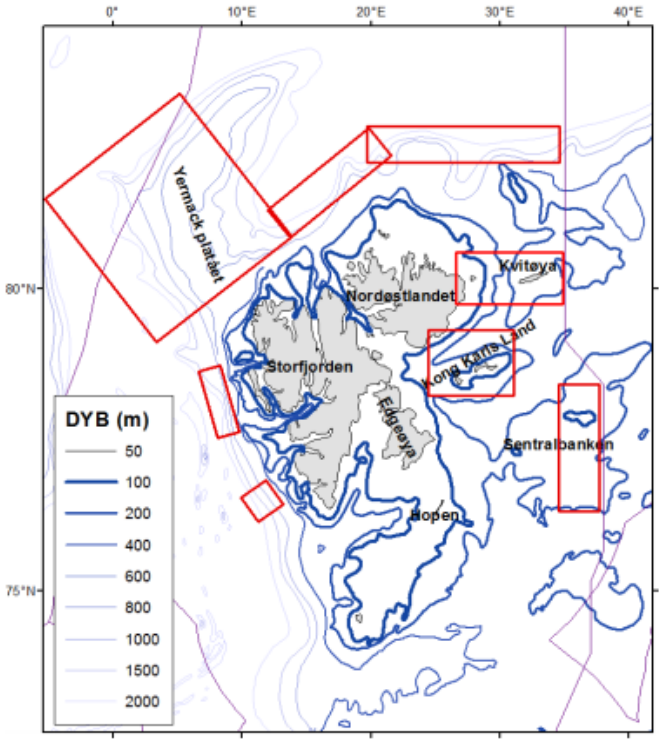


Figure 39: Vulnerable areas (in red) north of 76°N. The vulnerability is based on the complexity of the benthos-community, sensitivity toward increasing temperature and

bottom trawling and the geographical distribution of vulnerable species/species-groups. Source: Jørgensen, L.L. (2017).

Denisenko et al (2013) concluded that the distribution of *Lophelia pertusa* coral reefs is mostly located in the southwestern part of the Barents Sea (Norway EEZ). The distribution of the species is affected by water temperature and hydrological conditions which do not occur in the Russian EEZ. They agree that biggest sponge aggregations occur in the southwest part of the shelf around Banks of Tromso, and that the biomass of sponges is insignificant in the central and Eastern part of the Barents Sea (Denisenko *et al*, 2013). Regarding the distribution of soft corals, these are widely distributed in the Barents Sea. While most of these species (*Gersemia fruticosa, G. rubiformis, Drifa glomerata* and *Duva florida)* need a hard substratum to grow on it, *Gersemia fruticosa* can also lodge on soft soil. While soft corals are common in all waters in the Barents Sea and are generally taken as bycatch of bottom trawlers, they do not form mass settlements in the open waters of the Barents Sea. Regarding seapens, *Umbelulla incrinus* forms dense aggregations on soft soils in the northeastern part of the Barents Sea near Saint Anne's trench. Denisenko *et al* (2013) conclude that the southern part of the Russian EEZ has been trawled for more than 100 years and that the present benthic communities do not resemble what they originally were so that there aren't any untouched benthic communities in the area. Regardless of this loss, the benthic ecosystem continues to provide sufficient shelter and resources to support fish communities.

There are certain management measures implemented in the Barents Sea to protect habitats:

- Mandatory use of satellite monitoring (VMS – vessel monitoring system) which serves to verify that vessels from the UoA do not enter Marine Protected Areas (MPAs), as confirmed by the Danish, Faroese and Norwegian management authorities.
- On a general basis, trawling is forbidden within the 12 nautical miles outside the baseline of the Norwegian EEZ (however this limit is sometimes set at 6 nautical miles in certain areas around Svalbard). The limit is set by Norwegian authorities depending on the topography and biology of the seafloor.
- Norwegian Regulation J-187-2008 prohibits trawling near coral reefs.
- Norwegian Regulation J-40-2016, which affects all the Norwegian EEZ including waters in the Barents Sea, in its article 2, establishes that when a trawl vessel catches more than 30 kg corals or 400 kg sponges in a single haul the vessel shall stop fishing and move position at least 2 nautical miles in order to avoid such catches. The incident must be reported to the Directorate of Fisheries, but such records have not been provided to the team. The mandatory use of sorting grids could favour the discarding of such VME species within the water and before the hauling of the net. This regulation also establishes that when fishing in a "new fishing area" in Norwegian EEZ or in the Svalbard FPZ, vessels must have a special permit from the Directorate of Fisheries. Such special permission may only be granted if the vessel has submitted to the Directorate for approval:
    - A detailed protocol for trial fishing which includes a fishing plan for fishing gear, fish stocks, by-catches, time and areas.
    - A plan to avoid damage to sensitive marine ecosystems.

- A plan for journal entry and reporting.
- And a plan for collecting data on vulnerable habitats

- Regulation J-40-2016 is now (January 2018) at a hearing process for its review. The proposed reviews include the broadness of the definition on "new fishing area" to include previously excluded areas, to strengthen the requirements to allow fishing in them, and the creation of new 8 area closures for bottom trawling.

- Similar measures on interactions with corals and sponges apply in NEAFC waters, where Recommendation 19/2014 establishes similar threshold limits for bycatch of corals and sponges. NEAFC commission meets annually and decides, when necessary, on the establishment of area closures, as done in other NEAFC waters. To date NEAFC does not identify any need for area closure in the Loophole area http://www.fao.org/fishery/topic/16204/en .

- Russian fishing regulations do not establish any bycatch limit for interactions with sponges or corals (in any case, corals are not expected in Russian EEZ so this measure may not be deemed necessary).
- Norwegian Regulation J-187-2008 prohibits trawling near coral reefs and establishes MPAs to protect these species. However, they are all located by the Norwegian mainland coast, as information on the distribution of such areas in the open sea is still limited.
- While not relevant to the shrimp fishery, certain fishing groups (http://www.fiskebat.no/ , KARAT) have signed a voluntary Industry Group Agreement for the cod fishery in the northern part of North-East Atlantic (FAO area 27, ICES division IIb and Ib). This agreement (known as the Arctic Agreement), states that, from the 2016 season, the catching sector will not expand their cod fishing activities with trawl gear into those areas where regular fishing has not taken place before until there is sufficient knowledge on the vulnerability of benthic habitats.
- Establishment of closed areas to protect benthic habitats (mostly coral reefs) in Russian, Norwegian and Svalbard EEZs. Such areas are marked in the figure below and are all located nearer shore. There are no area closures to protect habitats in the offshore waters of the Barents Sea.

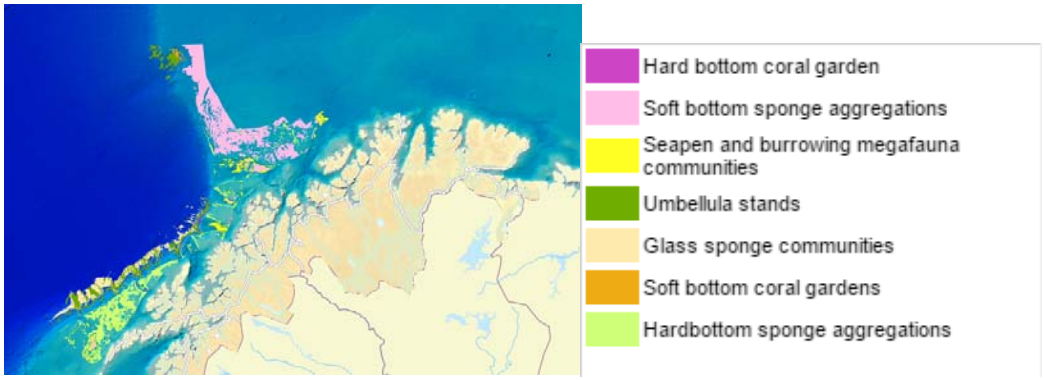
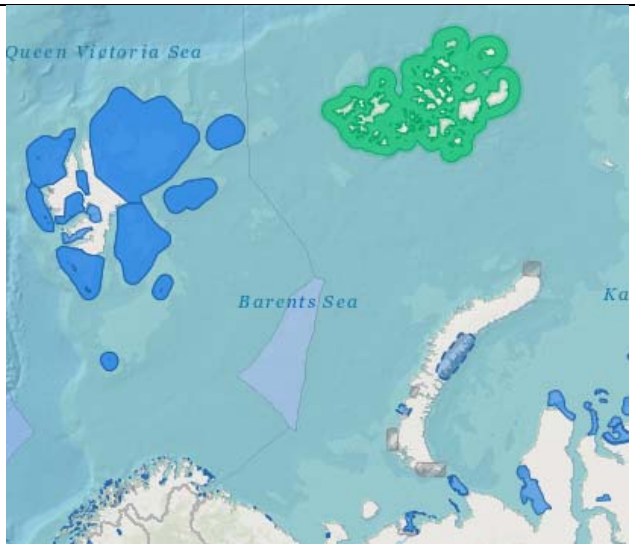


Figure 40: Vulnerable biotopes as identified by the Mareano program. (Source: www.mareano.no)

Figure 40 above shows vulnerable biotopes as identified by the Mareano program, while Figure 41 below shows the marine protected areas in the Barents Sea, all of which are located around land masses.

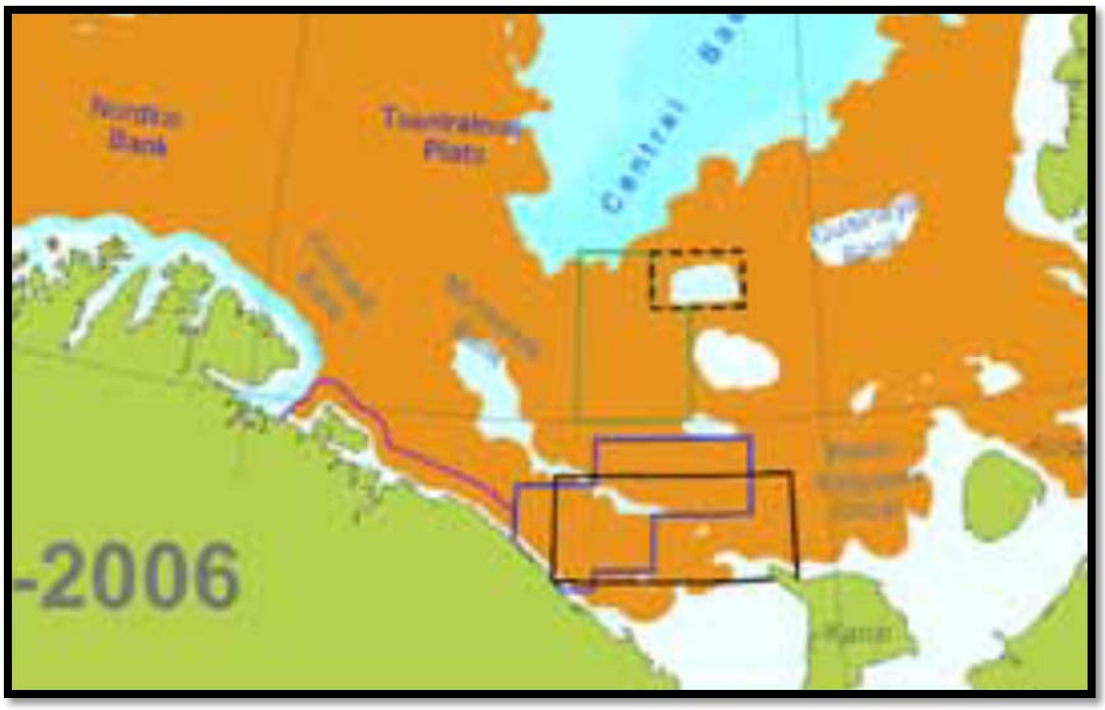
Source: www.barentsportal.com



Source: http://www.mpatlas.org/map/mpas/
Blue patches in the Svalbard Islands represent MPA while green patches in the Franz Joseph's Land represent strongly protected reserves.

Figure 41: Protected areas in the Barents Sea.

According to Grekov and Pavlenko (2011) there are 5 area closures in the Russian EEZ. None of these areas is directed to the protection of VME, but rather to the protection of juvenile fish which congregate in these areas. The position of these areas is described in Russian Regulation 414 (2014), articles 16 and 17.



Area No.	x 1,000 km2	Period of closure	Subject of closure
1	5.0	annually	All types of trawling gear
2	16.4	1st Jan – 30th June	All types of trawling gear
3	24.7	1st Jan – 15th April	All types of trawling gear
4	21.8	annually	Bottom trawl
5	8.0	annually	Bottom trawl

Figure 42: Permanent and temporary area closures directed to the protection of juvenile fish in the Russian EEZ. Source: Grekov and Pavlenko, 2011.

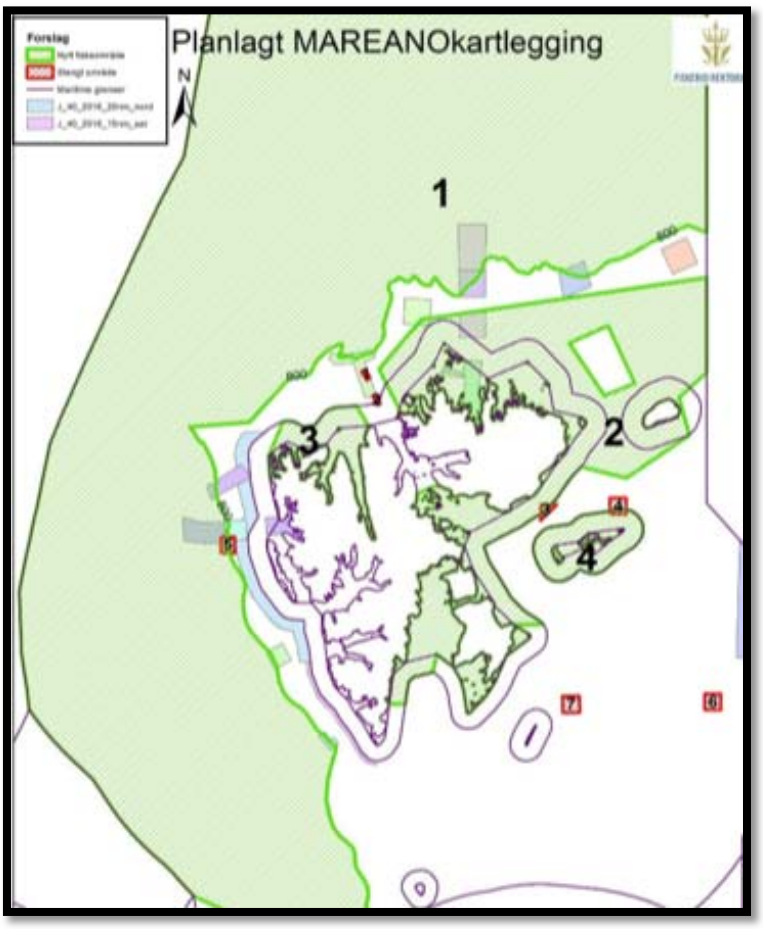


Figure 43: New area closures (as designated in May 2017) to protect VME in the Svalbard FPZ. Areas 1 and 2 (in green) describe new fishing areas where special fishing permits are required, while areas 3 to 7 (in red) describe area closures to protect seapens (area 3), sea stars (areas 4, 6 and 7) and sponges (area 5) where all bottom fishing is forbidden. Source: Norwegian Directorate of Fisheries.

According to Kaiser *et al.* (2006), bottom trawling does not irreversibly affect soft bottoms such as sandy and muddy grounds. However, there is still a clear and negative relation between fisheries-intensity and density of mega benthos (Jakobsen T., Ozhigin V., 2011).

Large epifauna species such as echinoderms, sponges, gorgonian corals, soft corals, large snails and bivalves are examples of groups of animals found in trawl bycatches. Sponges, seapens, ophiurids and sessile polychaetes remaining in the seafloor show a clear negative relationship between their biomass and trawling intensity in the area, while other species such as *Asteroidea spp.* show a positive response to trawling.

WWF Russia, developed, in 2013, a map of the minimum recovery time for habitats in the Barents Sea. The map was made based on the assumption that the duration of community recovery is

determined by the average life expectancy of the most long-lived species in the community. On this basis, a community cannot be considered fully recovered prior to the time that the longest-living member completes its entire life cycle. According to the map, recovery after bottom trawling would take place within 5 years in most parts of the Barents Sea, but recovery would be up to 10 years or more in the areas where VMEs tend to occur.

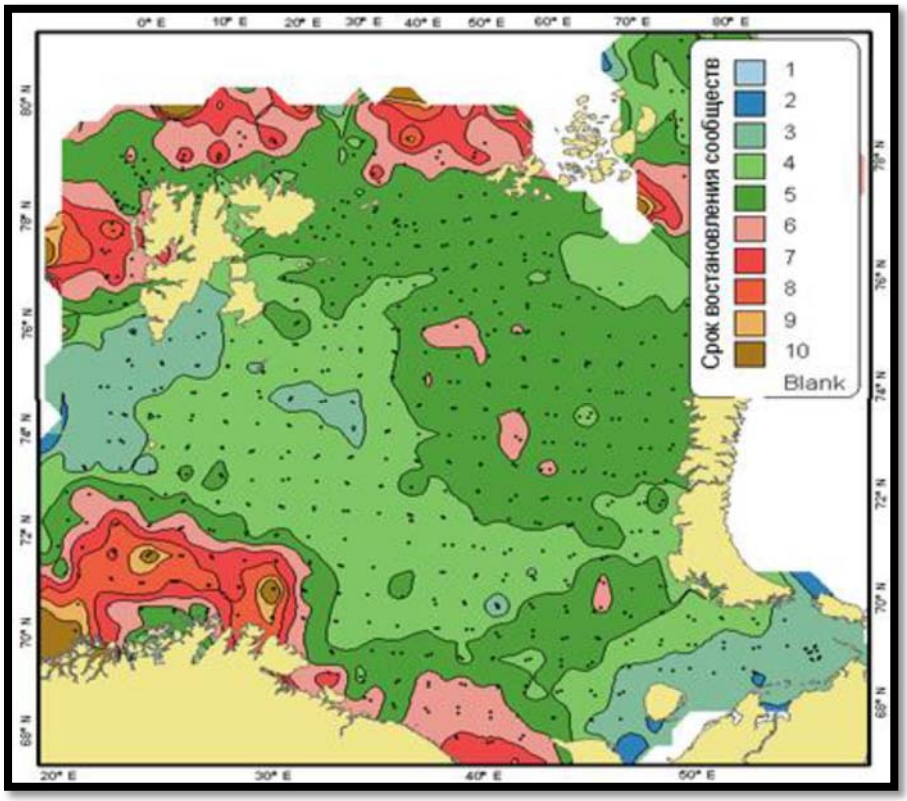


Figure 44: Map of the minimum recovery time (years) in the Barents Sea. Different colours show the community recovery time in years. (Source: Lubin 2013 (from Denisenko S.G. and Zgurovsky, K.A. 2013. Impact of trawl fishery on benthic ecosystems of the Barents Sea and opportunities to reduce negative consequences. Murmansk. WWF. 2013. 55pp.)

Other authors have also tried to estimate the recovery time for different species after trawling (Buhl-Mortensen *et al*., 2015). Benthic infauna communities might take at least 18 months to recover (Tuck *et al*. 1998). Macrobenthic invertebrates (molluscs, crustaceans, annelids and echinoderms) may take 1-3 years to recover (Desprez, 2000). Large sessile fauna takes from years to decades to recover. Indirect evidence (Pitcher 2000, and Sainsbury *et al*. 1997) suggests that large sponges probably take more than 15 years to recover.

However, some regions have already been trawled for more than a century, which has led to a loss of biodiversity in the modified areas where vulnerable species are less abundant. Trawling impacts have also been accompanied by natural spatial and temporal variations in water temperature and ocean currents. Full recovery of vulnerable species in those habitats is not expected to take place in a short-time frame, but avoiding future damage in unexplored areas should be easier to control.

In any case, trawl-modified habitats continue to offer nutrients for ecosystem needs, regardless showing lower biodiversity.

3.5.4 Ecosystem

The Barents Sea is one of the shelf seas surrounding the Polar basin. It covers an area of approximately 1 600 000 km2 (Carmack *et al*. 2006), has an average depth of ca. 230 m, and a maximum depth of about 500 m at the western end of Bear Island Trough (ICES 2016 AFWG Report). It connects with the deeper Norwegian Sea to the west, the Arctic Ocean to the north, and the Kara Sea to the east (Figure 45). It is delimited by mainland Russia and Norway in the South, Svalbard Islands in the East, Novaya Zemlya Islands to the West, and the Franz Josef Land Islands to the North. Atlantic waters enter the central Barents Sea through the western troughs between the Svalbard archipelago and the Norwegian coastline.

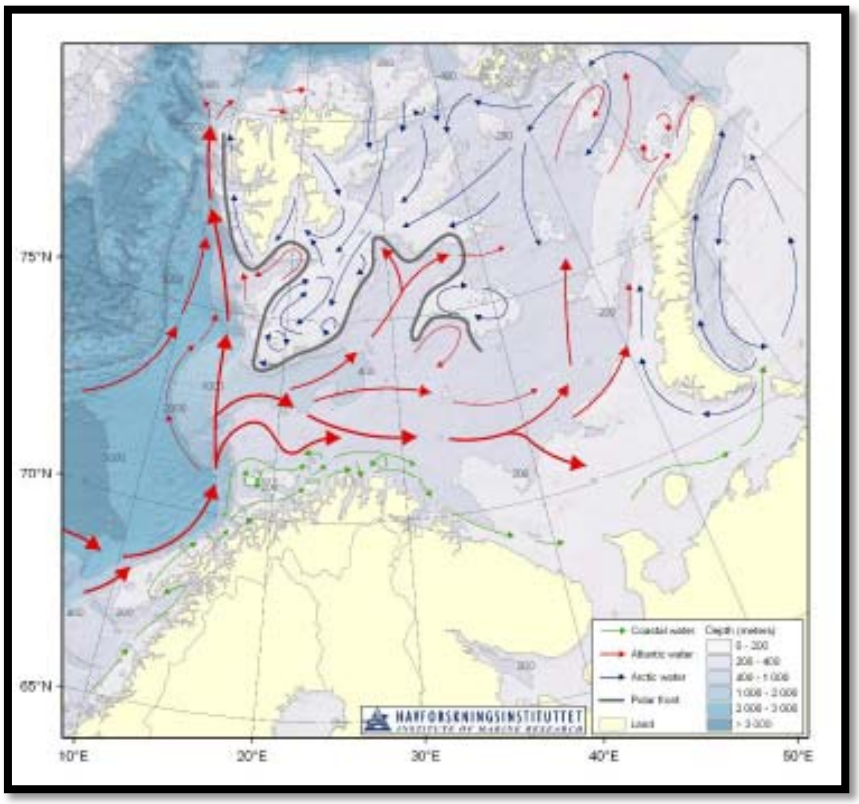


Figure 45: Water circulation in the Barents Sea. (Source: ICES AFWG REPORT 2016)

Ocean circulation in the Barents Sea is influenced by the region's topography and is characterized by inflow of relatively warm Atlantic water, and coastal fresh-water from the west. Atlantic waters later divide into two branches, one going East and one going North. In the northern region, colder Arctic waters flow from northeast to southwest. Atlantic and Arctic water masses are separated by the Polar Front, which is characterized by strong gradients in both temperature and salinity. In the western Barents Sea the front position is stable, while in the eastern Barents Sea the front position varies seasonally and inter-annually. Variations in large-scale atmospheric circulation leads to

changes in upper ocean circulation, ice extent and hydrographic properties of the water column. Ice cover also has a strong seasonal and inter-annual variation, ranging from almost ice-free conditions to covering more than half the sea. In the last 40 years, there has been a general decreasing trend in ice coverage in the Barents Sea. Distribution of phytoplankton, zooplankton and fish species have moved North as these waters get warmer. Other responses of the Barents Sea to climate change and ocean acidification are still to be observed.

The last decade was the warmest on record, with the highest temperatures in 2007 and 2012. In 2015 the surface temperature was on average 1.2°C higher than the long-term mean for the period 1931–2010 almost all over the Barents Sea (Figure 46). Water masses get stratified during the spring time, and after that primary production increases leading to a spring bloom (ICES 2016 AFWG Report).

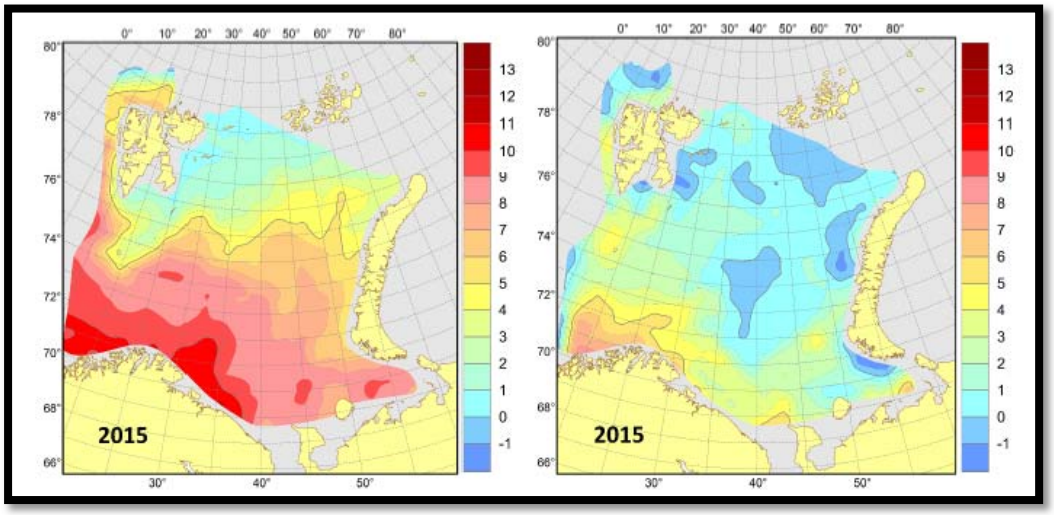


Figure 46. Surface (left) and bottom (right) water temperature (°C) in the Barents Sea in August-October 2015. (Source: ICES AFWG REPORT 2016)

The Barents Sea region is influenced by different human activities such as fishing, transportation of goods, oil and gas, tourism and aquaculture. Hunting of marine mammals was a common activity which remains at lower rates.

As regards fishing activities, vessels from different nationalities target different species using different gears. The largest commercially exploited fish stocks (cod, capelin and haddock) are now harvested at fishing mortalities close to those in the management plan and have full reproductive capacity. Some of the smaller stocks (golden redfish *Sebastes marinus* and coastal cod in Norway) are overfished. Other species subject to targeted fisheries include Greenland halibut, Atlantic halibut, beaked redfish, deep-water shrimps, red king crabs, and snow crabs (both crab species are well established in the region, despite being invasive species).

Marine research institutions such as IMR and PINRO undertake different scientific surveys to monitor both physical and chemical parameters as well as sample the status of the stock of different species. Table 26 below summarizes the different scientific surveys regularly taken by these institutions.

Table 18: Overview of conducted monitoring surveys by IMR and PINRO in the Barents Sea, with observed parameters and species. Climate and phytoplankton parameters are: T-temperature, S-Salinity, N-nutrients, chla-chlorophyll.

Survey	Institution	Period	Climate	Phyto-plankton	Zoo-plankton	Juvenile fish	Target fish stocks	Mammals	Benthos
Winter survey	Joint	Feb-Mar	T, S	N, chla	Intermittent	All commercial species and some additional	Cod, Haddock	-	-
Lofoten survey	IMR	Mar-Apr	T, S	-	-	-	Cod, haddock, saithe	-	-
Ecosystem survey	Joint IMR - PINRO	Aug-Oct	T, S	N,chla	Yes	All commercial species and some additional	All commercial species and some additional	Yes	Yes
Norwegian coastal surveys	IMR	Oct-Nov	T, S	N,chla	Yes	Herring, sprat, demersal species	Saithe, coastal cod	-	-
Russian Autumn-winter trawl-acoustic survey	PINRO	Oct-Dec	T, S	-	Yes	Demersal species	Demersial species	-	-
Norwegian Greenland halibut survey	IMR	Aug, biennial	-	-	-	-	Greenland halibut, redfish	-	-
Russian young herring survey	PINRO	May	T, S	-	Yes	-	Herring	-	-

Interspecies trophic relations are also studied through different multispecies and ecosystem models, which identify the most important inter-species/ functional group links and sensitivity of the ecosystem to changes and serves to give scientific based management advice to the different fleets. Table 19 below gives a summary of different multispecies and ecosystem models for the Barents Sea.

According to Plagányi (2007), there are different approaches to modelling the ecosystem:

- Whole ecosystem models: models that attempt to take into account all trophic levels in the ecosystem

- Minimum Realistic Models (MRM): takes into account a limited number of species which are most likely to have important interactions with a target species of interest
- Dynamic System Models (Biophysical): represent both bottom-up (physical) and top-down (biological) forces interacting in an ecosystem
- Extensions of single-species assessment models (ESAM): They expand current single-species assessment models taking only a few additional inter-specific interactions into account.

Table 19. Classification of the multispecies/ecosystem models for the Barents Sea. (Source: ICES AFWG REPORT 2016)

MODEL	NAME	STATUS (for the Barents Sea)
Whole ecosystem models (End to End models)		
EwE and ECOSPACE	Ecopath with Ecosim	Potentially useful
ATLANTIS	ATLANTIS	Operational
Minimum realistic models (Multispecies models)		
Bifrost	Boreal integrated fish resource optimization and simulation tool.	Operational
STOCOBAR	Stock of cod in the Barents Sea	Operational
GADGET	Globally applicable Area Disaggregated General Ecosystem Toolbox	Operational
DSF	Dynamic Stochastic Food web	In development
BORMICON	Boreal Migration and consumption model	Precursor to GADGET
MULTISPEC	Multi-species model for the Barents Sea: Simplified version is AGGMULT which is also connected to a ECONMULT - a model describing the economies of the fishing fleet.	Retired
MSVPA and MSFOR (and derivates)	Multi-species Virtual Population Analysis; Multi-species Forecasting Model.	Potentially useful
IBM	Individual-Based Models	Operational
Dynamic system models		
NORWECOM.E2E	Formulation is moving towards whole ecosystem model	In development
SYMBIOSES	SYMBIOSES	First version functional, under further development.
Extension of single species assessment models		
ESAM	Extended Single-Species Models e.g. Livingston and Methot 1998; Hollowed *et al.*, 2000; Tjelmeland and Lindstrøm 2005.	Limited application
SEASTAR	Stock Estimation with Adjustable Survey observation model and TAg-Return data	Limited application
EcoCod	Ecosystem and Cod	In development

3.6 Principle Three: Management System Background

3.6.1 Management of the Barents Sea cold water prawn fishery: general

Management regulations differ across the various fishing zones in the Barents Sea. The fishery is regulated primarily through effort control and technical measures. There is no TAC for the Barents Sea stock as a whole, but there is a TAC in the Russian zone.

The Faroese vessels in the UoC fish in the NAFO area (not covered by this certification), the Svalbard Area (The 200nm Svalbard zone has its legal foundation in the 1976 Act on the Norwegian Economic Zone), in the Loop Hole (International waters managed by NEAFC) and in the EEZ of Russian Federation. In recent years the Greenlandic vessels only fished in the Svalbard FPZ but 2 vessels have quota for the Russian zone and might also fish there in the future. Under current Greenlandic fisheries regulations Greenlandic vessels are not allowed to fish in international waters and thus they do not fish in the Loop Hole. Lithuanian vessels may fish in the Svalbard FPZ and the NEAFC area of the Loop Hole, but cannot fish in Russian waters.

The fishery is consequently covered by the legal systems of Faroe Islands, Greenland and Lithuania, the Norwegian jurisdiction in the Svalbard fishing area, the Russian jurisdiction in EEZ of Russian Federation and NEAFC regulation in international waters (the Loophole). The NEAFC Commission regulates fisheries in the NEAFC Regulatory area in ICES Areas Ia and Ib (International waters). Denmark is representing both Faroe Islands and Greenland in NEAFC.

Although the fishery in the Barents Sea is mainly controlled by the management measures implemented by Norway and Russia, Faroese, Greenlandic and Lithuanian vessels require a fishing license of their respective flag states. It is through this fishing licences that the vessels are obliged to respect the Norwegian and Russian regulations that are in place. For instanse the regulations on fishing days, quota, minimum mesh size and minimum landing size (MLS).

So in fact Faroe Islands, Greenlandic and Lithuanian vessels fish in the Svalbard FPZ under Norwegian regulations. In this area vessels must notify Norwegian authorities prior to commencement of fishing, and weekly catch reports in the form of a Port State Control Form (PSC) must be made to Norwegian and Faroe Islands, Greenlandic and Lithuanian authorities. The number of fishing days permitted to fish in the Svalbard FPZ is limited by country (922 for Faroe Islands, 450 for Greenland and 647 for Lithuania). These numbers have been agreed in Bilateral Agreements and are incorporated in Norwegian regulations[2]. Vessels must cease fishing in areas where the bycatch of cod and haddock is over 10% or when more than 10% of the catch of shrimps are undersized (<15mm CL) or when the numbers of undersized cod, haddock or redfish reach prescribed numbers per 10kg of shrimps caught.

[2] J-190-2005: Forskrift om fiske etter reker med fartøy fra Grønland i fiskevernsonen ved Svalbard https://www.global-regulation.com/translation/norway/5962685/regulations-on-fishing-for-shrimp-with-vessels-from-the-faroe-islands-in-the-fishing-protection-zone-by-svalbard.html

Faroe Islands are a contracting party to NEAFC, which allows their vessels to fish in the area of international waters known as the Loop Hole. Lithuania used to be a contracting party to NEAFC, but is now represented through the EU which allows its vessels to fish in the Loop Hole. The Greenlandic vessels are not allowed to fish in the Loophole. In this area there is no effective limit on the overall level of fishing effort or an overall quota.

Fishing must be undertaken as set out in the NEAFC Scheme of Control and Enforcement which includes the completion of catch on entry (COE) and catch on exit (COX) forms when entering or exiting the area, a Port State Control Form (PSC) when landing shrimps in another country, and an EU catch certificate if the shrimps are destined for the EU market. In the Russian EEZ, Faroe Islands vessels must have a Russian observer on board at all times. There is a TAC in Russian waters for Faroe Islands vessels of 5000 tonnes per annum and bycatch levels are regulated through a bi-lateral agreement between Faroe Islands and Russia. Bycatch of juvenile cod, haddock, redfish and Greenland halibut in the shrimp fishery in Russian waters should not exceed 800, 2000, 300 and 300 individuals respectively per one tonne of shrimp.

In all areas, Faroe Islands, Greenlandic and Lithuanian vessels are required to have a Vessel Monitoring System (VMS) on board and must complete electronic log books, and there is a minimum stretched mesh size of 35mm and the incorporation of Nordmore sorting grids to reduce bycatch are mandatory. Faroe Islands, Greenlandic and Lithuanian vessels are subject to inspections by Norwegian inspectors in the Svalbard FPZ, by EU control vessels, Norwegian vessels or any other NEAFC contracting party's inspectors in the international waters, and in Russian waters, vessels must have a Russian observer on board at all times.

3.6.2 Fishing Areas and jurisdiction

Politically, the picture of territorial seas ownership and access rights in the Barents Sea and Svalbard / Spitsbergen area is relatively complex. Following the United Nations conference on the Law of the Sea (UNCLOS, 1976), coastal states, including Norway and Russia, established 200 nautical mile exclusive fishing zones. The Barents Sea falls almost entirely within the 200 mile exclusive fishing zones of Norway and Russia, with the exception of a relatively small triangle of international waters in the eastern Barents Sea (the Loophole) and a larger area between mainland Norway and Jan Mayen (sometimes known as the 'banana').
Until recently the maritime delimitation between the two countries was not fully agreed, e.g. the case in the so-called grey-zone, where Russia and Norway agreed on parallel jurisdiction (Stokke 2002). The exact delineation of the Barents Sea and the Arctic Ocean was finally agreed in April 2010, during the visit of the President of the Russian Federation to Norway. The delimitation agreement was signed in Murmansk in September 2010 and entered into force in July 2011, following ratification by the Norwegian and Russian parliaments.

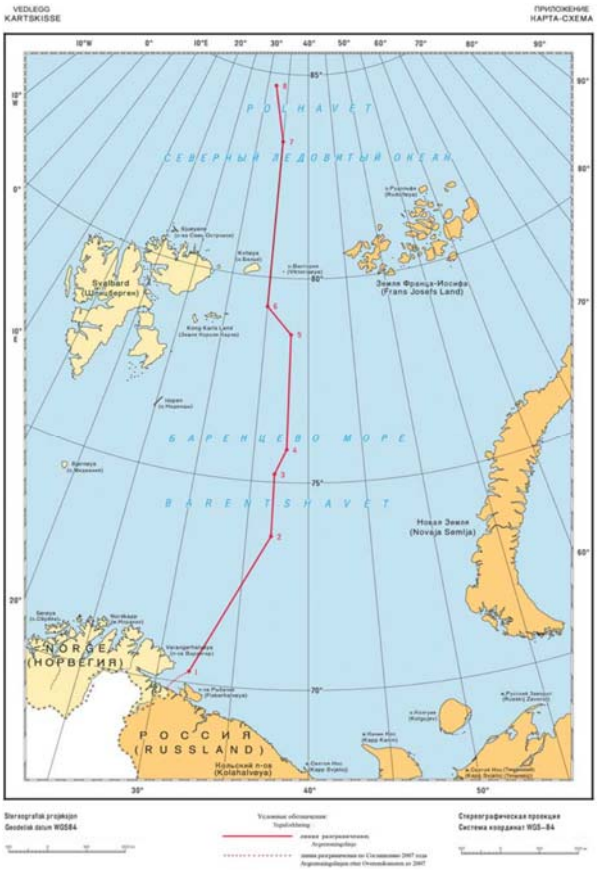


Figure 47: Agreed delineation between Russian and Norwegian waters.

3.6.3 National level regulations

3.6.3.1 Faroe Islands

The Ministry of Fisheries and Natural Resources is responsible for the management of all fisheries by Faroese vessels in foreign waters and international waters. The framework for the regulation of commercial fisheries, both in domestic, foreign and international waters, is the Faroe Islands Act on Management of Marine Resources (18 December 2017). Based on this legislation, detailed regulations are implemented.

The Faroe Islands government holds bilateral negotiations with Norway and Russia for fishery access to their respective zones. Norway gives Faroe Islands rights measured in days and Russian quotas are measured in tonnes. The Faroese vessel owners are able to lobby and advise their minister before and during these bilateral negotiations. Faroe Islands also participates in NEAFC negotiations for the management and allocation of fishery resources in the North East Atlantic. Hitherto it has been compliant with the convention and commissions decisions but currently it is in dispute with respect to the mackerel stock and quota allocations. As a consequence Faroese vessels are currently not allowed to fish in Norwegian waters, although they are still allowed to fish in the Svalbard and Russian zones.

Once the Faroe Islands government has been allocated its national quota negotiations are held between all interested parties in Faroe for the allocation of licences. All parties understand this process and their respective roles in it. The vessels share is distributed as a result of historical rights of the vessels/ship-owners that belong to the group "Shrimp-trawlers". Fishing license is valid for 1 year.

3.6.3.2 Greenland

As a former Danish colony, Greenland achieved the status of a county (Danish: amt = county) in 1955 and reached a certain degree of autonomy (Danish: hjemmestyre – home rule government) in 1979. Greenland left the European Union in 1985 after a referendum with its' autonomy from Denmark further expanded in 2009 (Danish: selvstyre = self-government).
The fishery operates under the Greenland Self-Government's regulatory and legal system with the first fisheries act passed through the parliament (Landstinget) and entered into force in October 1980.

Greenland is represented in a number of international organizations by Denmark. These include United Nations Convention on Law of the Sea, UNCLOS; the North Atlantic Fisheries Organization, NAFO; Convention on the International Trade in Endangered Species, CITES; and the International Whaling Commission, IWC.

The legal framework for the management of Greenland's fisheries resources is provided primarily by Landsting Act No. 18 of 31 October 1996 on Fisheries (the 'Fisheries Act'), amended by ten subsequent Acts.

The Ministry of Fisheries, Hunting and Agriculture (MFHA) has overall responsibility for fisheries policy and the management of fish resources in Greenland, with the Greenland Institute of Natural Resources (GINR) responsible for providing the biological basis for fisheries management advice to the MFHA. The Greenland Fishery License Control Authority (GFLK) is another key institution with responsibilities for monitoring control and surveillance. Offshore inspection duties are performed by the Royal Danish Navy's Arctic Command (AKO) by agreement with GFLK.

Greenlandic vessels are not allowed to fish in international waters like the Loop Hole

3.6.3.3 Lithuania

As a member of the European Union, Lithuania must manage their fisheries within the Framework of the EU's Common Fisheries Policy (CFP). Implementation of the CFP at a national level is carried out through the individual Member States. In Lithuania, responsibility for fisheries management and regulation lies with the Fisheries Service within the Ministry of Agriculture. The framework for the regulation of commercial fisheries in Lithuania is the Law of Fisheries 2000 which was updated in 2016. Individual acts may be implemented under the Law of Fisheries framework.

3.6.4 Management objectives

Long-term objectives are clearly defined and explicit within Norwegian Marine Resource Act, NEAFC convention, EU Common Fisheries Policy, Faroe Islands Act on Management of Marine Resources (18 December 2017), Greenlandic Fishery Act and the Lithuanian Law of Fisheries and are consistent with the MSC Principles and Criteria and precautionary approach.

The Norwegian Marine Resources Act states:
"The purpose of this Act is to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them and to promote employment and settlement in coastal communities". Objectives for the protection of fish stocks in the Svalbard Fisheries Protection Zone area are formulated within the Zone act and Norwegian fisheries management system (Marine Resources Act).

The NEAFC convention states: **"**The objective of this Convention is to ensure the long-term conservation and optimum utilisation of the fishery resources in the Convention Area, providing sustainable economic, environmental and social benefits (Article 2.)

For the EU clear over-arching long term objectives are set out in the EU Common Fisheries Policy (CFP). These long term objectives are clear and explicitly defined and entirely consistent with MSC P&Cs. The EU CFP was reformed in 2002 and 2014. The 2002 reform of the CFP also embraced a more long-term approach to fisheries management, involving the establishment of multi-annual recovery plans for stocks outside safe biological limits and of multi-annual management plans for other stocks. It aimed to progressively implement an eco-system-based approach to fisheries management. More recent a second reform took place. In December 2013, the European Commission's proposed reforms were adopted, with phased implementation taking place from 1 January 2014 through to 2020. The most important changes were the phased introduction of a landing obligation (discard ban), legally binding commitment to fishing at sustainable levels (the Maximum Sustainable Yield (MSY) and more decentralised decision making, allowing Member States to agree the measures appropriate to their fisheries.

Article 15 of Council Regulation EC 1198/2006 on the European Fisheries Fund, requires that all member states:
"Shall adopt, following appropriate consultation... a national strategic plan covering the fisheries sector (which) ...sets out the priorities, objectives, the estimated public financial resources (in accordance with the CFP) ...for:
(a) ... adjustment of fishing effort / capacity with regard to the evolution of fisheries resources, promotion of environmentally-friendly fishing methods and sustainable development of fishing activities;
(e) the sustainable development of fisheries areas,
(g) preserving human resources in the fisheries sector, through upgrading professional skills, securing sustainable employment and enhancing the position and role of women;
(h) protection and enhancement of the aquatic environment related to the fisheries sector".

The Faroe Islands Act on Management of Marine Resources (2017):
The Act on Management of Marine Resources states that a long-term strategy for the management and utilization of marine resources is to be designed and implemented for each stock in order to maintain the industry and the fish stocks at sustainable levels. The strategy should take into account the recommendations of experts in the field.

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."

Greenland's long-term objectives for the sector include:

- The framework for the fishing industry must, as far as possible, be stable, make it possible to provide security for investments and promote efficient fisheries, so that the industry can maintain and renew a modern fishing fleet and up-to-date land-based plants.
- The management of fisheries must support both the need for a long-term sustainable conservation of stocks as well as helping to create a stable basis for achieving good earnings in the industry and among its practitioners.
- The framework for the industry must make generational change in fishing possible as wellas making it possible for new fishermen to get access to fishery. This must be accomplished, for example, by creating both good conditions for obtaining financing and as well as for the achievement of the necessary competences to carry out effective and viable fishery.

Lithuania: The Lithuania Law on Fisheries (2000, revised 2016) regulates fishing, aquaculture, processing and marketing of fish. The objective of the Law is "to ensure sustainable fishing, protection of fish resources and their restocking, fishing control, with account of the ecological conditions, economy of fisheries and the interests of the fishermen, fish producers, processors and consumers."

Russian Federation Fisheries Act defines the concept of 'protection and rational use' of aquatic biological resources as the main objective of Russian fisheries management.

3.6.5 Decision making process

In the international waters in the area NEAFC regulations apply, and the agreements made in NEAFC form binding procedures governing cooperation between member countries. Both Norway and de EU are represented in NEAFC.

In the Svalbard regulatory area the Norwegian fisheries management system applies. In Norway the executive body at governmental level in Norway is the Ministry of Trade, Industry and Fisheries, while the practical regulation of fisheries is delegated to the Directorate of Fisheries.

Enforcement at sea is taken care of by the Coast Guard, which is part of the Royal Norwegian Navy, but performs tasks on behalf of several ministries, including the Ministry of Trade, Industry and Fisheries. Scientific research is performed by the Institute of Marine Research in Bergen.

Both in Norwegian, Russian, Faroese, Greenlandic and Lithuanian management systems decision-making processes take place that have resulted in management measures for this fishery. For the Svalbard area Norway has developed several measures like closed areas, days at sea and technical measures. For International waters, Faroe Islands, Greenland and Lithuania have implemented restrictions through a license system and technical measures.

Within the International waters, there are established decision making processes which have been used to develop measures and strategies for fisheries other than shrimps in the Barents Sea e.g. cod and haddock. For the Faroese shrimp fishery NEAFC regulations include the "move on" rule for encounters with vulnerable marine ecosystems (VME) and catch reporting requirements (Port State Control Form, PSCF). Several other measures are implemented through the fishing licenses issued by the Faroese, Greenlandic and LithuanianAuthorities (sorting grid, retained catch, inspection programmes).

Organisations and individuals involved in the management process have been identified and functions, roles and responsibilities are explicitly defined.

- NEAFC Commission (Regulation of fishing in International Waters (NEAFC Regulatory Area)
- Ministry of Trade, Industry and Fisheries (Norway)
- Directorate of Fisheries, Norway (Allocation of fishing rights, licenses, stock management, fisheries control, habitat protection)
- Federal Fisheries Agency (In Russia, the Federal Fisheries Agency is the implementing body for fishery policies under the Ministry of Agriculture)
- Russian Federal Border Service (since 2003 part of the Federal Security Service, the FSB) is responsible for enforcement at sea.
- Faroe Islands Ministry of Fisheries "Fiskimálaráðið" (Allocation of fishing rights, licenses, Stock management, fisheries control, habitat protection)
- Fisheries Inspectorate (fisheries control and inspection, Safety at Sea)
- Faroe Islands Ship Owners Association
- Fisheries Council "Fiskivinnuráðið" (the Advisory-Board of stakeholders)
- (Faroe Islands) Marine Research Institute, Havstovan (marine research)
- Greenland Ministry of Fisheries, Hunting and Agriculture. (Allocation of fishing rights, licenses, Stock management, fisheries control, habitat protection)
- Greenland Fisheries License Control Authority, GFLK (fisheries control and inspection, Safety at Sea.
- Lithuanian Ministry of Agriculture incorporating Fisheries Service (responsibility for fisheries management, licensing, regulation and enforcement and research)
- Lithuanian Local Fisheries Councils
- Lithuanian long distance fishermen's association - Okeaninio žvejybos laivyno įmonių asociacija (Association of the enterprises of Oceanic fishery)

Precautionary approach

Both in the Norwegian and the NEAFC management system, the precautionary approach is used and specifically mentioned. In Norway, fish stock rebuilding primarily takes place under the Act relating to the Management of wild living marine resources. However, in special cases with a threatened and endangered marine species, this species can be prioritized according to the Nature Diversity Act. This Act then sets out requirements to protect and implement recovery strategies for the species.

The purpose of the Act relating to the management of wild living marine resources is among others to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them. The Act also states that special importance shall be given to, among others, a precautionary approach in accordance with international agreements and guidelines, and an ecosystem approach that takes into account habitats and biodiversity, when managing living marine resources. The Institute of Marine Research (IMR) has been reorganized to take this into account.

In the NEAFC Convention the use of the precautionary approach is described in Article 4.: It is stated that: "When making recommendations in accordance with Article 5 or 6 of this Convention the Commission shall in particular:

a) ensure that such recommendations are based on the best scientific evidence available;

b) apply the precautionary approach;

c) take due account of the impact of fisheries on other species and marine ecosystems, and in doing so adopt, where necessary, conservation and management measures that address the need to minimize harmful impacts on living marine resources and marine ecosystems; and

d) take due account of the need to conserve marine biological diversity."

In the Federal Fisheries Act of Russian Federation the precautionary approach is not mentioned explicitly, though the requirement to take the best scientific knowledge into account and to protect aquatic biological resources meets the MSC requirements of the precautionary approach. In addition to that, the Russian Constitution of 1993 clearly states that the provisions of international agreements entered by the Russian Federation stand above those of national law. E.g. 1992 Convention on Biological Diversity, 1995 Straddling Stocks Agreement, 2010 agreement between Norway and Russia on marine delimitation and cooperation in the Barents Sea.

Also in the OSPAR Convention the precautionary approach is mentioned: Article 3 (ii) reads: "to develop means, consistent with international law, for instituting protective, conservation, restorative or precautionary measures related to specific areas or sites or related to particular species or habitats."

Findings and relevant recommendations emerging from research, monitoring, evaluation and review activity related to this fishery, such as catch levels, catch and fishing effort, potential impact of fishing on the marine environment, are reported and available on web-pages (e.g. Greenland Ministry of Fisheries, Hunting and Agriculture, Faroese Ministry of Fisheries and Natural Resources, Norwegian Ministry of Fisheries and Coastal Affairs, Fisheries Directorate, NEAFC Commission, ICES, NAFO, The Greenland Institute of Natural Resources (GINR), Havstovan, IMR).

Fisheries authorities try to avoid legal disputes through dissemination of timely information though the various sources such as:

- http://naalakkersuisut.gl/da/Naalakkersuisut/Departementer/Fiskeri-Fangst-og-Landbrug
- www.fisk.fo; www.fiskin.fo; www.teyggjan.fo
- http://www.zuv.lt/index.php?1381214678
- Publication and direct communication to stakeholders
- Direct contact with fishermen (e-mail, fax)

Regulations relating to bottom fishing activities:

The Norwegian Ministry of Fisheries and Coastal Affairs has issued a regulation that regulates fishing with bottom gear in the Fisheries Protection Zone around Svalbard. The new regulation entered into force from 1 September 2011. The regulation establishes a distinction between existing fishing areas (where the water depth is less than 1000 m) and new fishing areas (where the water depth is more than 1000 meters). In existing fishing areas a "move-on" rule is established in case a vessel encounters sponges or corals in its catch (an encounter is defined as catching more than 30 kg of live corals or 400 kg of live sponges in a single haul). When a vessel encounters the given quantities the vessel shall cease fishing activities and relocate to a position at least two nautical miles from the position that on the basis of all available information is probably closest to the vulnerable benthic habitat that has been identified. The vessel shall without delay report the encounter to the Directorate of Fisheries, including the location and the type of habitat encountered.

A vessel must hold a special permit from the Directorate of Fisheries to fish in new fishing areas. A special permit may only be issued if the vessel has submitted the following to the Directorate for approval:

- a detailed protocol for the exploratory fishery, including a harvesting plan describing fishing gear, target species, bycatches, dates and areas,
- a mitigation plan for avoiding damage to sensitive marine ecosystems,
- a plan for log-keeping and reporting, and
- a plan for collection of data on vulnerable benthic habitats.

For encounters with sensitive habitats the same rules apply as described above for the existing fishing grounds. The Directorate of Fisheries may lay down a requirement for a vessel to carry an observer when fishing in new fishing areas. The costs associated with carrying an observer on board, including wage costs, and also any interest on overdue payments, transport to and from the vessel, and board and lodging while at sea, shall be covered by the owner of the vessel. If sufficient documentation can be provided of bottom fisheries in areas that are deeper than 1000 metres, such areas may, on application to the Directorate of Fisheries, be classified as existing fishing areas.

A similar approach has been formulated by NEAFC in its regulations for bottom fishing in the NEAFC Regulatory Area. A distinction between existing and new fishery areas has been established. For new fishing areas all bottom fishing activities (or when bottom gear has not been previously used in the area concerned) shall be considered as exploratory fisheries and shall be conducted in accordance with an Exploratory Bottom Fisheries Protocol.

This strategy implies that in existing fishing areas, where fishing has taken place for decades, the perceived impact on the ecosystem is considered tolerable and thus the fishing activity can continue, but with stricter monitoring and reporting requirements. In new fishing areas, additional restrictions apply to protect vulnerable marine ecosystems (VME).

3.6.6 Consultation

Faroe Islands

Within the fishery regulation, 1994, there is a clear defined consultative process. The Faroese Ministry of Fisheries consults with major fisheries stakeholders on fisheries legislation, regulations and international negotiations. Such consultations take place both through a number of formal standing advisory committees, as well as through focused consultative meetings dealing with specific issues.

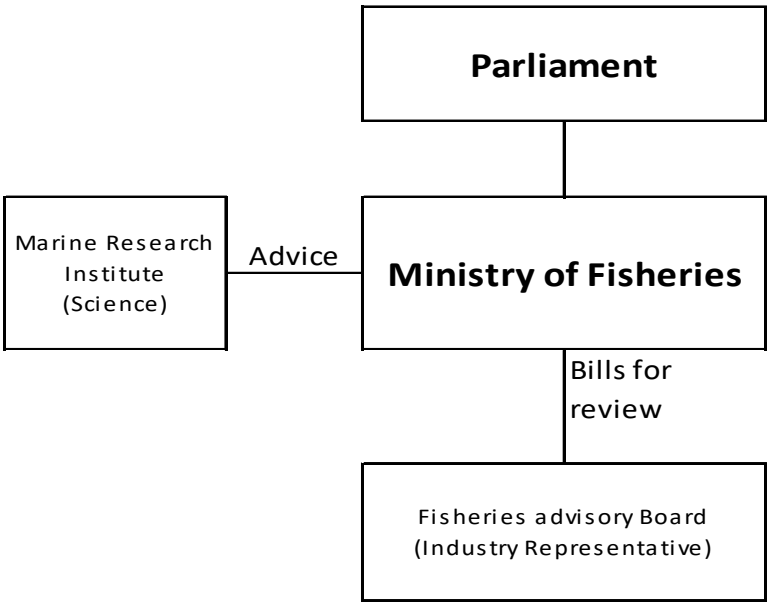


Figure 48: Consultation processes within Faroese Fisheries Management

All main groups of stakeholders (incl. fisherman, ship-owners, academics, producers, unions and other interested parties) are represented on the Fishery advisory board "Fiskivinnuráðið" which must be consulted prior to implementation of new fisheries regulations. This is enshrined within the National Fisheries regulation of 1994. "Fiskivinnuráðið has regular meetings through the year. The Fishery Minister appoints the chairman and the secretary.

The Marine Research Institute provides the Ministry of Fisheries with scientific assessments and advice on the status and management of fish stocks and marine ecosystems around the Faroe Islands.

Norway

In the Norwegian management process there is also a strong tradition of stakeholder consultation in the Norwegian management process. Before new regulations are passed the relevant stakeholder organisations from all relevant sectors are consulted.

EU

In the EU for every renewal of the Common Fisheries Policy (CFP) there is an extensive consultation process. The CFP was reformed in 2002 and 2014. The new base regulation that entered into force on 1 January 2003 included a provision that the European Commission (EC) shall report to the Council and the European Parliament on the chapters on conservation and fishing capacity before the end of 2012. The EC has started this review by publishing a Green Paper followed by a consultation period with a closure of written responses on 31 December 2009. Both during preparation of the Green Paper and during the consultation period meetings were held with stakeholders, administrations of all coastal MS, and other organisations and entities. In December 2013, the European Commission's proposed reforms were adopted, with phased implementation taking place from 1 January 2014 through to 2020. https://ec.europa.eu/fisheries/reform/consultation_en

Russia

Also in Russia there is a strong tradition of stakeholder consultation in the management process. The fishery councils consist of representatives of the fishing industry, federal executive authorities, executive bodies of the Russian federal subjects (the regions), research institutions and non-governmental organizations (NGOs). The current regulations of the Northern Basin Scientific and Fishery Council were given in 2002 and corresponding regulations for the Murmansk Territorial Fishery Council in 2005, stating, inter alia, that the council shall contribute to a harmonized fishery policy in the region, liaise between the fishing industry, fishery authorities, scientific institutions and NGOs. In addition, FIUN has developed into an important lobbying organization in the northern fishery basin, with direct access to the highest levels of federal authorities. At a more general level, all new federal regulations in Russia have to go through public hearings; i.e. all draft proposals for new regulations have to be published at the website https://regulation.gov.ru, administered by the Ministry of Economic Development, where the public are given 15–30 days to provide their comments. The management system demonstrates consideration of the information obtained by continuously adapting its policies in accordance with user-group opinion as expressed at the fishery councils at different levels.

NEAFC

For NEAFC, the Commission adopts management measures for the fisheries in the NEAFC Regulatory Area. All Contracting parties are involved in the decision making process. At its 20th Annual Meeting, 5-9 November 2001, NEAFC agreed rules for observers in order to admit NGOs as observers to the meetings of the Commission. The rules with respect to observers state: All non-governmental organisations (NGOs) which support the objectives of the Convention, have a demonstrated interest in the species under the purview of NEAFC and are in good standing should be eligible to participate as an observer in all plenary meetings of the Commission, except meetings held in executive sessions or meetings of Heads of Delegations.

The fishery is a long-distance deep-water fishery in a very remote area and there are no people dependent on fishing shrimp for food and livelihood that applies to this fishery.

Greenland

The Fisheries Act contains the legal basis for the Fisheries Council, which is the main mechanism for consultation in the general fisheries framework. The Fisheries Council meets monthly or more regularly at the request from a member organisation for an extraordinary meeting.
The Fisheries Council is composed of fishing industry representatives with two voting members: Greenland Employer's Association (GA) and The Association of Fishermen and Hunters (KNAPK).
The following additional parties are permanently represented at the council, having the right to speak, but not to vote:

- The Ministries covering the resorts of: fisheries, finance, nature and environment, industry and labor,
- Greenland Fisheries License Control Authority, GFLK;
- Greenland Institute of Natural Resources, GINR;
- Association of Municipalities, KANUKOKA;
- Employee's Union, SIK;
- Employer's Association, NUSUKA; and
- Nature Protection Association, AVATAQ.

The Fisheries Council provides an opportunity for the represented stakeholders to suggest new policy initiatives or revisions to existing legislation. Furthermore, the Fisheries Council has the authority to address specific fisheries-related issues that do not require the presence of government, with the scope of this authority explicitly outlined in the Fisheries Act. The Fisheries Council therefore plays an important role in facilitating interaction between fisheries stakeholders and the Government of Greenland, including identification of management priorities.

Lithuania

The Lithuanian Fisheries Service consults with the Local Fisheries Council on all new fisheries regulations. Local Fisheries Council consists of representatives from the following institutions:

- National Fish Producers Association;
- Western Lithuanian Fishermen's confederation;
- Lithuanian Fisheries Producers Association;
- Vilnius University, Faculty of Natural Sciences;
- National Aquaculture and fisheries producers association;
- Ministry of Environment;
- Ecology Institute of Nature Research Centre;
- Environmental Protection Agency;
- Ministry of Agriculture;
- Fisheries Service;
- Klaipeda University, Faculty of Natural Sciences.

The Producer Associations listed above, for example the Lithuanian Fisheries Producers Association (Lietuvos žuvininkystės produktų gamintojų asociacija) are umbrella groups representing local companies engaged in fishing, fish processing and sale of fishery products. Consultation within the Local Fisheries Council can therefore be considered to be broad-ranging. Consultation will also

occur with fishermen's associations such as Lithuanian long distance fishermen's association - Okeaninio žvejybos laivyno įmonių asociacija (Association of the enterprises of Oceanic fishery). All Deep Sea fishing companies are invited through the association and directly. The managing directors, lawyers or other decision makers of the relevant companies are attending. However JSC Seivalas does not belong to any association, but the company confirmed that they are included in all consultations on new fisheries regulations.

The Division of Fisheries Science and Research within the Lithuanian Fisheries Service provides the Ministry with scientific assessments and advice on the status and management of fish stocks and marine ecosystems.

3.6.7 Monitoring, Control and Surveillance (MCS)

Norway, EU, Russia, Faroe Islands, Greenland and Lithuania maintain a robust and effective control and surveillance regime to ensure a high degree of compliance across all fishing fleets participating in this fishery. Vessels can be, and are, warned, fined, have gear confiscated and licences suspended or withdrawn for non-compliance.

Throughout the fishing zones there is a rigorous enforcement regime to ensure a high degree of compliance across all fishing fleets participating in this fishery. All vessels must be equipped with VMS and maintain up to date logbooks which are subject to regular at sea inspections by Norwegian, Russian, EU and NEAFC fishery inspection vessels. EU inspections are organised by the European Fisheries Control Agency (EFCA). These inspections also ensure that technical measures are being complied with and the catches tally with log book records and quota allocations. Vessels must also report when they intend to enter or leave the coastal states waters and may have to await inspection before commencing fishing or leaving a coastal state's waters. The vessels shall also give pre-notification to the respective authorities prior to start of fishing activities, end of fishing activities and landing.

In Greenland GFLK operates an integrated VMS, logbook and vessel reporting system whereby vessels are required[4] to have a VMS system onboard and to submit daily catch reports as well as entry/exit hails for certain areas. This information is shared with Norwegian authorities under an MoU, resulting in both parties being able to closely monitor the activities and reporting of Greenland vessels in the Barents Sea.

The Lithuanian vessel operates under the EU management system within which flag state responsibilities include the implementation of technical measures (safety, VMS), allocation of days of sea and reporting (logbook requirements).

Quota control in Russian waters is performed by the BBTA, based on daily catch reports by all fishing vessels, which are also sent to the Border Service. In addition to the Border Service's inspections in the Russian EEZ, the BBTA carries out inspections in port and at sea in Russian territorial waters and outside the Russian EEZ (e.g. in NEAFC convention areas and in the Fishery Protection Zone around Svalbard). The VMS data are also collected and analysed by the BBTA

[4] Greenland Hole Rule Government Executive Order No. 21 of 30 May 2001 on Satellite Monitoring of Fishing Vessels.

Monitoring, control and surveillance mechanisms include the following:

- **VMS:**
  Faroe Islands and Lithuania: In the EU all vessels larger than 15 GT must have satellite vessel monitoring system in both national and international waters. The satellite vessel monitoring system (VMS) is mandatory.
  Greenland: Fishing vessels of and over 50 GRT/GT 90 and fishing vessels with permission to perform processing on board are required to have a VMS system onboard.

- **Catch control/log books:**
  Faroe Islands and Greenland: Faroese and Greenlandic commercial fishing vessels operating in the North-East Atlantic must maintain a daily log of their activities in an authorised catch logbook issued for this purpose. The master of the vessel must ensure that the vessel details, gear and catch details are accurately recorded and sign the logbook every day, regardless of whether or not fishing takes place on that day. The logbook contains numbered pages in triplicate which are referred to as log sheets. Original copies of log sheets must be returned to Fisheries Authorities and Norwegian authorities. In Faroe Islands to Fisheries Inspectorate and in Greenland to Fisheries License Control Authority, (GFLK).
  Faroe Islands and Lithuania: Faroe Islands and Lithuania operate an electronic logbook system (ERS). Logbook entries are sent automaticly to the Fisheries Inspectorate.
  Greenland: Greenlandic Fishing Vessels fishing in the Barents Sea are required to submit a dayly catch report to the GLFK by email. They are also obliged to submit a week report every week.
  Norway and Russia: Copies of logbook reports must be sent to Norwegian and Russian fisheries management authorities.

- **Monitoring of fishing days uptake**
  In the Norwegian waters (Svalbard) FPZ fishing effort in the cold water prawn fishery is controlled by the allocation of fishing days by Norway. Currently 922 days are allocated to Faroe Islands, 450 days to Greenland and 647 days to Lithuania. The Fisheries Inspectorate in Faroe Islands, GLFK in Greenland and the Fisheries Service in Lithuania monitor the uptake of fishing days on a weekly basis by monitoring the days that vessels have been reported active and fishing positions from the VMS system. In Russian waters there is no allocation of fishing days but an allocation of (country) quota.

- **Port State Control Form (PSCF):** Before landing fish the master of a vessel has to fill in a PSCF. This form will be sent by the port state to the flag state in order to verify whether the vessel had sufficient quota for the catch reported and has fished in the area declared (by cross checking with VMS data).

- **Landing control:** The Faroese Fisheries Inspection is responsible for insuring that all landings are in accordance with Faroese regulations and are properly recorded and verified. The legislation requires that all vessel landings both in Faroe Islands and outside submit logbook accompanied by the sales notes/ landing notes shortly after landing. In

order to ensure that the correct quantities are deducted from fishing quotas, the Faroese Fisheries Inspection conducts a cross-check analysis on the catch. In Greenland and Lithuania respectibvely GLFK and the Lithuanian Fisheries Service are responsible for ensuring that Greenlandic and Lithuanian vessels submit (electronic) log books and cross-checks these reports with landing declarations.

- **EFCA:** The European Fisheries Control Agency (EFCA) is a European Union body established in 2005 to organise operational coordination of fisheries control and inspection activities by the Member States and to assist them to cooperate so as to comply with the rules of the Common EU Fisheries Policy in order to ensure its effective and uniform application.

- **Inspections at sea:** The coastal countries, Norway (Coast Guard) and Russia (Boarder Service), have inspection vessels doing random and risk-based inspections at sea in their own Economic Zone as well as in the international zone covered by NEAFC. The inspectors have the permission to board the vessel and check fishing activities, gear used, logbook data, catch composition etc.

- **NEAFC and EU inspections**: NEAFC has no inspection vessels to enforce it regulations. However the European Fisheries Control Agency (EFCA) coordinates the implementation of EU obligations as a NEAFC contracting party. The encompassing objective of EFCA assistance to the Member State concerned is to ensure the uniform and effective implementation of the NEAFC recommendations and NEAFC scheme applicable to multispecies stocks in the NEAFC regulatory area (NEAFC RA). In order to meet the objective of the uniform and effective application of NEAFC management and control measures the EFCA provides, in collaboration with the Member State concerned, a specific organisational framework for operational coordination of control activities in this area, known as a joint deployment plan (JDP). The NEAFC JDP has been operating since 2009 with the participation of Denmark, Estonia, France, Germany, Ireland, Latvia, Lithuania, the Netherlands, Poland, Portugal, Spain, Sweden and the United Kingdom, which collaborate in the implementation of NEAFC rules through the system of joint sea campaigns. Joint deployment plans have been opereted for the Battic en Western waters. There has been no JDP plan for the Loop Hole in the past years however. The inspections that take place are carried out by Russia and Norway
https://www.efca.europa.eu/en/content/neafc

Cross checks of fishing activity recorded on the VMS system, log-books and landing data did not identify any cases of systematic non-compliance within the fishery. Vessels have been inspected at sea by Norwegian and Russian inspection vessels and these have demonstrated that the fishery generally complies with regulations. The fact that Russian observers are also on board in Russian waters is an effective control mechanism that precvents infringements.

Within the Faroese and Lithuanian management systems there is a set of sanctions (fines or withdrawal of fishing license) to deal with non-compliances. However infringements in the Barents

Sea prawn fisheries have not been reported to the authorities of these countries and as stated logbook and VMS control did not result in any infringements as well.

The EU has implemented a point system for infringements (Control regulation 2009/1224; 2011/404). These sanction systems can lead to high fines or loss of fishing opportunities.

Hønneland (2000) has investigated compliance in the Barents Sea fisheries for which previous studies have indicated a generally high level of compliance. According to his findings based on interviews with fishermen the extent of surveillance seems to be less important than the legitimacy of the management bodies. Fishermen have also indicated that the risks of non-compliance are considered to be high. It could be added that discussions with the Faroese authorities and fishermen has showed that there still exists a strong sense that there is a rigorous framework of regulation, authority and procedures which results in largely compliant behavior with existing regulations.

3.6.8 Research

Research is planned and undertaken by Norway and Russia in the framework of the joint Russian-Norwegian scientific research programme on living marine resources. The research undertaken includes: investigations on fish and shrimp stocks, incl. stock size, structure and distribution, fishing technology and selectivity of fishing gear, optimal harvesting of commercial species in the Barents Sea, monitoring of the populations of marine mammals and birds.

Research is also planned in the joint NAFO/ICES Pandalus Assessment Working Group (NIPAG).

3.6.9 Evaluation

Within the Faroe Islands and Greenlandic Management system there are mechanisms in place to periodically evaluate parts of the management system based on internal review within the Ministries and discussions within the Fisheries Commission and Fisheries Councils. Within the Lithuanian management system the Law on Fisheries 2000 was fully reviewed and updated in 2016. In addition the management system is regularly audited by the EU Commission.

Within the Norwegian management system, reporting of regulations and enforcement to the Norwegian Parliament occur annually. The National audit office performed a major audit on the management system in 2003-2004 reviewing resource management, Ministerial management and enforcement by subsidiary bodies like the IMR and Fisheries Directorate, etc. The report was presented to the Parliament. Research is published in scientific journals and subject to regular peer review therein. IMR has also had two major scientific reviews over the last decade by independent committees.

In Russia internal review of the management system is performed by the fishery councils at different levels and by the Federal Fisheries Agency, which in turn reports to the 1st Deputy Prime Minister, who is responsible for fisheries management in the Russian Government. The Federal Fisheries Agency can also report to the President about its activities. In the Federal Fisheries Agency, there is regular review of the performance of the agency's regional offices.

Recommendations from the regional fishery councils are important in the regional offices' feedback to the federal office. External review is performed by the Russian Auditor General.

NEAFC has mechnisms in place to review its managements measures. For intstance in 2012 a comprehensive review of its bottom fishing regulations has taken place. The NEAFC Commission at its Annual Meeting in November 2011 adopted the Process for the Review of the NEAFC Regulation on Bottom Fishing. The objective of the review was to assess NEAFC measures on regulating bottom fishing and, if required, to make recommendations to the Commission, in order to ensure alignment between the NEAFC regulations and the measures called for in the most recent relevant UN General Assembly Resolutions and the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas.

4 EVALUATION PROCEDURE

4.1 Harmonised Fishery Assessment

MSC FCR v2.0 states, "The aim of harmonisation is to avoid the perversity that two essentially similar fisheries receive materially different scores (materially in the number, and text, of conditions, or in the overall outcome, whether a pass or a fail). Fisheries that are identical should receive identical scores. Any other result undermines the credibility of the MSC".

4.1.1 Overlapping fisheries

There are two directly overlapping fisheries for Faroe Islands North East Arctic cold water prawn in the Barents Sea (Table 20). There are a number of other trawl fisheries that have been certified under MSC CRv1.3. However none of these other fisheries use the same lightweight gear that is used to fish for *Pandalus borealis*. As MSC CRv2.0 has only recently been implemented, at present the only Barents Sea fishery certified under CRv2.0 is for the Russian Barents Sea red king crab fishery. This is a trap fishery and therefore very different to the trawl fishery for *Pandalus borealis*, and there is no requirement therefore to harmonise with P1 (different species) or P2 (different gear). Whilst UoC vessels from the Faroe Islands and Greenland may fish in Russian waters, much of the activity of all UoC vessels takes place outside Russian waters and is not subject to Russian management regulations. The regulations that are applicable to UoC vessels in Russian waters are specific to the Pandalus fishery, and therefore the assessment team concluded that there was no requirement to harmonise this fishery with that of the Russian Barents Sea king crab fishery. All the other fisheries in Table 20 are currently certified under CRv1.3 or earlier, and as there is no requirement to harmonise with assessments under earlier versions of the CR, harmonisation with these fisheries is not required currently. In the future many of the fisheries in Table 20 will undergo reassessment using MSC CRv2.0 and at that time, it will be necessary to harmonise with the *Pandalus borealis* fisheries."

Table 20 Overlapping fisheries

Fishery	Gear	Geographical area	Assessment status
Norway Northeast Arctic cold water prawn	Bottom trawl	Barents Sea	Re-certified under MSC CRv2.0
Estonia Northeast Arctic cold water prawn (including Danish, Lithuanian and UK vessels)	Bottom trawl	Barents Sea	Certified under MSC CRv1.2 Undergoing re-assessment under MSC CRv2.0
AGARBA Spain Barents Sea cod	Bottom otter trawl	Barents Sea	Certified under MSC CRv1.2
Russian Barents Sea cod, haddock and saithe	Demersal trawl or bottom otter trawl	Barents Sea	Certified under MSC CRv1.3
Russian Federation Barents Sea cod and haddock	Bottom trawl	Barents Sea	Certified under MSC CRv1.2
FIUN Barents and Norwegian Seas cod and haddock	Bottom otter trawl, longline	Barents and Norwegian Seas	Certified under MSC CRv1.2
Archangelsk Trawl fleet Norwegian and Barents Seas cod, haddock and saithe	Demersal trawl	Barents and Norwegian Seas	Certified under MSC CRv1.3
Russian Barents Sea red king crab	Traps	Barents Sea	Certified under MSC CRv2.0

4.1.2 Harmonisation activities

At present one of the overlapping *Pandalus borealis* fisheries (Estonia) has been certified under MSC CRv1.2, and one (Norway) has been re-certified under MSC CRv2.0. Some harmonisation of scores occurred during the certification process between the Faroe Islands and Estonian fisheries and the original certification for the Norway North East Arctic cold water prawn fishery. However the Norway fishery has now been re-certified under MSC CR v2.0, and the Faroe Islands and Estonian fisheries are both undergoing re-assessment under MSC CRv2.0, and therefore a full harmonisation process will be undertaken between the three fisheries. This harmonisation will be facilitated by the use of the same assessment team for the three Pandalus fisheries.

The remaining overlapping fisheries (Table 20) are not targeting *Pandalus borealis* and therefore do not require harmonisation under Principle 1. Similarly the other fisheries are using different gear to the *Pandalus borealis* fishery, so many of the Principle 2 components cannot be adequately harmonised. It may be necessary however to consider harmonising 2.4 and 2.5 because of overlaps in the potential for the fishing gear to impact on the habitat and ecosystem components. More importantly, there will be overlap between other fisheries and the Pandalus fishery in Principle 3 components.

As MSC CRv2.0 has only recently been implemented, there is only the Russian red king crab fishery in the Barents Sea that has been certified under the new CR, but this is a trap fishery and therefore very different to the trawl fishery for *Pandalus borealis*. There is no requirement to harmonise with assessments under earlier versions of the CR. The assessment team will liaise with other ongoing assessments of Barents Sea fisheries using MSC CRv2.0 when they commence. In

the future many of the fisheries in Table 20 will undergo reassessment using MSC CRv2.0 and at that time, it will be necessary to harmonise with the *Pandalus borealis* fisheries.

4.1.3 Harmonisation outcomes

Harmonisation with the Norway and Estonia *Pandalus borealis* fisheries in the Barents Sea has been implemented during this re-assessment. At present (April 2018), final agreed scores for the Estonia fishery are not yet available. The Norway Barents Sea Pandalus fishery has been recertified under MSC CRv2.0, and comparison of the scores for the Faroe Islands and Norway fisheries is given in Table 21. The only score that differs for the two fisheries is for PI 2.3.2 where the Faroe Islands fishery receives a slightly higher score than the Norway fishery. When final scores have been agreed for the Estonia fishery, a full harmonisation of scores for the three Barents Sea Pandalus fisheries will be undertaken. At present, there is no requirement to harmonise with any other Barents Sea fisheries until they are reassessed using MSC CRv2.0.

Table 21. Table of PI scores for the Faroe Islands and Norway North East Arctic *Pandalus borealis* fisheries.

Principle	Component	Performance Indicator (PI)		Wt	Faroe Islands	Norway
One	Outcome	1.1.1	Stock status	1,0	100	100
	Management	1.2.1	Harvest strategy	0,25	70	70
		1.2.2	Harvest control rules & tools	0,25	60	60
		1.2.3	Information & monitoring	0,25	90	90
		1.2.4	Assessment of stock status	0,25	90	90
Two	Primary species	2.1.1	Outcome	0,333	100	100
		2.1.2	Management strategy	0,333	95	95
		2.1.3	Information/Monitoring	0,333	100	100
	Secondary species	2.2.1	Outcome	0,333	100	100
		2.2.2	Management strategy	0,333	95	95
		2.2.3	Information/Monitoring	0,333	100	100
	ETP species	2.3.1	Outcome	0,333	85	85
		2.3.2	Management strategy	0,333	95	85
		2.3.3	Information strategy	0,333	80	80
	Habitats	2.4.1	Outcome	0,333	70	70
		2.4.2	Management strategy	0,333	75	75
		2.4.3	Information	0,333	80	80
	Ecosystem	2.5.1	Outcome	0,333	80	80

		2.5.2	Management	0,333	80	80
		2.5.3	Information	0,333	95	95
Three	Governance and policy	3.1.1	Legal &/or customary framework	0,333	95	95
		3.1.2	Consultation, roles & responsibilities	0,333	85	85
		3.1.3	Long term objectives	0,333	100	100
	Fishery specific management system	3.2.1	Fishery specific objectives	0,25	80	80
		3.2.2	Decision making processes	0,25	85	85
		3.2.3	Compliance & enforcement	0,25	95	95
		3.2.4	Monitoring & management performance evaluation	0,25	80	80

4.2 Previous assessments

The Faroe Islands North East Arctic cold water prawn fishery was originally MSC certified on 5 December 2013. 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. Principle scores from the initial assessments are provided in Table 22. Three conditions were raised during the initial certification, and a summary of these conditions and their status is given in Table 23.

Table 22 Scores for each Principle in the initial assessment

Principle	Score
Principle 1 – Target Species	84.4
Principle 2 – Ecosystem	87.0
Principle 3 – Management System	90.8

Table 23 Summary of previous assessment conditions

Condition	PI(s)	Year closed	Justification
1: By the fourth annual surveillance, regulations limiting fishing effort in international waters (ICES Ia), that are responsive to the state of the stock, should be implemented to demonstrate that the elements of the harvest strategy work together towards achieving management objectives for the Barents Sea shrimp stock as a whole.	1.2.1	Not closed	FCR v2.0 7.11.1.3a and related guidance provides scope for condition milestones and timelines to be extended beyond the 5 years of a fishery certificate in some specific cases. In this case the fishery is managed through an RFMO (NEAFC) through which changes can only be made at the annual meeting in November, and the delay in meeting this condition is because the fishery has been above Bmsy since the start of the fishery and therefore introducing full limitation of fishing effort in the Loophole (which covers only a small part of the stock) is not considered a priority objective for the management authorities, particularly in comparison with the cold water prawn fishery in the Skagerrak and Norwegian Deep, which has declined recently to below MSYBtrigger, and which is the subject of major negotiations between relevant nations to develop a robust management plan. Whilst the Skagerrak and Norwegian Deep fishery is managed through the EU-Norway consultations, and not NEAFC, the main player driving the discussion in both fisheries is the Norwegian Ministry, who have stated quite clearly that a management plan for the Skagerrak and Norwegian Deep fishery must be the priority. There has been no specific research on mechanisms for limiting fishing effort in the Loophole, but there are two other areas of R & D which relate directly to the issue of ensuring that there is a harvest strategy which is responsive to the state of the stock. Firstly scientists at IMR in Norway have provided some options to the Norwegian Ministry for a harvest control rule for the stock, which if implemented will negate the need for a control on fishing effort. Secondly a detailed management plan for the Skagerrak and Norwegian Deep cold water prawn fishery is at an advanced stage of development, and the Norwegian Ministry confirms that this approach is likely to be used as a blueprint for a similar management plan for the Barents Sea fishery. There is research currently underway in IMR in Norway developing options for a harvest control rule. When a harvest control is agreed and implemented, which may be either through a TAC (most likely, based on management plans and approaches in the Skagerrak and Norwegian Deep cold water prawn fishery) or through full limitation on fishing effort, then the condition on PI 1.2.1 will no longer be required because management of the fishery will be fully responsive to the state of the stock. Norway is leading on the development of an HCR and the Norway fishery has a condition that a well-defined HCR should be implemented by 2021. Based on the rationales outlined above, MSC agreed that there are exceptional circumstances under which it is appropriate to extend the deadline for meeting this condition into the recertification period.

Condition	PI(s)	Year closed	Justification
2: By the fourth annual surveillance, well defined harvest control rules shall be implemented for the shrimp stock as a whole to ensure that the exploitation rates are reduced as limit reference points are approached.	1.2.2	Not closed	The Client and the relevant Ministries in Faroe Islands, Greenland and Lithuania confirmed that a HCR, as part of a wider management plan for the shrimp fishery in the Barents Sea, will not be implemented within the period of certification. However the assessment team noted that the MSC has issued new guidance in relation to the timeframe required in which to meet conditions raised against PI 1.2.2 in relation to harvest control rules. The MSC has acknowledged that for certified fisheries in which the stock biomass has consistently been above Bmsy during the history of the fishery, and that F is consistently below Fmsy, and for which HCRs are available, additional time may be given to the Client in meeting any condition which requires the implementation of a well-defined HCR under PI 1.2.2. This additional flexibility can only be granted to fisheries that will undergo the re-certification process under MSC CRv2.0, and that any additional time required to meet the condition must not take more than five years after agreement by MSC, in this case therefore beyond the third annual surveillance audit of the re-certification. The audit team concluded that biomass has been above Bmsy for the entire history of the Barents Sea fishery, that F is consistently below Fmsy, and that the fishery will commence the re-certification process using MSC CRv2.0. The MSC agreed therefore that it is appropriate under new MSC Guidelines to extend the deadline for meeting this condition to the third surveillance audit of the recertified fishery. The third surveillance audit would be expected to take place in 2021. The audit team emphasised to the Client that the new deadline for meeting the condition is an absolute final deadline and cannot be extended further.
3: The fishery is required to collect sufficient information on by-catches and spatial distribution of the fishery in order to detect any increase in risk for vulnerable bottom habitats (e.g. due to changes in fishing pattern or effectiveness of the move on rule).	2.4.3	2017	As no bycatch of corals and sponges was recorded during the four years following certification, maps of bycatch were not required. Comparison of VMS data from all shrimp vessels with the biomass distribution of the main taxonomic groups from the joint Norwegian/Russian ecosystem survey in 2013 suggested that significant impacts are unlikely. There appears to be no need therefore to introduce new management responses, and as there are procedures in place to ensure that any future interactions with corals and sponges will be recorded, the audit team concluded that the condition could be closed.

4.3 Assessment Methodologies

The assessment was carried out using MSC Certification Requirements v2.0, and also the MSC Full Assessment Reporting Template v2.0 was used.

The assessment team used the default assessment tree as defined in the MSC Certification Requirements v2.0.

Table 24 Assessment methodologies

Standard	MSC Fishery Certification Requirements and Guidance version 2.0.
Report template	MSC Full Assessment Reporting Template v2.0
Assessment tree	Default assessment tree

4.3.1 The MSC fisheries standard

The MSC fisheries standard sets out requirements that a fishery must meet to enable it to claim that its fish come from a well-managed and sustainable source. The MSC standard applies to wild-capture fisheries that meet the scope requirements as confirmed in section 3.1.

The MSC fisheries standard comprises three core principles:

Principle 1: Sustainable target fish stocks

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

Principle 2: Environmental impact of fishing

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

Principle 3: Effective management

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

4.3.2 The assessment tree structure

The default tree structure is divided into four main levels for the purposes of scoring, as summarised below and illustrated in Figure 49.

- Principle: The Principles represent the overarching basis for the assessment tree
- Component: A high level sub-division of the Principle
- Performance Indicator (PI): A further sub-division of the Principle
- Scoring Issue (SI): A sub-division of the PI into related but different topics. Each PI has one or more scoring issues against which the fishery is assessed at the SG 60, 80, and 100 levels.

The detailed assessment tree used in this assessment is included in Appendix 1.

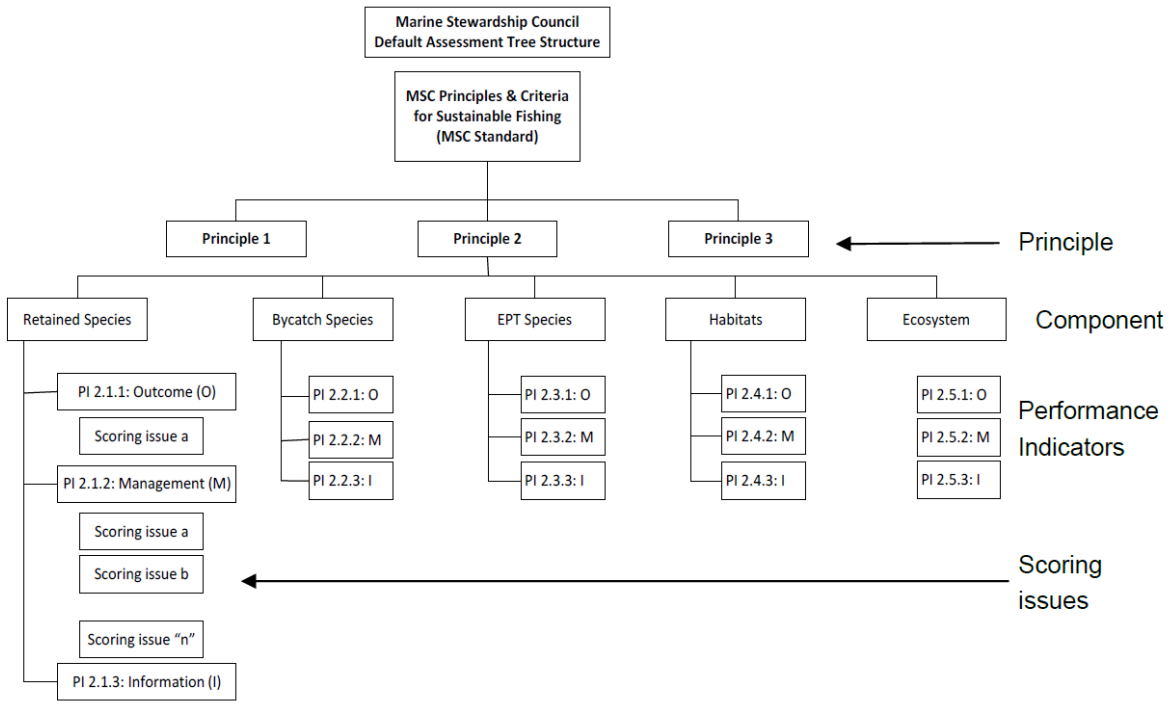


Figure 49: The assessment tree structure

4.4 Evaluation Processes and Techniques

4.4.1 Site Visits

Site visits to the fishery were performed by DNV GL's assessment team, and consultations were undertaken with interested stakeholders. The performance indicators and the pertaining scoring systems were evaluated, and it was judged if the fishery meets the requirements for MSC Certification.

The assessment team met with clients and relevant stakeholders in Vilnius in Lithuania, Copenhagen in Denmark and Torshavn in Faroe Islands on 17-19 October 2017 as outlined in Table 25. The Greenland clients and fishing authorities joined the meetings by skype. The scoring meeting took place in Oslo in November.

The audit activities were combined with the fourth surveillance audit for the Faroe Islands North East Arctic cold water prawn fishery.

Persons consulted and key issues discussed during these site-visits are outlined in the table below.

Table 25. Site visits conducted and key issues discussed

Stakeholder	Name, Affiliation	Date	Key issues
Client representatives:			**Info about client and the fishery** • History and organizational structure

JSC Seivalas	Vytas Ramaauskas	16.10.2017	**Fishing operations**: • Fishing season • Fishing area • UoC Fleet • Fishing practices: o Gears used o Fishing area o Fishing depth o Composition of catch o Info on discarding o Sampling and weighting on board o Closed areas o Loss of fishing gear **Impact on ecosystem:** • List of all by-catch of fish species: (species and quantities) • By-catch of marine mammals, ETP species, birds • List of commercial/non-commercial species which are usually discarded (quantities/if known) • Protected or sensitive habitats within geographical range of target stock • Effect of gear used on the habitat • Reporting & registration of by-catch/discards • Sorting/separation of by-catch • Sampling **Management, compliance with rules and regulations** • Fishery management plans • Disputes with national/ international authorities for the last 5 years. • Records of sanctions and penalties in 2015, 2016 and 2017 (if any). • Control & surveillance: o VMS system o Landing control o Quota control o Inspections on board • Participation in research projects • Amount and type of information provided to management bodies • Cooperation with management bodies • Management evaluation **Chain of Custody start**: • Fishing outside UoC • Review of traceability system on board and at landing • Labelling of products • First point of landing • First point of sale • Main products • Main markets **Review of progress against conditions**
Royal Greenland, Nanoq Seafood, Framherji & JFK Trol	Lisbeth Schönemann-Paul, Elvar Arni Lund (by skype), Halldor Leifsson (by skype), Durita i Grotinum	18.10.2017	
Maresco A/S	Eydun Durhuus, Arnbjørn Erholm, Johannes Joensen, Annika Zachariasen, Johan Joensen, Hans Annsias	19.10.2017	

Authorities:			• Function, role and responsibility • Harvest strategy for the fisheries, including regulations limiting fishing effort and harvest control rules • Short-term and long-term management objectives for the fisheries • Consultation and decision-making process for the stocks in the fisheries • Stakeholder involvement in decision-making • Regulations for the fisheries in the relevant geographical area • Control, surveillance and monitoring routines/regulations applied to the fisheries in the relevant geographical area • Level of slipping/discards • Strategy for minimising or eliminating ETP by-catch • Strategy and plans for protection of sensitive habitats • Fishermen's compliance with laws and regulations. • Significant discrepancies found at landing control for the fisheries in the last year • Quota and catch data for the 3 most recent fishing seasons • Observed fishing pattern (gear used, fishing area, number of boats, fishing season) • Updated VMS data for the shrimp fisheries • Mechanisms for resolution of legal disputes • Strategy in scientific work
Ministry of Fisheries & Fisheries Inspection (Vørn) in Faroe Islands	Ulla Svarrer Wang, Meinhard Gaardlykke	19.10.2017	
Ministry of Agriculture, Fisheries Control and Monitoring Div. of Lithuania	Tomas Dambrauskis, Eglé Radaityté	17.10.2017	
Ministry of Fisheries and Hunting & GFLK in Greenland (skype)	Esben Ehlers, Mads Nedregaard	06.11.2017	

4.4.2 Consultations

Information on the assessment process was made publicly available through www.msc.org at given stages of the assessment as outlined in Table 26. In addition, all relevant stakeholders identified at the beginning of the assessment (around 65 stakeholders) were reached through direct e-mails and given an opportunity to monitor the assessment process and provide feedback to the assessment team.

Information gathered during the site visits and through contact with the stakeholders after the site visit formed the main basis of the stakeholder consultancy for this assessment (ref. section 4.4.1 above). No written submissions were received from other stakeholders.

Table 26 Consultations during assessment process

Consultation subject	Consultation channels	Date of announced consultation
Notification of full assessment, with team, assessment tree and site-visit dates	Notification on MSC website / direct email to listed stakeholders	5 September 2017
Notification of assessment timeline	Notification on MSC website / direct email to listed stakeholders	5 September 2017
Notification of Public Comment Draft Report	Notification on MSC website / direct email to listed stakeholders	5 June 2018
Notification of Final Report	Notification on MSC website / direct email to listed stakeholders	
Notification of Public Certification Report	Notification on MSC website / direct email to listed stakeholders	

4.4.3 Evaluation Techniques

After all relevant information was compiled and analysed, the assessment team scored the Unit of Assessment against the Performance Indicator Scoring Guideposts (PISGs) in the final tree. The team discussed evidence together, weighed up the balance of evidence and used their judgement to agree on a final score following MSC FCR processes and based on consensus.

A scoring meeting was held in Oslo in the period 6-9 November 2017 when preliminary scores were agreed by the assessment team. Some scores were revised following the receipt of additional information that had been requested during the site visit, and any revisions to scores were discussed and agreed during skype meetings and e-mail correspondence between the assessment team.

Individual Performance indicators are scored. Scores for individual PIs are assigned in increments of five points. Any divisions of less than five points are justified. Scores for each of the three Principles are reported to the nearest one decimal.

- If one or more of the scoring issues fails to meet the scoring guidepost at the 60 level, the UoA fails and no further scoring is provided for the Performance indicator.
- Where all of the SG60 scoring issues are met, the PI achieves at least a 60 score, and the team assesses each of the scoring issues at the SG80 level.
- Where one or more of the SG80 scoring issues is not met, the PI is given an intermediate score reflecting the overall performance against the different SG80 scoring issues, and one or more condition(s) are assigned to the PI.
- Where all of the 60 scoring issues and all of the 80 issues are met, the PI achieves at least an 80 score, and the team assesses each of the scoring issues at the SG100 level.

- Where one or more of the SG100 scoring issues is not met, the PI is given an intermediates score reflecting the overall performance against the different SG100 scoring issues.
- Where all of the SG60, SG80 and SG100 scoring issues are met, the PI achieves a 100 score.

In Principle 1 and 2 the scoring may include PI with multiple scoring elements. Scoring is then applied to the individual scoring elements and the overall score for the PI is determined based on the score of the different scoring elements. Scoring elements considered in this assessment are listed in Table 27.

In order to fulfil the requirements for certification the following minimum scores are required:

- The fishery must obtain a score of 80 or more for each of the three MSC Principles, based on the weighted aggregate scores for all Performance Indicators under each Principle.
- The fishery must obtain a score of 60 or more for each individual scoring issue under each Performance Indicator in each Principle.

The final scores are based on group consensus within the assessment team. The assessment team will recommend certification where the weighted average score is 80 or more for all the three Principles, and were all individual scoring issues are met at the SG60 level.

Conditions are set where the fishery fails to achieve a score of 80 to any Performance Indicators. Conditions with milestones are set to result in improved performance to at least the 80 level within a period set by the assessment team. The client is required to provide a client action plan to be accepted by the assessment team. The client action plan shall detail:

- how conditions and milestones will be addressed
- who will address the conditions
- the specified time period within which the conditions and milestones will be addressed
- how the action(s) is expected to improve the performance of the UoA
- how the CAB will assess outcomes and milestones in each subsequent surveillance or assessment
- how progress to meeting conditions will be shown to CABs.

Table 27 Scoring elements

Component	Scoring elements	Main / not main	Justification for main/not main [primary and secondary species]	Data-deficient or not
P1	*Pandalus borealis*	Main	Target species	Not data-deficient
Primary	*Sebastes mentella*	Minor	<5% of catch	N/A
Primary	*Melanogramus aeglefinus*	Minor	<5% of catch	N/A
Primary	*Gadus morhua*	Minor	<5% of catch	N/A

Component	Scoring elements	Main / not main	Justification for main / not main [primary and secondary species]	Data-deficient or not
Primary	*Reinhardtius hippoglosoides*	Minor	<5% of catch	N/A
Secondary	*Boreogadus saida*	Minor	<5% of catch	N/A
ETP	*Sebastes norvegicus*	N/A	<5% of the catch (0.4%)	N/A
Habitat	Loophole commonly encountered habitats	N/A	N/A	N/A
Habitat	Svalbard commonly encountered habitats	N/A	N/A	N/A
Habitat	Russian EEZ commonly encountered habitats	N/A	N/A	N/A
Habitat	Cold water coral reefs	N/A	N/A	N/A
Habitat	Coral gardens	N/A	N/A	N/A
Habitat	Deep sea sponge aggregations	N/A	N/A	N/A
Habitat	Seapens and burrowing megafauna	N/A	N/A	N/A
Habitat	Gravel Patches	N/A	N/A	N/A

4.4.3.1 Risk Based Framework

The Risk Based Framework was not used in this assessment.

5 TRACEABILITY
5.1

5.1 Eligibility Date

During the assessment product, DNV GL shall nominate a date from which product from a certified is likely to be eligible to bear the MSC ecolabel; the target eligibility date. The target eligibility date may be set as either the PCDR publication date, or the certification date.

The **target eligibility date** for the Faroe Islands NEA cold water prawn fishery will be the same date as the re-certification date, which is 5 December 2018.

The **actual eligibility date** for the Faroe Islands NEA cold water prawn fishery will be set in the **Public Certification Report**.

5.2 Traceability within the Fishery

5.2.1 Traceability

Traceability up to the point of first sale has been scrutinised as part of this assessment and it is concluded that the system of tracking and tracing in the Faroe Islands NEA cold water prawn fishery is adequate to ensure that all shrimps originating from the certified fishery, and sold as certified, could be identified prior to or at the point of sale.

Faroese, Greenlandic and Lithuanian shrimp vessels have permissions to fish in the Svalbard FPZ while only the Faroese and Lithuanian vessel have access to fish in the international zone (Loop Hole – managed by NEAFC). The Faroese and the Greenlandic vessels have access to fish in the Russian zone, but not the Lithuanian vessels. All vessels are required to have a fishing licenses issued by their respective countries´ authorities.

None of the Faroese and Lithuanian vessels (currently no Lithuanian vessels) in the UoC fish outside the UoC when they target Barents Sea shrimps. However, some of the Greenland vessels start fishing shrimps in Greenland waters before going to the Barents Sea for continuing fishing. The shrimps from the Greenland waters are packed separately and given a specific lot id and label and by that minimise the risk for mixing certified and non-certified products.

In all areas, all the vessels have a VMS (Vessel Monitoring System) on board and by that there is full control about their fishing areas.

All Faroese vessels must from 2017 complete electronic logbooks (e-log book) with information about vessel id, gear, catch details, position, etc. The catch data are sent to Faroese authorities (VØRN) every day while the whole log book is sent after landing. Lithuanian vessels also have to complete e-log book which is based on a Danish system. They must send recordings to the Lithuanian Ministry of Agriculture, Fisheries Service, every day. Greenlandic vessels still have no electronic log books, but fill out paper log books by hand. Catch data are sent to the License Control (GFLK) by e-mail every week and total log sheets after landing.

In Svalbard area, which is regulated by Norway, vessels must notify Norwegian authorities prior to commencement of fishing. PSCF (Port State Control Form) is sent to Norway before landing, normally the day before. From Norway it is sent to the vessel´s flag state, and from there back to Norway who give permission to land.

In the international area (the Loophole) fishing activities must be undertaken as set out in the NEAFC Scheme of Control and Enforcement which includes the completion of catch on entry (COE) and catch on exit (COX) forms when entering or exiting the area, a Port State Control Form (PSC) to NEAFC 24 hours before landing, and an EU catch certificate if the shrimps are destined for the EU market.

Vessels from all three countries are sending a landing declaration to their respective authorities. The captain on Faroese vessels send the landing declaration, which is based on weighing, the day after landing. Sales notes must be sent to authorities after sale. The Greenland vessels send the landing declarations before discharge. Discharge reports from freezer store go to authorities. In addition to the landing declarations that must be sent from Lithuanian vessels to their authorities, also a landing note has to go from the freezer store to the authorities.

The vessels are inspected by the Norwegian Coastguard in the Svalbard area and in the Loop hole, and also by Russian inspectors in the Loop Hole.

There is no transshipment in this fishery.

Thus, the risk of substitution of certified shrimp with non-certified shrimp is negligible.

5.2.2 At-sea processing

Shrimp catches from vessels in all countries are packed and labelled on board the vessel. Processing of shrimp on board involves the following steps:

1. grading (automatic)
2. cooking (big shrimps)
3. freezing
4. packing

Large shrimps are packed in the cartons/wholesale boxes of 5 kg, which are destined to the supermarkets in Europe, Russia and Asia. Each carton is assigned a label which provides information on:

- Producer/ Vessel
- Country of origin
- Catch area
- Product
- Size
- Net weight
- Production date
- Shelf life

Small and medium size shrimps are frozen and packed in 18-22 kilo bags or cartons. These products go to peeling plants.

Faroese and Greenland vessels also pack raw frozen shrimps; so-called Japanese product, in 1 kilo cartons for the Asian market.

The former Lithuanian vessel, Plutonas, started boiling shrimps on board in January 2017.

The figures below show examples of labels originating from the different countries´vessels

Figure 50 Example of labelling used on shrimp products originating from the vessels Havborg and Akraberg from Faroe Islands (Havborg was sold to Russia in May 2017)

Figure 51 Example of labelling used on shrimp products originating from a vessel owned by Royal Greenland

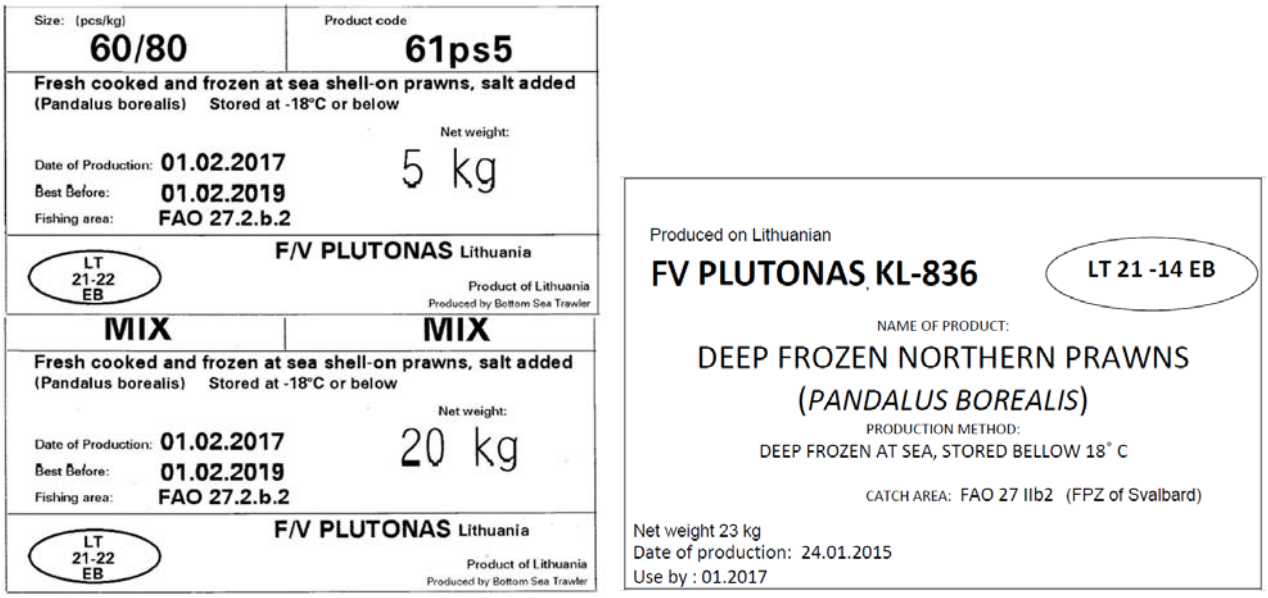


Figure 52: Example of labelling used on shrimp products originating from the Lithuanian vessel Plutonas (Plutonas was sold to Russia in May 2017)

5.2.3 First points of landings/sales

The products from all the vessels are landed mostly in Tromsø, Norway, but also other landing points are relevant. The current points of landing are:

- Faroese vessels:
  - Norway: Tromsø, (most of the catch), Senjahopen
  - Faroe Islands: Klaksvik, Fuglafjord

- Greenland vessels:
  - Norway: Tromsø
  - Iceland: Reykjavik
  - Faroe Islands: Kollafjørður
  - Greenland: Sisimiut
  - Denmark: Skagen, Hirtshals

- Former Lithuanian vessel:
  - Norway: Kårvikhamn, Tromsø

<u>Faroe Island vessels:</u>

The products from Maresco vessels go to either freezer storage (boiled shrimps) or are being transported to processing plant. Boiled shrimps are transported from freezer terminal in Tromsø to Denmark with reefer vessel. The boiled products, which are in client´s custody until sale in Denmark, are not handled or repacked during storage or transportation before the point of sale in Denmark.

Industrial shrimps go straight to Stella Polaris for processing after a few days at the freezer terminal. These products are not repacked or handled in any way before the point of sale.

The vessels Akraberg and Sjurdarberg are landing the frozen industrial shrimps in Senjahopen (for peeling) and the frozen boiled shrimps in Faroe Islands. Sjurdarberg goes to Klaksvik (FO) and Akraberg to Fuglafjord (FO) for freezer storage. The industrial shrimps are sold immediately after landing while the boiled shrimps are sold during storage. There is no handling/repacking at the cold store, so there are minimal risks for mixing of certified and non-certified products.

Greenland vessels:

Royal Greenland vessels are landing many places. The boiled shrimps go to freezer stores from where they are sold or they are sold directly at landing. There is no handling/repacking at the freezer store, so there are minimal risks for mixing of certified and non-certified products.

The industrial shrimps can be landed at the same places as the boiled shrimps, and some go to Greenland (Sisimiut) for peeling in Royal Greenland plants. RG have CoC. The sales situation for industrial shrimps is the same as for the boiled shrimps in the sense that they can be sold directly at landing or after storing in freezer store.

There is no handling/repacking at the freezer store, so there are minimal risks for mixing of certified and non-certified products.

Nanoq Seafood´s vessel is landing most of the catch in Tromsø, Norway, but some also in Reykjavik in Iceland. Sometimes the shrimps can be landed at other places if the situation warrents it. E.g. shrimps were recently landed in Sortland, Norway because of full cold store in Tromsø.

Some of the products are sold by landing, but some after a certain time of storage in the cold store. There are no risk factors that may influence on the traceability while storing as there is no handling of the products other than movement. The system with packing and labelling on board, securing full traceability regarding species, vessel, catch dates and catch area, and with no handling/re-packing during the transport, the risk for mixing of certified with non-certified products is minimal.

The products are also in the custody of the vessel until sale.

Lithuanian vessel:

Plutonas did sell all shrimps by discharge; boiled shrimps to a Danish company and industrial shrimps to a Norwegian processing company in Kårvikhamn. Plutonas was sold to a Russian company in May 2017.

5.2.4 Traceability risk factors

Table 28 Traceability risk factors within the fishery

Traceability Factor	Description of risk factor if present. Where applicable, a description of relevant mitigation measures or traceability systems (this can include the role of existing regulatory or fishery management controls)
Potential for non-certified gear/s to be used within the fishery	None of the vessels within the UoC use gear types that are not included in the UoC, so by this there is minimal risk for mixing of certified with non-certified shrimps.
Potential for vessels from the UoC to fish outside the UoC or in different geographical areas (on the same trips or different trips)	None of the Faroese vessels are fishing outside the UoC when targeting shrimps. The same was the situation with the former Lithuanian vessel. The vessels have VMS, ensuring control of their fishing positioning. Some of the Greenland vessels (Royal Greenland) fish in Greenland waters before heading for Barents Sea for continuing fishing for shrimps. The shrimps from the Greenland waters are packed separately and specifically labelled with catch dates, catch area, vessel id, etc and by that minimizing the risk for mixing certified from non-certified products.
Potential for vessels outside of the UoC or client group fishing the same stock	Vessels from other countries; i.e. Norway, Estonia, Iceland, Russia and EU countries also fish this stock. Some of these fisheries are certified (Norway and Estonia) and some not. Some of the foreign vessels may land their catches at the same landing places as the shrimps included in this UoC, but the traceability system including catch control on board and by landing (log books, delivery notes, sales notes etc.) and labelling of the product packaging with species, catch dates, vessel id, catch area, etc. minimizes the risk for mixing of certified with non-certified shrimps.

Risks of mixing between certified and non-certified catch **during storage, transport, or handling activities** (including transport at sea and on land, points of landing, and sales at auction)	Potential risks of mixing of certified and non-certified catch during any kind of handling after landing and prior to first sale or processing could be associated with cold storage. Segregation, packaging and labelling of the certified catch on board, which give full traceability to vessel, species, catch date and catch area, and no further repackaging or re-labelling before sale or processing, minimize the risks for mixing of certified with non-certified products. Also captains declaration notes sent to their respective fishing authority either before or after discharge mitigates the risk of mixing. In some cases the shrimps can be landed in other places than the place from where its sold. I.e. the shrimps can go with reefer vessel from freezer terminal in Tromsø to Denmark where the sale takes place. There will be no handling/re-packaging of the shrimps before it ends up in Denmark. The system with packing and labelling on board the fishing vessel, securing full traceability regarding species, vessel, catch dates and catch area, and with no handling/re-packing during the transport, minimize the risk for mixing of certified with non-certified products. The catch is in the custody of the fishing client until sale.
Risks of mixing between certified and non-certified catch **during processing activities** (at-sea and/or before subsequent Chain of Custody)	Before entering Chain of Custody the only processing activity is on board where the certified shrimps are graded, boiled and frozen. During this process the shrimps are segregated from other species and kept separate with the label identifying species, catch dates and catch area. There is no risk of mixing with non-certified shrimps. Any processing activities on shore is after sale, and requires Chain of Custody
Risks of mixing between certified and non-certified catch during transhipment	There is no transhipment
Any other risks of substitution between fish from the UoC (certified catch) and fish from outside this unit (non-certified catch) before subsequent Chain of Custody is required	None identified

5.2.5 Eligibility to Enter Further Chains of Custody

Table 29 Eligibility to enter further chains of custody

Conclusion and determination	*Pandalus borealis* products caught in the manner defined in the Unit of Certification (Table 7 in section 3.1 of this report) will be eligible to enter Chain of Custody and carry the MSC logo
List of parties, or category of parties, eligible to use the fishery certificate and sell product as MSC certified	The eligible parties are Faroese, Greenlandic and Lithuanian vessels having a license from their respective authorities to fish cold water prawns by bottom trawl in ICES divisions I and II and specified in Certification (Table 7 in section 3.1 of this report). There are no other eligible vessels in this fishery.
Point of intended change of ownership of product	Change of ownership takes place after landing, either at the points of landing or at the freezer store.
List of eligible landing points (if relevant)	Eligible landing points are currently: • **Norway:** Tromsø, Senjahopen, Kårvikhamn • **Iceland:** Reykjavik • **Faroe Islands:** Klaksvik, Fuglafjord, Kollafjord • **Greenland:** Sisimut • **Denmark:** Hirtshals, Skagen
Point from which subsequent Chain of Custody is required	Chain of custody will commence following the sale of *Pandalus borealis* products at the point of landing of either the fishing vessels included in the certification or reefer vessels hired by the clients included in the certification. The sale takes place either at the point of landing or at the freezer store. On-land activities including auctions and freezer storages are included in the certificate. Land-based peeling/processing plants as well as cold/freezer stores that perform anything more than movement of product must have separate CoC certification.

5.3 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to Enter Further Chains of Custody

There were no IPI stocks identified in this fishery.

6 EVALUATION RESULTS

6.1 Principle Level Scores

Table 30 Final Principle scores

Principle	Faroe Islands, Greenland and Lithuania
Principle 1 – Target Species	85.0
Principle 2 – Ecosystem	88.7
Principle 3 – Management System	89.2

6.2 Summary of PI Level Scores

Table 31 Summary of Scores

Principle	Component	Performance Indicator (PI)		Wt	Score
One	Outcome	1.1.1	Stock status	1,0	100
	Management	1.2.1	Harvest strategy	0,25	70
		1.2.2	Harvest control rules & tools	0,25	60
		1.2.3	Information & monitoring	0,25	90
		1.2.4	Assessment of stock status	0,25	90
Two	Primary species	2.1.1	Outcome	0,333	100
		2.1.2	Management strategy	0,333	95
		2.1.3	Information/Monitoring	0,333	100
	Secondary species	2.2.1	Outcome	0,333	100
		2.2.2	Management strategy	0,333	95
		2.2.3	Information/Monitoring	0,333	100
	ETP species	2.3.1	Outcome	0,333	85
		2.3.2	Management strategy	0,333	95
		2.3.3	Information strategy	0,333	80
	Habitats	2.4.1	Outcome	0,333	70
		2.4.2	Management strategy	0,333	75
		2.4.3	Information	0,333	80
	Ecosystem	2.5.1	Outcome	0,333	80
		2.5.2	Management	0,333	80
		2.5.3	Information	0,333	95
Three	Governance and policy	3.1.1	Legal &/or customary framework	0,333	95

		3.1.2	Consultation, roles & responsibilities	0,333	85
		3.1.3	Long term objectives	0,333	100
	Fishery specific management system	3.2.1	Fishery specific objectives	0,25	80
		3.2.2	Decision making processes	0,25	85
		3.2.3	Compliance & enforcement	0,25	95
		3.2.4	Monitoring & management performance evaluation	0,25	80

6.3 Summary of Conditions

Table 32 Summary of Conditions

Condition number	Condition	Performance indicator	Related to previously raised condition?
1	Regulations limiting fishing effort in international waters (ICES Ia and Ib), that are responsive to the state of the stock, should be implemented to demonstrate that the elements of the harvest strategy work together towards achieving management objectives for the Barents Sea shrimp stock as a whole.	1.2.1	Yes
2	Well defined harvest control rules shall be implemented for the shrimp stock as a whole to ensure that the exploitation rates are reduced as limit reference points are approached, the HCRs are likely to be robust to the main uncertainties, and that available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	1.2.2	Yes
3	Demonstrate that the UoA is **highly unlikely** to reduce structure and function of the VME habitats located in the different fishing grounds, to a point where there would be serious or irreversible harm.	2.4.1	Yes
4	Provide evidence that the management measures (designed to ensure that the UoA does not pose a risk of serious or irreversible harm to the habitats) are successfully implemented and working effectively, based on **information directly about the UoA and/or habitats** involved.	2.4.2	Yes

Although a condition in PI 2.4.3 was closed during the 4th surveillance audit, the team decided to create new conditions for PI 2.4.1 and PI 2.4.2 due to the lack of management measures to avoid impacts on seapen fields, which are specifically addressed by NEAFC as being indicator species of VME habitats (NEAFC Recommendation 19), and to VMEs in general in Russian waters. The previous condition in PI 2.4.1 only referred to sponges and corals, and those scoring elements now meet SG80 for the fishery in the Svalbard FPZ and the Loop Hole.

6.4 Recommendations

Table 33 Summary of Recommendations

Recommendation number	Recommendation	Performance indicator
1	An observer programme should be implemented for the Faroe Islands fleet to obtain catch composition data from the fishery in the Russian zone	1.2.3
2	Systems are put in place to ensure that all interactions with ETP species are recorded on log books irrespective of whether they are landed or discarded and that the captures of all ETP species are mapped.	2.3.3

Recommendation number	Recommendation	Performance indicator
3	The recording of all interactions between the UoA and VME habitats, regardless of these being inside the established regulated limits.	2.4.3

6.5 Determination, Formal Conclusion and Agreement

The Faroe Islands Northeast Arctic cold water prawn 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 evaluation of the fishery presented in this report the assessment team recommends the re-certification of the Faroe Islands North East Arctic cold water prawn fishery for the client Maresco A/S.

The Technical Reviewer at DNV GL adheres to the recommendation of the assessment team and approves the re-certification of the Faroe Islands North East Arctic cold water prawn fishery for the client Maresco A/S.

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APPENDIX 1 SCORING AND RATIONALES

Appendix 1.1 Performance Indicator Scores and Rationale

Principle 1

Evaluation Table for PI 1.1.1 – Stock status

PI 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
a	Stock status relative to recruitment impairment			
	Guide post	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?	Y	Y	Y
	Justification	The NAFO/ICES Pandalus Assessment Group (NIPAG) report for 2017 estimated that stock biomass in 2017 was very much higher than Bmsy, and except for the mid-1980s when the stock declined to just above Bmsy, the biomass has been well above Bmsy since the fishery commenced in 1970. The 2017 NIPAG report concluded that the risk of the biomass at the end of 2017 falling below Btrigger and Blim was 0.4% and 0.0% respectively. Recruitment indices (estimated abundance of shrimp of 13-16mm carapace length) derived from Russian and Norwegian research surveys showed no obvious trend over the period 2004-2013. In addition, the fishing mortality rate (F) has been well below Fmsy throughout the history of the fishery, and the most recent assessment concluded that F was 0.08 x Fmsy in 2017 and the risk of F exceeding Fmsy and Flim was 2.1% and 0.9% respectively. There is a high degree of certainty therefore that the stock is above the point where recruitment would be impaired. The SG100 is met.		
b	Stock status in relation to achievement of MSY			
	Guide post		The stock is at or fluctuating around a level consistent with MSY.	There is a **high degree of certainty** that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		Y	Y
	Justification	Under the management of ICES, a specific target reference point is not defined explicitly for this fishery. Instead ICES defines MSYBtrigger as a threshold reference point above which the stock should be maintained.		

PI 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
	However a key output of the annual assessments of stock status is an estimate of the current level of biomass in relation to Bmsy. The 2017 NIPAG report concluded that stock biomass was very much higher than Bmsy, and except for the mid-1980s when the stock declined to just above Bmsy, the biomass has been well above Bmsy since the fishery commenced in 1970. The latest assessment also concluded that, assuming a catch of 28,000 tonnes in 2017, catch options up to 80,000 tonnes in 2018 would have a risk of <1% of biomass falling below Btrigger in 2018. Catches in 2018 are anticipated to be significantly lower than 80,000 tonnes. The assessment team concluded that there is a high degree of certainty that the stock has been above MSY over recent years. The SG100 is met.		
References	NAFO/ICES, 2017. NAFO/ICES *Pandalus* Assessment Group Meeting. 27 September – 3 October 2017, Lysekil, Sweden. ICES CM 2017/ACOM:09. ICES, 2017. Northern shrimp (*Pandalus borealis*) in Sub-Areas I and II (Northeast Arctic). ICES Advice 2017. http://ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/pra.27.1-2.pdf Hvingel, C. 2016. Shrimp (*Pandalus borealis*) in the Barents Sea – Stock assessment 2016. NAFO SCR 16/048. Hvingel, C. and Kingsley, M.C.S. 2006. A framework to model shrimp (*Pandalus borealis*) stock dynamics and to quantify the risk associated with alternative management options, using Bayesian methods. ICES Journal of Marine Science, 63: 68-82. Hvingel, C. and Thangstad, T. 2016b. Research survey results pertaining to northern shrimp (*Pandalus borealis*) in the Barents Sea and Svalbard area 2004-2015. NAFO SCR Doc. 16/050. Zakharov, D.V. 2014. Results of Russian investigations of the northern shrimp in the Barents Sea in 2004-2014. NAFO SCR Doc. 14/055.		
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 (0.3 x Bmsy) Flim (1.7 x Fmsy)	Specific values of the reference points are not provided in the assessment reports. Measures of stock biomass and fishing mortality are given as relative (B/Bmsy and Blim =0.3xBmsy;	In 2017, B/Bmsy = 1.68, so B/Blim = 5.60 and F/Fmsy = 0.08, so F/Flim = 0.05

PI 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
		F/Fmsy and Flim =1.7xFmsy) rather than as absolute values.	
Reference point used in scoring stock relative to MSY (SIb)	Bmsy Fmsy	Specific values of the reference points are not provided in the assessment reports. Measures of stock biomass and fishing mortality are given as relative (B/Bmsy, F/Fmsy) rather than as absolute values.	B/Bmsy = 1.68 and F/Fmsy = 0.08
OVERALL PERFORMANCE INDICATOR SCORE:			**100**
CONDITION NUMBER (if relevant):			**N/A**

Evaluation Table for PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	**Rebuilding timeframes**			
	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?	N/A		N/A
	Justification	The *Pandalus borealis* stock in the Barents Sea is not considered to be depleted and there is no requirement to score PI 1.1.2.		
b	Rebuilding evaluation			

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
	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?	N/A	N/A	N/A
	Justification	The *Pandalus borealis* stock in the Barents Sea is not considered to be depleted and there is no requirement to score PI 1.1.2.		
References		MSC Certification Requirements v2.0		
OVERALL PERFORMANCE INDICATOR SCORE:				N/A
CONDITION NUMBER (if relevant):				N/A

Evaluation Table for PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	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?	Y	N	N
	Justification	The Faroe Islands, Greenland and Lithuanian shrimp fisheries in the Barents Sea are a component of a much larger fishery exploited by vessels from a range of national fleets extending over a wide geographical area encompassing the Norwegian and Russian EEZs, the Svalbard Fishery Protection Zone (FPZ) and the international waters known as the Loophole managed by the North East Atlantic Fisheries Commission (NEAFC). Vessels from Faroe Islands, Greenland and Lithuania must comply with Norwegian legislation when fishing in the Svalbard FPZ, and Faroe Islands and Greenland vessels must comply with Russian legislation when fishing in the Russian EEZ. In addition, European Union countries such as Lithuania must manage their fisheries within the Framework of the EU's Common Fisheries Policy (CFP). The harvest strategy varies between the geographical regions as described below, but the stock management objective for the whole Barents Sea fishery is to maintain the fishery within agreed limits based on annual stock assessments. Fishing in the Svalbard FPZ is under Norwegian jurisdiction and the purpose of the Norwegian Marine Resources Act is "… to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them and to promote employment and settlement in coastal communities". Fishing in the Loophole is under the jurisdiction of NEAFC. The NEAFC convention states: **"**The objective of this Convention is to ensure the long-term conservation and optimum utilisation of the fishery resources in the Convention Area, providing sustainable economic, environmental and social benefits. The Russian Federation Fisheries Act defines the concept of 'protection and rational use' of aquatic biological resources as the main objective of Russian fisheries management. In addition, each nation has overarching legislation governing the harvest strategy for their fishing fleets. Under the Faroe Islands Act on Management of Marine Resources (2017) a long-term strategy for the management and utilization of marine resources is to be designed and implemented for each stock in order to maintain the industry and the fish stocks at sustainable levels, taking into account the recommendations of experts in the field. In the administration of the Greenland Fishery Act, "emphasis		

PI 1.2.1		There is a robust and precautionary harvest strategy in place
		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". The The objective of the Lithuanian Fisheries Law is "to ensure sustainable fishing, protection of fish resources and their restocking, fishing control, with account of the ecological conditions, economy of fisheries and the interests of the fishermen, fish producers, processors and consumers". There is also a Fisheries Management Plan for 2014-2020. For the whole fishery the harvest strategy is based primarily on effort limitation and technical conservation measures. There is no TAC for this fishery, except in the Russian zone. In the Svalbard FPZ, there are restrictions for Faroe Islands, Greenland and Lithuania on the number of vessels and total number of fishing days. Faroe Islands and Lithuanian vessels may also fish the area of the shrimp stock in international waters, the Loophole, which is managed by NEAFC. Fishing in this area is regulated solely by technical conservation measures, although Faroe Islands and Lithuania currently limit the number of licences issued, and landings by Faroe Islands vessels are currently limited to 1250 tonnes in the Loop Hole. Faroe Islands and Greenland vessels fishing in the Russian EEZ are limited by annual TACs. All Faroe Islands, Greenland and Lithuanian vessels require a licence to fish for shrimps in each area and must have a Vessel Monitoring System (VMS) on board. All vessels must make catch returns through electronic or paper log books and must complete all required catch declaration forms in the Svalbard area, in international waters and in the Russian EEZ. Mortalities of juvenile shrimp are minimised through a minimum landing size in the Svalbard FPZ, mesh size regulations, and mandatory sorting grids which also limit bycatch. Fishing is prohibited in areas closed to protect Vulnerable Marine Ecosystems (VMEs) and there are move-on rules in place if vessels encounter corals or sponges in both Svalbard and international waters. Temporary area closures can be invoked if there is a high bycatch of juvenile fish or shrimp. There are no seasonal closures of the fishery, although most effort is in spring and summer months outside the main reproductive season of shrimp. For the shrimp stock as a whole, the components of this harvest strategy form an implicit management plan and work together to limit fishing mortality and maintain a high level of stock biomass, which along with rigorous monitoring of the fishery, ensure that stock management objectives are achieved. SG60 is met. The annual assessment of the status of the stock in relation to reference points ensures that the harvest strategy can be responsive to the state of the stock and works to maintain B>Bmsy by setting upper limits of catch based on an MSY framework. However, a significant component of the shrimp fishery takes place in International waters where only technical measures apply, and there is currently therefore no scope for limiting fishing effort within this sub-area of the fishery. Although the proportion of the stock which is in international waters is relatively small and there is a limit on the number of the vessels from the various nations, and the overall lack of effort limitation in this small area is not expected to have any impact on the likelihood of achieving the overall stock management objectives, this is nevertheless a significant weakness in the harvest strategy and therefore SG80 is not met. There is no formal management plan within which a harvest strategy has been designed to meet the management objectives, and there is no clear

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
		statement of how the strategy is modified in response to stock changes. SG100 is not met therefore.		
b	Harvest strategy evaluation			
	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?	Y	Y	N
	Justification	There is a rigorous monitoring programme in place including fishery-independent stock surveys, monitoring of fishing activity through the VMS system, completion of log books by all Faroe Islands, Greenland and Lithuanian vessels and accurate detailed recording of landings on sales notes. Cross-checks by the relevant national authorities show that these elements of the harvest strategy are working effectively. Vessel inspections confirm that there is compliance with all management regulations. Fishery-independent stock surveys demonstrate that recruitment has not been impaired under the current harvest strategy, and annual assessments of stock status show that biomass has been above Bmsy and F has been below Fmsy throughout the history of the fishery and is likely to remain so under the current harvest strategy. There is strong evidence therefore that the harvest strategy is achieving its objectives. SG80 is met. The harvest strategy appears to be maintaining stocks at target levels but it has not been fully evaluated through, for example, a management strategy evaluation (MSE) and therefore SG100 is not met.		
c	Harvest strategy monitoring			
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Y		
	Justification	There is an effective monitoring system in place for all fleets including Faroe Islands, Greenland and Lithuanian vessels exploiting this stock, incorporating fishery-independent stock surveys, VMS on participating vessels, electronic (ERS) and paper log books, detailed recording of landings through sales notes and rigorous inspection of vessels in all areas of the fishery, which confirms that the harvest strategy is working, and annual stock assessments show that the stock is being maintained above Bmsy. SG 60 is met therefore.		
d	Harvest strategy review			

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			N
	Justification	Faroe Islands, Greenland and Lithuania regularly review and revise their national fishing strategies. In the Faroe Islands, The Act on the Management of Marine Resources, which came into effect in December 2017 represents a major reform of national fisheries management in the Faroe Islands and replaces the Faroe Islands Commercial Fisheries Act 1994 with its subsequent amendments. The new legislation provides for an annual review. In Greenland, the Fisheries Act is regularly reviewed and updated, and the Lithuanian Law on Fisheries was revised in 2016 and the current Fisheries Management Plan runs from 2014-2020. Elements of the harvest strategy for *Pandalus borealis* in Norwegian waters including the Svalabrd FPZ may be modified from time to time in response to the state of the stock by the Norwegian Ministry of Trade, Industry and Fisheries and the Directorate of Fisheries, and through the biannual Advisory meetings for fisheries regulation between the Norwegian fisheries authorities and stakeholders, including NGOs. There are also occasional reviews of the management system for the Barents Sea *Pandalus* fishery by the Norwegian National Audit Office, and through bilateral negotiations between Norway and Russia. However there is no overall management authority for the *P. borealis* fishery in the Barents Sea as a whole and shrimp is not currently included within the list of species in Annex 1 (Regulated Resources) of the NEAFC Scheme of Control and Enforcement. There is therefore no regular formal review of the overall harvest strategy in the Barents Sea. SG100 is not met.		
e	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?	Not relevant	Not relevant	Not relevant
	Justification	Sharks are not a target species and therefore this scoring issue is not scored.		
f	**Review of alternative measures**			
	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.

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
	Met?	Not relevant	Not relevant	Not relevant
	Justification	The minimum mesh size regulation, mandatory use of sorting grids, move-on rules from areas of high numbers of small shrimps and the targeting of commercial-sized shrimps ensure that there is minimal unwanted catch of the target species. In addition, the landings obligation (prohibition of discarding) in Norwegian waters including the Svalbard FPZ means that there should be no unwanted catch of shrimps. Whilst there may have previously been some discarding of small shrimp despite the landings obligation, new markets are now developing for even the smallest shrimp, which minimizes the incentive to discard small shrimp. There is a minimum landing size for shrimps of 6.5 cm in Norwegian waters, but the landings obligation, the technical conservation measures in place, and the targeting of larger commercial-sized shrimps by the fleet ensure that the minimum landing size is essentially redundant, except in relation to the move-on rule. The assessment team concluded that there is no unwanted catch of the target species and therefore this scoring issue was not scored.		
References		Norwegian Marine Resources Act www.fiskeridir.no/english/fisheries/regulations/acts/the-marine-resources-act Council Regulation (EC) Regulation No. 1380/2013 of the Common Fisheries Policy. NEAFC Scheme of Control and Enforcement Regulations for Fisheries in Russia's Northern Fishery Basin, Ministry of Agriculture (Russia), 2014 Faroe Islands Act on Management of Marine Resources (18 December 2017) Government of Greenland Executive Order No. 12 of 9 November 2011 on Regulation of Fisheries through Technical Conservation Measures Lithuanian Fisheries Law, 2000, revised 2016. Temporary closures in Norwegian waters and the Svalbard FPZ http://www.fiskeridir.no/Yrkesfiske/Regelverk-og-reguleringer/Stenging-og-aapning ICES, 2016. ICES Advice on fishing opportunities, catch, and effort Barents Sea and Norwegian Sea Ecoregions, Northern shrimp (*Pandalus borealis*) in subareas 1 and 2 (Northeast Arctic) ICES, 2017. Northern shrimp (*Pandalus borealis*) in Sub-Areas I and II (Northeast Arctic). ICES Advice 2017. NAFO/ICES, 2016. NAFO/ICES *Pandalus* Assessment Group Meeting, 7-14 September 2016, Institute of Marine Research, Bergen, Norway. ICES CM 2016/ACOM:15. NAFO/ICES, 2017. NAFO/ICES *Pandalus* Assessment Group Meeting. ICES CM 2017/ACOM:09.		
OVERALL PERFORMANCE INDICATOR SCORE:				**70**
CONDITION NUMBER (if relevant):				**1**

Evaluation Table for 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
a	HCRs design and application			
	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?	Y	N	
	Justification	Although there are no formally defined harvest control rules, the fishery is managed through a series of regulations including effort limitation, technical conservation measures (minimum landing size, mesh size and sorting grid regulations, closed areas, move-on rules) and partial TACs in some areas. These management measures have been changed during the history of the fishery, and may in future be changed in order to reduce the exploitation rate if limit reference points are approached. However the stock has been above Bmsy since the start of the fishery, so it is not clear that management measures have previously been changed in response to changes in stock status. The assessment team concluded that HCRs are not in place, but evidence from the Norwegian *Pandalus borealis* fishery in the Skagerrak and Norwegian Deep, which is managed under the EU-Norway agreement and by the Norwegian authorities, shows that HCRs are available for the Barents Sea *Pandalus* fishery. In addition, there are already many MSC-certified fisheries in the Barents Sea region which have well-defined harvest control rules in place. The Norway North East Arctic cod and Norway North East Arctic haddock are managed under the Joint Norwegian-Russian Fisheries Commission and the Norwegian Authorities based on ICES advice. The Norway North East Arctic saithe is managed under the EU-Norway agreement and the Norwegian authorities. The Russian Federation Barents Sea cod and haddock fisheries which are managed through the Russian and Norwegian authorities, the Joint Norwegian-Russian Fisheries Commission and NEAFC are also MSC certified. Norwegian herring fisheries in the North East Atlantic which range across the EEZ's of Russia, Iceland, Norway, Faroe Islands and in international waters have also been certified and have well-defined harvest control rules. The herring fisheries are managed under the coastal states agreement between EU, Norway, Iceland, Faroe Islands and Russia. The agreements		

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
		are implemented under national management systems and advised by ICES. All these fisheries have harvest control rules that have been implemented and shown to be capable of achieving the exploitation levels required under the HCRs, and therefore the assessment team concluded that HCRs are available under international management systems if required and HCRs implemented in other fisheries have been shown to reduce exploitation rate when required. The stock has been above Bmsy since the start of the fishery and therefore SA2.5.2a is met, and the effective use of HCRs in other UoAs under the control of Norwegian management systems within an international framework provides evidence that it is appropriate that available HCRs are being scored under SA2.5.3a. SG60 is met therefore. Well-defined HCRs are in place to ensure that bycatches and catches of small shrimps are minimised. Within Norwegian waters and the Svalbard FPZ, vessels must cease fishing in areas where the bycatch of cod and haddock is over 10% or when more than 10% of the catch of shrimps are undersized (<6.5 cm total length) or when the numbers of undersized cod, haddock or redfish reach prescribed numbers per 10kg of shrimps caught. Although annual stock assessments show that the stock has been above Bmsy throughout the history of the fishery, there are no explicit harvest control rules in place which define what management action will be invoked if the stock biomass declines to levels close to MSY Btrigger or Blim, or if fishing mortality increases to levels above Fmsy and/or close to Flim. Whilst the HCRs in relation to bycatches and small shrimp catches are well-defined, the key HCR in relation to stock levels declining below reference points is not well-defined. SG80 is not met therefore and a condition is raised.		
b	HCRs robustness to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a **wide** range of uncertainties including the ecological role of the stock, and there is **evidence** that the HCRs are robust to the main uncertainties.
	Met?		N	N
	Justification	The management tools currently in place (effort limitation, technical conservation measures, partial TACs, move-on rules) have been developed and modified throughout the history of the fishery since 1970. As noted in scoring issue (a), the stock has been above Bmsy since the start of the fishery, so it is not clear that management measures have previously been changed in response to changes in stock status. The assessment team concluded that HCRs are not in place, but evidence from other internationally-managed fisheries in the region shows that HCRs are available for the Barents Sea *Pandalus* fishery. Available HCRs and any future modifications to current management measures will be		

<table>
<tr><td colspan="2">PI 1.2.2</td><td colspan="4">There are well defined and effective harvest control rules (HCRs) in place</td></tr>
<tr><td></td><td></td><td colspan="4">underpinned by the outputs from stock assessments. The current stock assessment model explicitly accounts for inherent uncertainties in input parameters in a quantitative manner, so it can be concluded that available harvest control rules are likely to be robust to the main uncertainties. However as there are currently no formal HCRs in place to trigger the reduction of exploitation rates if stock levels decline below reference points, the SG80 is not met. Although the HCR which is designed to minimize the capture of undersized shrimp and by catch species takes into account the key uncertainty of spatial variations of abundance of bycatch species and small shrimps, it cannot be concluded that all HCRs meet the SG80.</td></tr>
<tr><td rowspan="4">c</td><td colspan="5">HCRs evaluation</td></tr>
<tr><td>Guide post</td><td>There is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation.</td><td colspan="2">Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.</td><td>Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.</td></tr>
<tr><td>Met?</td><td>Y</td><td colspan="2">N</td><td>N</td></tr>
<tr><td>Justification</td><td colspan="4">Although management measures (effort limitation, minimum landing size, closed areas, partial TAC, move-on rules, technical measures to minimise capture of juvenile shrimps) have been introduced or modified during the history of the fishery, the stock has been above Bmsy since the start of the fishery, so there is no evidence that management measures have previously been changed in response to changes in stock status. In line with SA2.5.5a, evidence from other fisheries in the region managed under international agreements where HCRs are in use shows that the available tools are effective in controlling exploitation rates when stock status falls below reference points, ensuring that recruitment is not impaired and that stock biomass is at a level consistent with MSY. SG60 is met therefore. As the tools are not yet in use, and in line with recent advice on the MSC Interpretations webpage (see link below), as the HCRs are only regarded as 'available' in scoring issue (a), it is not possible to score more than 60 for issue (c) since the SG80 refers to the tools 'in use' in the fishery in assessment, not the tools 'in use or available'. SG80 is not met therefore.</td></tr>
<tr><td colspan="2">References</td><td colspan="4">Fisheries regulations in Norwegian waters - http://www.fiskeridir.no/english/fisheries/regulations
ICES, 2016. ICES Advice on fishing opportunities, catch, and effort Barents Sea and Norwegian Sea Ecoregions, Northern shrimp (Pandalus borealis) in subareas 1 and 2 (Northeast Arctic)
ICES, 2017. Northern shrimp (Pandalus borealis) in Sub-Areas I and II (Northeast Arctic). ICES Advice 2017.
NAFO/ICES, 2016. NAFO/ICES Pandalus Assessment Group Meeting, 7-14 September 2016, Institute of Marine Research, Bergen, Norway. ICES CM 2016/ACOM:15.
NAFO/ICES, 2017. NAFO/ICES Pandalus Assessment Group Meeting. ICES CM 2017/ACOM:09.</td></tr>
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PI 1.2.2	There are well defined and effective harvest control rules (HCRs) in place	
	MSC Interpretations Webpage: http://msc-info.accreditation-services.com/questions/what-are-the-msc-requirements-on-harvest-control-rules-hcrs-including-generally-understood-and-available-multiple-questions/	
OVERALL PERFORMANCE INDICATOR SCORE:		**60**
CONDITION NUMBER (if relevant):		**2**

Evaluation Table for PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	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 is available to support the harvest strategy.	A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Y	Y	Y
	Justification	There is a comprehensive range of information on stock structure, stock productivity, and stock abundance from both fisheries-dependent and fisheries-independent sources. Genetics studies of *Pandalus borealis* have concluded that the populations of the Barents Sea and Svalbard can be considered to be a single population, and the annual fishery-independent joint Norwegian-Russian ecosystem survey provides detailed information on recruitment, stock abundance, and demographic composition such as size range and reproductive status of the stock. There is no observer programme in the Faroe Islands, Greenland or Lithuanian fishery but a recently-implemented observer programme on the Estonian fleet provides measurements of all shrimps caught, records any bycatch (whether retained or discarded) including ETP species, takes photographs of species that are not normally caught on board the shrimp vessel and records any catch of corals and sponges. As the Estonian fleet fishes in the same areas of the Svalbard FPZ as the Faroe Islands, Greenland and Lithuanian vessels, and also fishes in the Loop Hole, records from the Estonian observer programme are likely to be representative of the catch from the Greenland and Lithuanian fleets. However a significant proportion of the fishing activity of Faroe Islands vessels occurs in the Russian zone, and therefore the assessment team recommends that an observer programme is implemented for the Faroe Islands fleet to obtain catch composition data from the fishery in the Russian zone. Licensing of vessels across all national fleets, VMS, log books recording catch and effort information and obligatory catch returns through sales notes ensure that the fleet composition and fishery removals are well understood. Cross checks by national authorities confirm that fishery removals are recorded accurately. The joint Norwegian-Russian ecosystem survey provides additional information on the abundance and		

PI 1.2.3		Relevant information is collected to support the harvest strategy		
		distribution of other species and environmental variables in the stock area. The SG100 is met.		
b	Monitoring			
	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?	Y	Y	N
	Justification	Good information about stock abundance and fishery removals is available for the Barents Sea shrimp stock and is used in annual assessments of the status of the stock in relation to reference points, and the assessments evaluate the risk of various catch options. The assessment of the Barents Sea stock uses a series of biomass indices. A key input to the assessment are standardized annual catch rate data for Norwegian vessels, the largest component of the shrimp fishing fleet, calculated from log books with a GLM using individual vessel, season, area and gear type (single, double or triple trawl) as variables. The resulting index is considered to be indicative of shrimp biomass. Similar catch rate data are collected for other components of the fleet but are not used currently in the assessment. The joint Norwegian-Russian ecosystem survey provides indices of stock biomass, abundance, recruitment and demographic composition (size, sex, reproductive status) and also monitors other ecosystem variables. Fishery removals are rigorously monitored by all national fleets. Electronic or paper log books and mandatory catch declarations through sales notes ensure that fishery removals are closely monitored across the fleet. Cross-checks by the relevant national authorities demonstrate that fishery removals are being recorded accurately. There is an observer programme in the Estonia fleet, but there is no observer programme for the largest component of the fleet in Norway to investigate levels of discarding, but it should be noted that all shrimp, including undersized shrimp is landed, and new markets are being developed for the smallest shrimps. There is good knowledge therefore of all shrimps removed by the fishery. The SG80 is met therefore. There is a lack of understanding of the inherent uncertainties in some of the input parameters to the assessment model, but the Bayesian nature		

PI 1.2.3		Relevant information is collected to support the harvest strategy		
		of the stock assessment model considers the robustness of the assessment and management to these uncertainties. There are some additional uncertainties including the relationship between the main predator, cod, and the stock dynamics of shrimp which are not incorporated in the model. The stock assessment model is good at projecting trends in stock development but large changes in recruitment or mortality may be underestimated by the model. The SG100 is not met.		
c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		Y	
	Justification	Mandatory catch returns ensure that landings from all components of the shrimp fleet in the Barents Sea are recorded. Mesh size regulations and the use of Nordmore sorting grids ensures that there is very little discarded. There are no other fisheries targeting shrimp using other gears and because of the small mesh size used for catching shrimps, there are no fisheries targeting other species which retain shrimp as bycatch or discard shrimp. The SG80 is met.		
References		Hvingel, C. and Thangstad, T. 2016a. The Norwegian fishery for northern shrimp (*Pandalus borealis*) in the Barents Sea and round Svalbard 1970-2016. NAFO SCR Doc. 16/049. Hvingel, C. and Thangstad, T. 2016b. Research survey results pertaining to northern shrimp (*Pandalus borealis*) in the Barents Sea and Svalbard area 2004-2015. NAFO SCR Doc. 16/050. Martinez, I., Aschan, M., Skerjdal, T. and Aljanabi, S.M. 2006. The genetic structure of *Pandalus borealis* in the Northeast Atlantic determined by RAPD analysis. ICES Journal of Marine Science, 63: 840-850. NAFO/ICES, 2016. NAFO/ICES Pandalus Assessment Group Meeting, 7-14 September 2016, Bergen, Norway. ICES CM 2016/ACOM:15. NAFO/ICES, 2017. NAFO/ICES *Pandalus* Assessment Group Meeting. ICES CM 2017/ACOM:09. Zakharov, D.V. 2014. Results of Russian investigations of the northern shrimp in the Barents Sea in 2004-2014. NAFO SCR Doc. 14/055.		
OVERALL PERFORMANCE INDICATOR SCORE:				**90**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	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?		Y	N
	Justification	The assessment model was specifically designed for the *Pandalus borealis* fishery. A stochastic version of a stock-production model is appropriate for the stock because shrimps cannot be aged. The model uses survey data and standardised LPUE data from the fishery. The model produced good predictions of the four independent biomass indices used as input to the 2017 assessment, and evaluates stock status relative to reference points and evaluates the risk that biomass might be below Bmsy and fishing mortality might exceed Fmsy for a range of future catch options. The assessment also considers how bottom temperatures can be used to infer changes in distribution of shrimp over recent years. The SG80 is met. Fish species, particularly cod, are known predators of *P. borealis*, and predation mortality is thought to be an important factor in shrimp stock dynamics. The cod stock in the Barents Sea has increased considerably in the last ten years and therefore the model's predictions of stock size could be inaccurate if predation rates increased significantly due to increased predator abundance. To date, it has not been possible to establish the relationship between shrimp and cod densities, and so predation has not been explicitly incorporated in the assessment model. In addition the assessment model does not make use of extensive length composition data and is therefore insensitive to short-term changes in recruitment. The SG100 is not achieved.		
b	Assessment approach			
	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?	Y	Y	
	Justification	Reference points are derived within the Maximum Sustainable Yield (MSY) framework adopted generically within ICES and are consistent with the Precautionary Approach (PA). Stock status is evaluated in relation to the MSY reference points Btrigger and Fmsy and the PA reference points Blim and Flim. Bmsy is used as an implicit target reference point. The stock assessment model used by the NAFO/ICES *Pandalus*		

PI 1.2.4		There is an adequate assessment of the stock status		
		Assessment Group (NIPAG) is a stochastic surplus-production model. The model is formulated in a state-space framework and Bayesian methods are used to derive posterior likelihood distributions of the parameters. The model synthesises information from input priors including the initial population biomass in 1969, the carrying capacity (K) and maximum Sustainable Yield (MSY), yield data based on reported shrimp catches since 1970, and four independent series of shrimp biomass: standardised CPUE from commercial vessels, a Norwegian trawl-survey biomass index, a Russian trawl-survey biomass index, and a trawl-survey biomass index from the more recent joint Norwegian-Russian ecosystem survey. Biomass is measured relative to the biomass that would yield MSY, Bmsy, and fishing mortality is scaled to the fishing mortality at MSY, Fmsy. The model estimates the current biomass in relation to Bmsy and the reference points, Btrigger and Blim set at 50% and 30% of Bmsy respectively, and the current fishing mortality in relation to Fmsy and Flim, set at 170% of Fmsy. SG80 is met.		
c	Uncertainty in the assessment			
	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?	Y	Y	Y
	Justification	The major sources of uncertainty are incorporated within the assessment approach. The assessment model is a Bayesian model which provides posterior distributions of parameter estimates, and evaluates the probability that biomass might be below Bmsy, Btrigger and Blim and the probability that fishing mortality might exceed Fmsy for a range of future catch options. The SG100 is met therefore.		
d	Evaluation of assessment			
	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			N
	Justification	The assessment model has been found to be relatively robust to priors for initial stock biomass and carrying capacity, and produced good predictions of the four independent biomass indices used as input to the 2017 assessment. The model is considered to be an improvement on		

<table>
<tr><td colspan="2">PI 1.2.4</td><td colspan="3">There is an adequate assessment of the stock status</td></tr>
<tr><td></td><td></td><td colspan="3">previous models where trends in biological information, fishery data or research survey data were used in a ‘traffic light’ indicator approach. However predation is not explicitly incorporated into the stock assessment model for the Barents Sea, but in other P. borealis fisheries e.g. West Greenland, the model explicitly includes cod predation and the addition of this component provided a better fit than alternative models. Alternative hypotheses and assessment approaches such as a length-based modelling approach have not been rigorously explored. The SG100 is not met.</td></tr>
<tr><td rowspan="4">e</td><td colspan="4">Peer review of assessment</td></tr>
<tr><td>Guide post</td><td></td><td>The assessment of stock status is subject to peer review.</td><td>The assessment has been internally and externally peer reviewed.</td></tr>
<tr><td>Met?</td><td></td><td>Y</td><td>Y</td></tr>
<tr><td>Justification</td><td colspan="3">The stock assessment is undertaken by Norwegian scientists and presented at the NAFO/ICES Pandalus Assessment Group (NIPAG) along with assessments of other Pandalus stocks in the Northwest and Northeast Atlantic. There is therefore an inherent peer review by the various members of NIPAG, including scientists from Norway, Russian Federation, Canada, Denmark, Greenland, Sweden, Spain, France and Estonia, and the NAFO Secretariat. The draft report is then peer reviewed by the ICES Review Group whose members are stock assessment scientists not involved with the Pandalus borealis assessments and, from time to time, scientists who are outside the ICES assessment process. The Group may query aspects of the assessment model, the current assessment and the presentation of the results. All stocks managed by ICES undergo periodic “benchmarks”. The aim of benchmarking is to reach a consensus agreement on an assessment methodology that is to be used in future assessments and the process is reviewed by independent experts and is open to stakeholders. ICES has recommended that the next benchmark for the Barents Sea Pandalus borealis assessment should be carried out no later than 2019. An external peer review of the 2016 NIPAG assessment was undertaken by the University of Maine Review Group (see NAFO/ICES, 2016 for further details). The Review Group concluded that the assessment should be accepted but that transition towards a better modelling framework should be considered at the next ICES benchmark. The assessment model itself (Hvingel and Kingsley, 2006) has been published in a peer-reviewed journal.
There is clear evidence that the assessment has been internally and externally peer-reviewed. The SG100 is met.</td></tr>
<tr><td colspan="2">References</td><td colspan="3">Hvingel, C. 2016. Shrimp (Pandalus borealis) in the Barents Sea – Stock assessment 2016. NAFO SCR 16/048.
Hvingel, C. and Kingsley, M.C.S. 2006. A framework to model shrimp (Pandalus borealis) stock dynamics and to quantify the risk associated with alternative management options, using Bayesian methods. ICES Journal of Marine Science, 63: 68-82.
Intertek Moody Marine 2012. MSC Certification Report for West Greenland Cold Water Prawn Trawl Fishery.
NAFO/ICES, 2016. NAFO/ICES Pandalus Assessment Group Meeting, 7-14 September 2016, Bergen, Norway. ICES CM 2016/ACOM:15.</td></tr>
</table>

PI 1.2.4	There is an adequate assessment of the stock status	
	NAFO/ICES, 2017. NAFO/ICES *Pandalus* Assessment Group Meeting. ICES CM 2017/ACOM:09. Parsons, D.G., 2005. Predators of northern shrimp, *Pandalus borealis*, (Pandalidae) throughout the North Atlantic. Marine Biology Research, 1: 59 – 67.	
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		**N/A**

Principle 2

Evaluation Table for PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	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?	N/A	N/A	N/A
	Justification	Since the implementation of the mandatory use of Nordmøre sorting grids in all jurisdictions in the Barents Sea in the shrimp fishery (with a maximum 22mm spacing between bars in the Svalbard FPZ and Russian EEZ, and 19 mm in the NEAFC Area) for latitudes northern than 62ºNorth (covering all the UoA), the catch of unwanted species has decreased significantly. Regulation J-209-2011, which applies to the Svalbard area, sets, in its article 22, that discarding of non-target species is allowed as long as the sum of these bycatch species does not reach a 5% of the total catch for each haul. Russian Regulation 414/2014 also prohibits the discarding of managed species. Information from landing records provided by the Directorate of Fisheries, ICES overview of the fishery, and personal observations from IMR staff, support that the shrimp fishery does not exceed this limit, therefore there are no main species to consider for the UoA. The list of all primary and secondary species to consider is found in Table 26. According to MSC Interpretations website, as there are no main primary species to consider this SI is not applicable.		
b	Minor primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI OR If below the PRI, there is evidence that the UoA does not hinder the

PI 2.1.1		The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.		
				recovery and rebuilding of minor primary species
	Met?			Y for all scoring elements.
	Justification	According to landing records, the only minor primary species to consider is beaked redfish. Beaked redfish *(Sebastes mentella)*: ICES (2017) provides advice on the status of beaked redfish in subareas 1 and 2. Spawning–stock biomass (SSB) increased steadily from 1992 to 2005 and stabilized thereafter. Following a period of low recruitment in 1998–2005, strong year classes have become evident from 2006. Since 1997 fishing mortality has been at a relatively low level and has been increasing in the last four years. The stock declined in mid-90's and directed fishing in the Norwegian EEZ was banned in 2003. There are no defined reference points for the stock. ICES advises that when the precautionary approach is applied, catches in 2018 should be no more than 32 658 tonnes. There is no international agreement on the sharing of TAC among countries and between national and international waters, and it is anticipated that the sum of the catches allocated to individual nations will exceed the recommended TAC. Landings by the UoA were 1 tonne in 2016. The stock is subject to protection measures (originally intended for the protection of golden redfish but which also benefit beaked redfish) which apply in all jurisdictions, such as move on rules to avoid the catch of redfish species. All catches are assumed to be landed. SG100 is met for this species due to the positive trend of the stock since the minimum levels of mid-90's, the specific management measures for the species (including move-on rules), and the low landings by the UoA. Besides, and according to ICES 2014 advice on Northern prawn, there are other minor primary species which can be expected in the shrimp fishery, which include juvenile cod, haddock, and Greenland halibut, all in a very low proportion (and always less than 5% of the total catch) and in the 5-25 cm size range. Landing records show a small proportion of unidentified miscellaneous fish in the catch. Data collected by at-sea observers from the Estonian Marine Research Institute (on board similar Estonian vessels targeting *Pandalus borealis* with the same fishing gear in the same fishing grounds) show similar results on catch composition. The stock status of cod, haddock and Greenland halibut is described as follows: Oceanic cod stock: ICES 2017 report states that the spawning–stock biomass (SSB) has been above MSY Btrigger since 2002. The SSB reached a peak in 2013 and now shows a downward trend but it is still well above BMSY. Fishing mortality (F) was reduced from well above Flim in 1997 to below FMSY in 2008, and the most recent estimate is likely to be below FMSY. There has been no strong recruitment since the 2004 and 2005 year-classes. The stock is subject to a Joint Russian–Norwegian Fisheries Commission Management Plan. When applied, catches in 2018 should be no more than 712 000 tonnes. Besides, there are area closures intended for the protection of juvenile cod in the Barents Sea. SG100 is met for this species due to the safe status of the stock. Haddock: According to ICES 2017 advice, the spawning-stock biomass (SSB) has been above MSY Btrigger since 1989, increasing since 2000, and reaching the series maximum in 2015. Fishing mortality (F) was around FMSY from the mid-1990s to 2011, but has declined substantially afterwards and has been below FMSY since 2008. The exceptionally strong year classes of 2004–2006 have contributed to the strong increase in all-time high levels of SSB seen in later years; however, the SSB in 2017 is declining. Recruitment-at-age 3 has been at or above the long-term average since 2000 but in 2016 became slightly below		

<table>
<tr><td colspan="2">PI 2.1.1</td><td>The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.</td></tr>
<tr><td></td><td></td><td>average. The stock is subject to a Joint Russian–Norwegian Fisheries Commission Management Plan. According to it, catches in 2018 should be no more than 202305 tonnes. The haddock fishery is subject to permanent and temporary area closures to protect juvenile fish. SG100 is met for this species due to the safe status of the stock.
Greenland halibut: The fishable population (length ≥45 cm) has increased from 1992 to 2012, and has been stable since then. There are implemented move on rules intended for the protection of juvenile Greenland halibut. The SG100 is met for this species due to the positive trend in the population, the specific protection measures and the small catches by the shrimp fleet.
It is expected that the minimal interactions of the UoA with the minor primary species will not hinder their recovery, based both in the low catches reported and in the healthy status of the different stocks.
<table>
<tr><td>Scoring element</td><td>SG100</td></tr>
<tr><td>Oceanic cod</td><td>Y</td></tr>
<tr><td>Haddock</td><td>Y</td></tr>
<tr><td>Greenland halibut</td><td>Y</td></tr>
<tr><td>Beaked redfish</td><td>Y</td></tr>
</table>
SG100 is met for all scoring elements.</td></tr>
<tr><td colspan="2">References</td><td>http://msc-info.accreditation-services.com/questions/p2-species-outcome-pis-scoring-when-no-main-or-no-minor-or-both/
Landing records.
Estonian IMR observer report.
ICES 2014 advice on Northern prawn: http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/2014/pand-barn.pdf
ICES 2017 advice on beaked redfish:
Norwegian Fisheries Regulation J-209-2011: Fishing regulation in the Svalbard zone: Mesh size, by-catch and minimum landing size.
ICES 2017 advice for cod in subareas I and II
ICES 2017 advice for Greenland halibut in subareas I and II
ICES 2017 advice for haddock in subareas I and II</td></tr>
<tr><td colspan="2">OVERALL PERFORMANCE INDICATOR SCORE:
<table>
<tr><td>Scoring element</td><td>PI score</td></tr>
<tr><td>Oceanic cod</td><td>100</td></tr>
<tr><td>Haddock</td><td>100</td></tr>
<tr><td>Greenland halibut</td><td>100</td></tr>
<tr><td>Beaked redfish</td><td>100</td></tr>
<tr><td>OVERALL SCORE</td><td>100</td></tr>
</table></td><td>100</td></tr>
<tr><td colspan="2">CONDITION NUMBER (if relevant):</td><td>N/A</td></tr>
</table>

Evaluation Table for PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimize the mortality of unwanted catch.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	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 above the point where recruitment would be impaired.	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 point where recruitment would be impaired.	There is a **strategy** in place for the UoA for managing main and minor primary species.
	Met?	Y	Y	Y for all scoring elements
	Justification	There are no main primary species to consider, therefore SG80 is met by default. The Norwegian Fisheries Management Act serves as a strategy to manage fishing activity in Norwegian EEZ and in Svalbard FPZ. Fishing activity in Russian EEZ is regulated through Russian Regulation nº 414 (October 2014) on Regulation of fishing activities in the Northern basin. Fishing activity in NEAFC waters is managed both through fishing regulations on gear types and on recommendations. The shrimp fishery is regulated in the Svalbard FPZ and Russian EEZ through effort control (licences are required for foreign vessels entering the different jurisdictions. Fleets operating are regulated by number of effective fishing days and number of vessels by country), minimum size of shrimp (shrimp<15mm carapace length), gear requirements (minimum mesh size of 35 mm and, since 1992, mandatory use of Nordmore sorting grids, with a maximum bar spacing of 19 mm), limits for by-catch (move-on rules if the bycatch limits for certain species are exceeded in a 10 kg shrimp sample: 8 individuals for cod, 20 for haddock, 3 for Greenland halibut and 3 for redfish. These limits were established taking into account the stock status of the different species), and area closures to protect juvenile fish in the Svalbard FPZ and in Russia EEZ. As a result of the different management measures, the fishery has very low bycatch levels both for primary and secondary species (below 5%), as reported in landing records and supported by the low level of infractions as verified by the Directorate of Fisheries and by similar records by Estonian IMR observers in Estonian shrimp vessels. Research is undertaken by different institutions, such as ICES, Norwegian IMR and PINRO, which serves to obtain updated information on the status of fish stocks in the Barents Sea region and detect any changes in the ecosystem and trophic chain relations. The team considers that the different measures in place (such as the mandatory use of the Nordmore grid, along with both temporal and permanent area closures to protect juveniles, and the move on rule protecting cod, haddock, Greenland halibut and redfish) can be considered as a comprehensive strategy for managing primary and secondary main (if any) and minor species in the UoA. As there are no main scoring elements, SG80 is met by default. SG100 is also		

<table>
<tr><td colspan="2">PI 2.1.2</td><td colspan="4">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 minimize the mortality of unwanted catch.</td></tr>
<tr><td></td><td></td><td colspan="4">met for all scoring elements.

<table><tr><th>Scoring element</th><th>SG60</th><th>SG80</th><th>SG100</th></tr><tr><td>Oceanic cod</td><td>N/A</td><td>N/A</td><td>Y</td></tr><tr><td>Haddock</td><td>N/A</td><td>N/A</td><td>Y</td></tr><tr><td>Greenland halibut</td><td>N/A</td><td>N/A</td><td>Y</td></tr><tr><td>Beaked redfish</td><td>N/A</td><td>N/A</td><td>Y</td></tr></table></td></tr>
<tr><td>B</td><td colspan="5">Management strategy evaluation</td></tr>
<tr><td></td><td>Guide post</td><td>The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).</td><td>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.</td><td colspan="2">Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.</td></tr>
<tr><td></td><td>Met?</td><td>Y</td><td>Y</td><td colspan="2">Y for all scoring elements</td></tr>
<tr><td></td><td>Justification</td><td colspan="4">The discard ban was first implemented in Norwegian EEZ in 1984, and became mandatory for all species since 2009. All jurisdictions in the UoA (Russian EEZ, Svalbard FPZ and NEAFC waters) are subject to landing obligation. However Norwegian Regulation J-209-2011 exempts the shrimp fishery around the Svalbard Islands from this obligation, as long as the different species in the catch composition do not sum to more than 5% of the total catch of each haul.

Landing records show a very low proportion of both primary and secondary species in the catch composition.

Sorting grids, mandatory in all jurisdictions, were designed to minimize by-catch and, in this respect, they are highly effective (Richards A, and Hendrickson L., 2006; Isaksen, B. & A.V. Solvdal, 1997). Move on rules to protect juvenile redfish, cod, haddock and Greenland halibut are also mandatory in all jurisdictions in the UoA.

Compliance with these and other regulations is enforced by the Norwegian Coast Guard and the Russian Federal Fisheries Agency.

According to Gullestad et al., the Norwegian Coast Guard has 15 inspection vessels (some of which are also equipped with helicopters) conducting in the order of 2000 inspections annually. Presence and inspection at sea are the main tools for preventing and uncovering discarding. If discarding is revealed, both the captain of the vessel and the owner may be fined and licenses may be withdrawn for a period. The Russian Federal Fisheries Agency also has inspection vessels operating in the Russian EEZ and in NEAFC waters.

The absence of infringements (as reported by the Danish, Lithuanian and Faroese management authorities) and the strong enforcement system serves as a test to verify, with a high degree of confidence, that this strategy will work for the mentioned scoring elements. All scoring elements reach SG100.

<table><tr><th>Scoring element</th><th>SG60</th><th>SG80</th><th>SG100</th></tr><tr><td>Oceanic cod</td><td>Y</td><td>Y</td><td>Y</td></tr><tr><td>Haddock</td><td>Y</td><td>Y</td><td>Y</td></tr><tr><td>Greenland halibut</td><td>Y</td><td>Y</td><td>Y</td></tr><tr><td>Beaked redfish</td><td>Y</td><td>Y</td><td>Y</td></tr></table></td></tr>
</table>

PI 2.1.2		**There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimize the mortality of unwanted catch.**		
c	Management strategy implementation			
	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?		Y	Y for all scoring elements
	Justification	The first regulation concerning by-catch limitations is implemented in all jurisdictions under assessment. It was first implemented in 1983 when the 11th Session of The Joint Norwegian Soviet Fisheries Commission set the maximum number of juveniles allowed as by-catch to three cod and haddock per 10 kg shrimp. To date, similar limitations apply in all jurisdictions under assessment, with limits established at 3 individuals of redfish or Greenland halibut in a 10 kg of shrimp sample, and 8 individuals of cod or 20 individuals of haddock again in a 10 kg shrimp sample. Landing obligation for certain species was first implemented in Norway in 1984, and is now mandatory in all jurisdictions under assessment. Sorting grids are also mandatory in all jurisdictions. There are both temporary and permanent area closures in the Svalbard FPZ and in Russian EEZ to protect spawning grounds and juvenile fish. The Norwegian Marine Resources Act was ratified in 2008, and Norwegian Regulation J-209-2011 (which regulates fishing around the Svalbard area) was enforced in 2011. Russian Regulation nº 414 managing fishing operations in the Russian northern basin was implemented in 2014. The historical review of these measures should serve as evidence that the strategy has been implemented for a considerable period so far. The low proportion of non-target species reported in landing records from the shrimp fishery in the past years serves as evidence that the strategy is achieving its objective of minimizing the catch of unwanted species. SG100 is met for all scoring elements		
D	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?	Not relevant	Not relevant	Not relevant
	Justification			
e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimize 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 minimize UoA-related mortality of unwanted catch of main primary species and they	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of all primary species, and

<table>
<tr><td colspan="2">PI 2.1.2</td><td colspan="3">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 minimize the mortality of unwanted catch.</td></tr>
<tr><td rowspan="3"></td><td></td><td></td><td>are implemented as appropriate.</td><td>they are implemented, as appropriate.</td></tr>
<tr><td>Met?</td><td>N/A</td><td>N/A</td><td>N for all scoring elements</td></tr>
<tr><td>Justification</td><td colspan="3">There are no main species to consider, therefore SG80 is met by default.
The shrimp fishery is a very clean one with very low levels of unwanted species in the catch. For bycatches of up to a maximum of 5%, Regulation J-209-2011 provides exemption from the need to record and land the catch.
The team hasn’t found any evidence of a biennial review of measures to minimize the catch of all minor species (notwithstanding the actual catch being minimal), therefore SG100 is not met.</td></tr>
<tr><td colspan="2">References</td><td colspan="3">Isaksen, B. & A.V. Solvdal, 1997. Selection and survival in the Norwegian shrimp trawl fisheries. Proceedings of the 7& Russian/Norwegian Symposium: Gear Selection and Sampling Gears. Murmansk, 23-24 June 1997
Landing records
Modulf Overvik (Directorate of Fisheries) personal comment.
Norwegian Fisheries Management Act
Norwegian Regulation J-209-2011
Russian Regulation nº 414 (2014).
Richards A, and Hendrickson L. 2006. Effectiveness of the Nordmore grate in the Gulf of Main northern shrimp fishery. 81(1): 100-106. Fisheries Research.
Aschan, M. “Barents Sea case study: The shrimp fishery”. http://www.discardless.eu/media/results/Barents_Sea_case_study_%28The_shrimp_fishery%29.pdf
Gullestad, P., Blom, G., Bakke, G. and Bogstad, B. 2015. “The discard ban package: Experiences in efforts to improve the exploitation patterns in Norwegian fisheries”. Marine Policy 54 (1-9). http://www.sciencedirect.com/science/article/pii/S0308597X14002589?via%3Dihub
McBride, M. M., Filin, A., Titov, O., and Stiansen, J. E. (Eds.) 2014. IMR/PINRO update of the “Joint Norwegian-Russian environmental status report on the Barents Sea Ecosystem” giving the current situation for climate, phytoplankton, zooplankton, fish, and fisheries during 2012-13. IMR/PINRO Joint Report Series 2014(1), 64 pp. ISSN 1502-8828</td></tr>
<tr><td colspan="4">OVERALL PERFORMANCE INDICATOR SCORE:
<table><tr><th>Scoring element</th><th>PI score</th></tr><tr><td>Oceanic cod</td><td>95</td></tr><tr><td>Haddock</td><td>95</td></tr><tr><td>Greenland halibut</td><td>95</td></tr><tr><td>Beaked redfish</td><td>95</td></tr><tr><td>OVERALL SCORE</td><td>95</td></tr></table></td><td>95</td></tr>
<tr><td colspan="4">CONDITION NUMBER (if relevant):</td><td>N/A</td></tr>
</table>

Evaluation Table for PI 2.1.3 – Primary species information

<table>
<tr><td colspan="2">PI 2.1.3</td><td colspan="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</td></tr>
<tr><td colspan="2">Scoring Issue</td><td>SG 60</td><td>SG 80</td><td>SG 100</td></tr>
<tr><td rowspan="4">a</td><td colspan="4">Information adequacy for assessment of impact on main primary species</td></tr>
<tr><td>Guide post</td><td>Qualitative information is adequate to estimate the impact of the UoA on the main primary species with respect to status.

OR

If RBF is used to score PI 2.1.1 for the UoA:
Qualitative information is 162uscepti to estimate productivity and susceptibility attributes for main primary species.</td><td>Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status.
OR
If RBF is used to score PI 2.1.1 for the UoA:
Some quantitative information is adequate to assess productivity and 162usceptibility attributes for main primary species.</td><td>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.</td></tr>
<tr><td>Met?</td><td>N/A</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Justification</td><td colspan="3">Landing records show that there are no main primary species for this UoA. Therefore, this SG is not applicable.</td></tr>
<tr><td rowspan="3">B</td><td colspan="4">Information adequacy for assessment of impact on minor primary species</td></tr>
<tr><td>Guide post</td><td></td><td></td><td>Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.</td></tr>
<tr><td>Met?</td><td></td><td></td><td>Y for all scoring elements</td></tr>
<tr><td>Justification</td><td colspan="3">While landing obligation should serve to keep records of all interactions of the UoA with the different primary and secondary species, the allowed 5% exemption in the Svalbard FPZ (Norwegian Regulation J-209-2011) prevents fishing records from being exhaustive. However, SIb only requires some quantitative information to be available.

The low proportion of non-target species in the catch, supported by the low level of infringements as reported by the different management authories consulted, along with research on the status of fish stocks undertaken by different research institutions such as ICES, IMR and PINRO, serve to gather sufficient quantitative information to estimate the impact of the UoA on non-target species such as cod, haddock, Greenland halibut, and beaked redfish and saithe. All scoring elements achieve SG100.
<table>
<tr><th>Scoring element</th><th>SG100</th></tr>
<tr><td>Oceanic cod</td><td>Y</td></tr>
<tr><td>Haddock</td><td>Y</td></tr>
<tr><td>Greenland halibut</td><td>Y</td></tr>
<tr><td>Beaked redfish</td><td>Y</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td colspan="2">PI 2.1.3</td><td colspan="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</td></tr>
<tr><td rowspan="3">c</td><td colspan="4">Information adequacy for management strategy</td></tr>
<tr><td>Guide post</td><td>Information is adequate to support measures to manage main primary species.</td><td>Information is adequate to support a partial strategy to manage main Primary species.</td><td>Information is adequate to support a strategy to manage all primary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.</td></tr>
<tr><td>Met?</td><td>Y</td><td>Y</td><td>Y for all scoring elements</td></tr>
<tr><td colspan="2">Justification</td><td colspan="3">There are no main primary species to consider, therefore SG80 is met by default.
There is reliable information on landings, and a general broad knowledge of the different components of the ecosystem, including the stock status of different species and the trophic relation between them, and there are also mathematical models (Breivik et al., 2017) to predict bycatch in commercial fisheries.
There is also continuous research on the different species in the Barents Sea area (not only including fish species but also sharks, skates, rays, marine mammals and birds) which should be sufficient to support a strategy (or to modify the actual strategy into a wider one to include possible impacts on other species) to manage both primary and secondary species.
Information gathered through landing records showing limited interactions, the lack of infringements as verified by the different management authorities, along with ecosystem models, scientific research in the area, ICES advice and ICES Arctic Fisheries Working Group, is considered adequate to support a strategy to manage all primary species and evaluate with a high degree of certainty whether the strategy is achieving its objective.
All scoring elements achieve SG100.

<table>
<tr><th>Scoring element</th><th>SG60</th><th>SG80</th><th>SG100</th></tr>
<tr><td>Oceanic cod</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Haddock</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Greenland halibut</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Beaked redfish</td><td>Y</td><td>Y</td><td>Y</td></tr>
</table>
</td></tr>
<tr><td colspan="2">References</td><td colspan="3">Breivik, O. N., Storvik, G., Nedreaas, K. 2017. Latent Gaussian models to predict historical bycatch in commercial fishery. Fisheries Research 185 (62–72).
Landing records.
ICES 2016 Report of the Arctic Fisheries Working Group (AFWG). Section 1: General description of the Barents Sea Ecosystem.</td></tr>
<tr><td colspan="4">OVERALL PERFORMANCE INDICATOR SCORE:
<table>
<tr><th>Scoring element</th><th>PI score</th></tr>
<tr><td>Oceanic cod</td><td>100</td></tr>
<tr><td>Haddock</td><td>100</td></tr>
<tr><td>Greenland halibut</td><td>100</td></tr>
<tr><td>Beaked redfish</td><td>100</td></tr>
<tr><td>OVERALL SCORE</td><td>100</td></tr>
</table>
</td><td>100</td></tr>
<tr><td colspan="4">CONDITION NUMBER (if relevant):</td><td>N/A</td></tr>
</table>

Evaluation Table for PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit.		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guide post	Main Secondary species are **likely** to be within biologically based limits. OR If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are **highly likely** to be above biologically based limits OR If below biologically based limits, there is either **evidence of recovery** or a **demonstrably effective partial strategy** in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that also have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main secondary species are within biologically based limits.
	Met?	N/A	N/A	N/A
	Justification	Since the implementation of the mandatory use of Nordmøre sorting in the shrimp fishery for latitudes northern than 62ºN (covering all jurisdictions under assessment), the catch of unwanted species has decreased significantly. Regulation J-209-2011, which applies to the Svalbard area, sets, in its article 22, that discarding of non-target species is allowed as long as the sum of these bycatch species do not reach 5% of the total catch for each haul. Information from ICES shrimp fishery overview, Estonian IMR observer on board Estonian vessels, and personal observations from Norwegian IMR staff, support that the shrimp fishery does not exceed this limit, therefore there are no main secondary species to consider for the off-shore fleet. No records were found as regards interactions of the shrimp fishery with other possible secondary species such as birds, sharks, skates and rays or marine mammals not covered under ETP species PI, and these interactions are not		

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit.		
		expected. This SI is not applicable as there are no main secondary species to consider for this UoA.		
b	**Minor secondary species stock status**			
	Guide post			Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			Y
	Justification	According to Norwegian IMR, the only minor secondary species expected for the shrimp fishery is polar cod. Its proportion in the catch composition is expected to be lower than 5% of the different hauls, as if it was bigger the vessel would be obliged to record and land it. There are no records of landings for this species. There is no ICES advice for this species. According to information on polar cod by the IMR, the stock in the Barents Sea is probably between 1.5 and 2.0 million tonnes. This estimate is uncertain, however, due to incomplete sampling coverage for the stock. The stock has not been exploited to any noticeable degree since the early 1970s. Assuming the maximum sustainable catch of shrimps in the Barents Sea (estimated as 70,000 tonnes of shrimp) which would allow the shrimp biomass to remain above Bmsy, incidental catches of polar cod would be 3500 tonnes, well below the estimated stock of 1.5-2 million tonnes. There are no reference points for the polar cod stock, however the team considers that the low catches in relation to the total stock, and the limited spatial overlap of the shrimp and polar cod stocks act as evidence that the UoA does not hinder the rebuilding of this species. SG100 is met.		
References		IMR: Stock of polar cod Norwegian Regulation J-209-2011 Russian Regulation nº 414 (2014) Landing records IUCN red list		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimize the mortality of unwanted catch.		
Scoring Issue		SG 60	SG 80	SG 100
a	**Management strategy in place**			
	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 within 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 within 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?	Y	Y	Y
	Justification	The only secondary species to consider is polar cod, which is considered as a minor secondary species. Therefore, SG80 is met by default. The Norwegian Fisheries Management Act serves as a strategy to manage fishing activity in Svalbard FPZ. Russian Regulation nº 414 (2014) manages fishing activity in Russian EZZ, while fishing activity in NEAFC area is managed through the application of different management measures and fishing recommendations. Enforcement is taken care of by the Norwegian Coast Guard and the Russian Federal Fisheries Agency. The shrimp fishery is regulated through effort control (licences are required for foreign vessels operating in Svalbard FPZ and in Russian EEZ). There are limitations both in the number of effective fishing days and the allowed number of vessels by country. There are regulations which apply in all jurisdictions under assessment on different issues such as the minimum size of shrimp (shrimp<15mm carapace length), gear requirements (minimum mesh size of 35 mm and, since 1992, mandatory use of Nordmore sorting grids, with a maximum bar spacing of 19 mm), limits for by-catch (move-on rules if the bycatch limits for certain species are exceeded in a 10 kg shrimp sample: 8 individuals for cod, 20 for haddock, 3 for Greenland halibut and 3 for redfish. These limits were established taking into account the stock status of the different species. Besides there are area closures to protect spawning grounds and juvenile fish in the Svalbard FPZ and in Russian EEZ. As a result, the fishery has very low bycatch levels both for primary and secondary species (below 5%), as reported in landing records and supported by the low level of infractions as verified by the different management authorities. Research is undertaken by different institutions, such as ICES, IMR and PINRO, which serves to obtain updated information on the status of fish stocks in the Barents Sea region and detect any changes in the ecosystem and trophic chain relations. The team considers that the use of sorting grids, area closures and effort limitation serve as a strategy to protect the polar cod stock as well as other fish species. SG100 is met.		

PI 2.2.2		**There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimize the mortality of unwanted catch.**		
B	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 UoAs/species).	There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	Y	Y	Y
	Justification	The discard ban was first implemented in Norway in 1984 and became mandatory for all species since 2009. Landing records show a very low proportion of both primary and secondary species in the catch composition. Regulation J-209-2011 exempts the shrimp fishery around the Svalbard Islands from this obligation, as long as the different species in the catch composition do not sum to more than 5% of the total catch of each haul. Sorting grids, mandatory in the fishery since 1992, are designed to minimize by-catch and, in this respect, they are highly effective (Richards A, and Hendrickson L., 2006; Isaksen, B. & A.V. Solvdal, 1997.). Similar management measures are also in place for the NEAFC regulatory area (the Loophole). Compliance with this and other regulations is enforced by the Norwegian Coast Guard, but also by the Russian Coast Guard when in Russian waters. According to Gullestad et al. (2015), the Norwegian Coast Guard has 15 inspection vessels (some of which are also equipped with helicopters) conducting in the order of 2000 inspections annually. Presence and inspection at sea are the main tools for preventing and uncovering discarding. If discarding is revealed, both the captain of the vessel and the owner may be fined and licences may be withdrawn for a period. Approximately six captains or companies are fined annually (in the whole Norwegian fleet). The absence of infringements in this matter, as verified by the Directorate of Fisheries, along with the low level of interactions recorded, serve as a test to verify, with a high degree of confidence, that this strategy will work, as catches of polar cod remain at safe levels. SG100 is met.		
c	Management strategy implementation			
	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?		Y	Y
	Justification	The first regulation concerning by-catch was implemented in 1983 when the 11th Session of The Joint Norwegian Soviet Fisheries Commission set the maximum number of juveniles allowed as by-catch to three cod and haddock per 10 kg shrimp. Landing obligation for certain species was first implemented in Norway in 1984, mandatory use of sorting grids in the shrimp fishery was implemented in 1992, closed areas around Svalbard to protect juvenile fish were established in		

PI 2.2.2		**There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimize the mortality of unwanted catch.**		
		2003, the Marine Resources Act was ratified in 2008, and Regulation J-209-2011 (which regulates fishing around the Svalbard area) was enforced in 2011. The historical review of these measures should serve as evidence that the strategy has being implemented for a considerable period so far. The low proportion of non-target species reported in landing records from the shrimp fishery in the past years (data from 2011-2016 were reviewed for this assessment) serves as evidence that the strategy is achieving its objective of minimizing the catch of unwanted species. SG100 is met for all secondary species		
D	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?	Not relevant	Not relevant	Not relevant
	Justification			
e	Review of alternative measures to minimize mortality of unwanted catch			
	Justification	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 minimize 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 minimize UoA-related mortality of **unwanted** catch of all secondary species, and they are implemented, as appropriate.
	Met?	Y	Y	N for all scoring elements
	Guide post	There are no main species to consider, therefore SG80 is met. The shrimp fishery is a very clean one with very low levels of unwanted species in the catch. For bycatches of up to a maximum of 5%, Regulation J-209-2011 provides exemption from the need to record and land the catch. The team hasn't found any evidence of a biennial review of measures to minimize the catch of all minor species (notwithstanding the actual catch being minimal). Catches which represent less than 5% of the catch for each haul are not recorded. SG100 is not met.		
References		Isaksen, B. & A.V. Solvdal, 1997. Selection and survival in the Norwegian shrimp trawl fisheries. Proceedings of the 7& Russian/Norwegian Symposium: Gear Selection and Sampling Gears. Murmansk, 23-24 June 1997 Landing records Norwegian Fisheries Management Act Norwegian Regulation J-209-2011 Russian Regulation nº 414 (2014) Richards A, and Hendrickson L. 2006. Effectiveness of the Nordmore grate in the Gulf of Main northern shrimp fishery. 81(1): 100-106. Fisheries Research. Aschan, M. "Barents Sea case study: The shrimp fishery".		

PI 2.2.2	**There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimize the mortality of unwanted catch.**	
	http://www.discardless.eu/media/results/Barents_Sea_case_study_%28The_shrimp_fishery%29.pdf Gullestad, P., Blom, G., Bakke, G. and Bogstad, B. 2015. "The discard ban package: Experiences in efforts to improve the exploitation patterns in Norwegian fisheries". Marine Policy 54 (1-9). http://www.sciencedirect.com/science/article/pii/S0308597X14002589?via%3Dihub ICES 2016 Report of the Arctic Fisheries Working Group (AFWG). Section 1: General description of the Barents Sea Ecosystem.	
OVERALL PERFORMANCE INDICATOR SCORE:		**95**
CONDITION NUMBER (if relevant):		**N/A**

Evaluation Table for PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	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?	N/A	N/A	N/A
	Justification	Landing records show that there are no main primary or secondary species for this UoA. Should there be any main secondary species, these would be recorded in the logbooks, as it is mandatory to record all bycatch species exceeding 5% weight of the haul. SIa is not applicable.		
b	**Information adequacy for assessment of impacts on minor secondary species**			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			Y
	Justification	While landing obligation should serve to keep records of all interactions of the UoA with the different primary and secondary species, the allowed 5% exemption in the Svalbard FPZ (Norwegian Regulation J-209-2011) prevents fishing records from being exhaustive. However, SIb only requires some quantitative information to be available. As regards the UoA minor secondary species, the only one to consider is polar cod. It's proportion in the catch is expected to be lower than 5% of the different hauls, as if it was bigger the vessel would be obliged to record and land it. There are no records of landings for this species, nor reported infractions by the different management authorities consulted. Assuming the maximum sustainable catch of shrimps in the Barents Sea (estimated as 70,000 tonnes in ICES 2017 advice on shrimps) which would allow the shrimp biomass to remain above Bmsy, incidental catches of polar cod would be 3500 tonnes, well below the estimated stock of 1.5-2 million tonnes (according to IMR, this estimation is uncertain but gives a proxy of expected figures) of a fishery that has not been exploited to any noticeable degree since the early 1970s. Besides, research		

PI 2.2.3		**Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.**		
		information shows that there is limited spatial overlap between the polar cod stock and the shrimp fishing grounds by the Norwegian fleet. It is therefore expected that the impact of the UoA on the stock won't have a significant impact on the polar cod stock status. SG100 is met.		
c	Information adequacy for management strategy			
	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?	Y	Y	Y
	Justification	There are no main secondary species to consider, therefore SG80 is met by default. There is reliable information on landings, and a general broad knowledge of the different components of the ecosystem, including the stock status of different species and the trophic relation between them, and there are also mathematical models (Breivik *et al*., 2017) to predict bycatch in commercial fisheries. There is also continuous research on the different species in the Barents Sea area (not only including fish species but also sharks, skates, rays, marine mammals and birds) which should be sufficient to support a strategy (or to modify the actual strategy into a wider one to include possible impacts on other species) to manage both primary and secondary species. The team considers that there is sufficient information on estimated catches to support a strategy to manage all secondary species and evaluate with a high degree of certainty whether the strategy is achieving its objective of keeping the polar cod stock at a healthy status. Moreover, the low proportion of species (both primary and secondary) in the catch composition, and the lack of infringements by the UoA, serves to evaluate with a high degree of certainty that the actual strategy is achieving its objective. SG100 is met.		
References		Breivik, O. N., Storvik, G., Nedreaas, K. 2017. Latent Gaussian models to predict historical bycatch in commercial fishery. Fisheries Research 185 (62–72). ICES 2016 Report of the Arctic Fisheries Working Group (AFWG). Section 1: General description of the Barents Sea Ecosystem. Landing records. http://www.imr.no/temasider/fisk/polartorsk/en		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species. The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	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?	Y	Y	N
	Justification	According to MSC CR v2.0, ETP Species are those that are recognised by national ETP legislation or by an international binding agreement. It also includes species classified by MSC as "out of scope" (amphibians, reptiles, birds and mammals) that are listed in the IUCN Red list as vulnerable (VU), endangered (EN) or critically endangered (CE). Norwegian, Russian and EU regulation regarding ETP species shall also be taken into account. International agreements signed by any of the jurisdictions under assessment are OSPAR, CITES, ASCOBANS and BONN. Besides, EU habitat directive, as well as the Norwegian Red list for species and the Russian red book of threatened species in the Barents Sea shall be taken into consideration. Norwegian Regulation J-250-2013 (protecting basking sharks, spurdogs, porbeagle and silky shark) shall also be taken in consideration. Table 16 in the background section lists ETP species in the UoA. According to the MSC Interpretations website, fisheries assessed against v2.0 of the standard shall only be required to consider cumulative impacts with other v2.0 fisheries. Other MSC v2.0 certified fisheries (or in assessement) in the Barents Sea are Norwegian prawn fishery and Estonian (and Lithuanian and Danish) prawn fishery. Landing records only show sporadic interactions of the UoA with the golden redfish stock (with 1 tonne landed in 2016, this is, 0.2 % of the UoA landings). The TAC for the species in the Barents Sea is zero, but it is taken as bycatch in different fisheries (as an example, landings by the Estonian prawn fishery in the Barents Sea were 5 tonnes in 2016, while the Russian FIUN cod and haddock MSC fishery landed 400 tonnes of redfish also in 2016). In any case, and for all landings of redfish in the Barents Sea, it is not possible to determine if landed redfish refers to golden redfish (ETP species) or beaked redfish (primary species). There were no landings of redfish by the Norwegian prawn fishery. There were no landings of any other ETP species. Other ETP species are not expected in the catch, thanks to the use of sorting grids. Observer reports from the Estonian scientific IMR observer also report no interactions of Estonian prawn vessels with any ETP species other than golden redfish. According to these data, the team considers that it is highly likely that the UoA effects on ETP stocks are within national and international limits. SG80 is met. The lack of records (by all MSC certified vessels in the Barents Sea) of possible non-fatal interactions with other ETP species such as elasmobranchs prevent the fishery from achieving SG100, as it is not possible to state with a high degree of		

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species. The UoA does not hinder recovery of ETP species		
		certainty that the combined effects of the MSC UoAs on the stock are within national and international limits.		
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Known 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?	Y	Y	Y
	Justification	The mandatory use of sorting grids in the UoA ensures that bycatch of any species is minimal. Move on rules and permanent and temporary closed areas also work in minimizing bycatch of any species. According to landing records, landings of redfish by the UoA in 2016 were 1 tonne (0.2% of total landings). There were no landings of any other ETP species. ICES 2017 advice for golden redfish in subareas I and II states that catches should be zero for 2017, 2018 and 2019. The spawning-stock biomass (SSB) has experienced a continuous decline since the late 1990s and is currently at the lowest in the time-series of the assessment results. Fishing mortality (F) has been increasing since the mid-2000s, with F in 2015 being the second highest in the time-series, with 3600 tonnes landed. There are specific management measures which were implemented with the intention of reversing the poor situation of this stock. The team considers that the low level of catches by the UoA, the results on ETP interactions by the Norwegian reference fleet and the lack of infringements as reported by management authorities (regarding the limits set for golden redfish), give a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species. SG100 is met.		
c	Indirect effects			
	Guide post		Indirect effects have been considered 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 fishery on ETP species.
	Met?		Y	N
	Justification	Indirect effects on ETP populations would be those caused as results of interactions with the fishing gear (such as injuries, which are difficult to quantify, or ghost fishing by lost gears) or those related to the reduction of prey availability for prey species, competition for forage, destruction of egg cases or geolocation difficulties. All these effects have been considered when scoring this PI. Removal of prey availability is not considered to be an issue because of the small size of the shrimp fishery (compared to the size and distribution of the stock). Besides, prey removal is normally taken into account in the management plans by increasing the natural mortality in the assessment to account for the needs of higher trophic levels (personal comments by the Norwegian IMR reported that marine mammals are normally taken into account on catch advice, but they could not confirm the same for bird species). Interferences with breeding seasons are considered to be minimized thanks to closed areas in the Svalbard region. Ghost fishing should not take place as gears are recovered if		

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species. The UoA does not hinder recovery of ETP species
		lost (this has not happened in the past years in any case). Gears are expensive and fishermen try their best to avoid their loss. Fishermen are obliged to release any living ETP species back to the sea. For elasmobranchs such as spurdogs, if the return is done quickly, experimental studies demonstrate that there is a high probability of survival (Mandelman and Farrington 2007a). The lack of records of interactions with this species, which would serve to estimate injuries and effects on entangled individuals, prevents the UoA from achieving SG100. SG80 is met as indirect effects have been considered and are thought to be highly unlikely to create unacceptable impacts.
References		Landing records. Russian red book of threatened species in the Murmansk region. Norwegian Marine Resources Act Regulation J-209-2011 Regulation J-250-2013 IMR landing data by the reference fleet. Cites Appendix I OSPAR IUCN red list Gullestad, P., Blom, G., Bakke, G. and Bogstad, B. 2015. "The discard ban package: Experiences in efforts to improve the exploitation patterns in Norwegian fisheries". Marine Policy 54 (1-9). http://www.sciencedirect.com/science/article/pii/S0308597X14002589?via%3Dihub MSC Interpretations website CITES Appendix I www.ospar.org Mandelman, J.W., and M.A. Farrington. 2007a. The estimated short-term discard mortality of a trawled elasmobranch, the spiny dogfish (*Squalus acanthias*). Fisheries Research 83 (2007) 238–245. Norwegian Red List of Species 2015.
OVERALL PERFORMANCE INDICATOR SCORE:		**85**
CONDITION NUMBER (if relevant):		**N/A**

Evaluation Table for 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 Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	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?	Y	Y	Y
	Justification	There are specific Norwegian management measures which were implemented with the intention of reverting the poor situation of the golden redfish stock. Such measures are area closures and bycatch limitations, and also a move-on rule to protect redfish from the prawn trawl fishery: - In 2004 the redfish fishery became banned from 1st to 31st of May. Maximum bycatch allowed was reduced to 20% and a minimum landing size was established at 32 cm. - In 2005 the prohibition to target redfish was extended from 20th April till 19th June. - In 2006 fishing season was again modified, and prohibitions remained during the months of April and September. A minimum mesh size of 120 mm was introduced. - In 2007 fishing was banned from 1st March till 30th June, and also during September. However, the hand-line fleet smaller than 11 m was excluded from these regulations. - In 2012 fishing closures run from 20th December till 30th June, and also during September. However, all hand-line vessels were excepted from the regulatory measures for future years. - In 2015 the fishing closures remained the same but additional restrictions were added such that redfish catch should be less than 50% of the catch per week. - In 2016 fishing closures were modified from previous years, and was now banned from 1st January to 31st July. Catch of redfish was restricted as it shouldn't be more than 30% of the total catch per week. Russian regulation 414/2014 (article 24), also establishes a bycatch limit of redfish in the shrimp fishery, setting a mandatory move on rule when there are 300 individuals of redfish in a tonne of shrimp. The implementation of other measures such as the mandatory use of sorting grids in the UoA, the establishment of protected areas (both permanent and		

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.**		
		temporal), and the move on rule to prevent the catch of redfish (and cod, haddock and Greenland halibut) are considered as a comprehensive strategy for managing the UoA's impact on all non-target species, including ETP species which also benefit from these measures. The landing obligation(implemented in all jurisdictions under assessment) serves to quantify the different fisheries fatal interactions with ETP species. Besides, Norway has specific measures for the protection of other ETP species (elasmobranchs) which apply in the Svalbard FPZ. Norwegian Regulation J-250-2013 establishes that living individuals of basking sharks, spurdogs, porbeagle and silky shark shall be released immediately, whereas dead or dying individuals should be recorded in the log book (but not necessarily landed). Russia has created a Red book of the Murmansk region which lists endangered species in the area. The team considers that the different management measures in place, as well as the limited interactions of the shrimp fishery with ETP species (as supported by Estonian observer reports) serve as a comprehensive strategy for managing the UoA impact on ETP species. SG80 is met. Moreover, while the different implemented measures continue to allow a 30% catch of redfish (although ICES advice states that catches should be kept to minimum), catches by the UoA in 2016 were 1 tonne, very close to the recommended zero catch. SG100 is met.		
b	Management strategy in place (alternative)			
	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?	Not relevant	Not relevant	Not relevant
	Justification			
c	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?	Y	Y	Y
	Justification	The above-mentioned strategy is based on information directly about the fishery, as measures such as move on rules and temporary closures highly depend on updated information on catch composition.		

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.**		
		According to Norwegian IMR, total catch of by the Norwegian fleet was reduced by 68% from 6233 tonnes in 2004 down to 1969 in 2016, where the landings from trawlers was reduced by 82%. Similar reductions are expected for other trawling fleets operating in the Svalbard FPZ. The reduction in golden redfish catches as a result of implemented management measures serves as a quantitative analysis which supports with a high degree of confidence that the strategy will work. The lack of infringement as reported by management authorities also provides a high degree of confidence that the strategy will work. SG100 is met.		
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?		Y	Y
	Justification	The use of sorting grids, which successfully reduces the catch of unwanted species, is mandatory in the UoA. Permanent and temporal closed areas, together with move on rules to protect golden redfish, are enforced by the Norwegian Coast Guard and the Russian Federal Fisheries Agency. The position of vessels is tracked by VMS. The different management authorities reported no serious infringements for the shrimp fishery. Removals of ETP species by the UoA are negligible. There is evidence that the management strategy to reduce the catch of golden redfish is successfully implemented although not yet achieving its general objective of zero catches in subareas I and II. The minimal landings by the UoA serves as clear evidence that the strategy is successfully implemented in the UoA and that it is achieving its objective of reducing catches to the minimum. SG100 is met.		
e	Review of alternative measures to minimize mortality of ETP species			
	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?	Y	Y	N
	Justification	While the Norwegian Directorate of Fisheries performs an annual risk review which includes a review of fatal interactions of Norwegian vessels with ETP species, the team is not aware of any similar review by the Faroese, Danish or Lithuanian fisheries authorities, nor by the group of vessels in the UoA. In any		

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.**
		case, with the actual ratio of interactions with ETP species, this review would only serve to verify the low level of interactions. However, the team considers that the review of management measures to avoid such interactions by the Norwegian prawn fleet serves Norwegian authorities to review and modify the different management measures to apply in relation to ETP species in the Svalbard FPZ. Besides, the annual meeting of the Joint Norwegian – Russian fisheries commission serves to highlight the need (if any) of modifications in management measures in all jurisdictions in the Barents Sea (Norwegian/Svalbard, Russian and NEAFC). SG80 is met.
References		Modulf Overvik (Norwegian Directorate of Fisheries) personal comment. Interviews with the Danish, Faroese and Lithuanian fisheries management authorities. Landing records. Norwegian Marine Resources Act. Russian Regulation 414/2014. Russian Red book of species for the Murmansk Region. Gullestad, P., Blom, G., Bakke, G. and Bogstad, B. 2015. "The discard ban package: Experiences in efforts to improve the exploitation patterns in Norwegian fisheries". Marine Policy 54 (1-9). http://www.sciencedirect.com/science/article/pii/S0308597X14002589?via%3Dihub
OVERALL PERFORMANCE INDICATOR SCORE:		**95**
CONDITION NUMBER (if relevant):		**N/A**

Evaluation Table for PI 2.3.3 – ETP species information

PI 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.**		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Qualitative information is **adequate to estimate productivity and susceptibility** attributes for 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. OR If RBF is used to score PI 2.3.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	Met?	Y	Y	N
	Justification	The landing obligation gives sufficient quantitative information to adequately assess the UoA related mortality of ETP species. Catch records by the different vessels, the Estonian observer report and information from the Norwegian IMR reference fleet provide sufficient information to determine whether the UoA may (or may not) be a threat for the protection of ETP species. Besides, ICES provides advice on certain ETP species, such as on golden redfish. SG80 is met. However, the lack of information on the magnitude of the UoA related injuries and indirect effects on ETP species prevent the UoA from achieving SG100.		
b	Information adequacy for management strategy			
	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?	Y	Y	N
	Justification	Information collected through different means, such as landing records, the Estonian observer report, information data from the Norwegian IMR reference		

PI 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.**
		fleet, the IMR-PINRO joint annual ecosystem survey in the Barents Sea, ICES advice on golden redfish, is considered sufficient to measure trends and support a strategy to manage impacts on ETP species. SG80 is met. However, there is not sufficient information on the UoA related indirect impacts and injuries on other ETP species, as there is no evidence of the fishery recording non-fatal interactions. It is considered that available information is not enough to evaluate with a high degree of confidence if strategies to minimize this type of impacts is achieving its objective. SG100 is not met. The assessment team **recommends** that systems are put in place to ensure that all interactions with ETP species are recorded on log books irrespective of whether they are landed or discarded and that the captures of all ETP species are mapped.
References		Landing records. Estonian IMR observer report. IMR reference fleet landing records. ICES 2016 Report of the Arctic Fisheries Working Group (AFWG). Section 1: General description of the Barents Sea Ecosystem. ICES advice on golden redfish in subareas I and II.
OVERALL PERFORMANCE INDICATOR SCORE:		**80**
CONDITION NUMBER (if relevant): Recommendation 1		**N/A**

Evaluation Table for 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
a	Commonly encountered habitat status			
	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?	Y for all scoring elements	Y for all scoring elements	N for all scoring elements
	Justification	MSC guidance suggests that serious (or irreversible) harm refers to change that fundamentally alters the capacity of the component to maintain its function (e.g. reducing ecosystem services; loss of resilience; regime shift; gross changes in composition of dependent species) or to recover from the impact (within timescales of natural ecological processes – normally one or two decades). Vessels operate in the areas with a harder sea-bottom and use light-weight rock–hopper gear. Trawl doors have contact with the sea bottom and result in a direct impact on habitat structure. Some vessels have been experimenting with pelagic doors, which are kept off the bottom. It is expected that this practice would be used more frequently in the future to reduce the environmental impact on the sea bottom. There are also several on-going projects in Norway which are aimed at developing more effective and environmentally-friendly trawl gear for shrimp fisheries which are looking at improving the effectiveness of sorting grids in existing trawls and reducing the weight of the gear in order to limit impact and reduce fuel use (Modulf Overvik, Norwegian Directorate of Fisheries, pers. comm.). The net is an otter (twin-rig) trawl net, which is held open by trawl doors. In the middle between the nets a clump is used to keep the net near the bottom. The weight of the doors is between 4 and 7 tonnes and the weight of the clump is between 5 and 10 tonnes. The ground rope is prevented from making contact with the sea bottom by rubber discs which vary in size between national fleets from 0.5 to 0.8m in diameter. Most of the fishing vessels use double trawling, although one Faroe Islands vessel, Kappin (formerly Sermilik II) uses only a single trawl. The length of towing is around 4-6 hours, with approximately 7-8 tonnes of shrimp being taken in 1 day. Longer towing is not recommended due to quality considerations. Most commonly encountered habitats by the UoA in the Barents Sea are clay, muddy and sandy bottoms. All of them are considered to fall under the "Fine" substratum category, which has a "flat" associated geomorphology and "large erect" biota. Trawling affects benthic habitats through relocation of shallow burrowing infaunal species to the surface of the seafloor, and by resuspension of surface sediment. Kaiser et al. (2006) concluded that trawling produces a significant, negative, short-term effect on soft habitats, but no detrimental effects were seen in the long term once the fishing stops. The recovery time (estimated from life history data) as shown on Figure 44 shows that commonly encountered areas by the fishery, located in the central Barents Sea should recover in 5 to 10 years' time once the fishery stops. Besides, trawl modified habitats continue to cover ecosystem needs, regardless of showing a lower		

<table>
<tr><td colspan="2">PI 2.4.1</td><td>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.</td></tr>
<tr><td></td><td></td><td>biodiversity rate.
The team concludes that the UoA is highly unlikely to (further) reduce structure and function of the commonly encountered habitats (soft bottoms of fine substratum with flat associated geomorphology and large erect biota) to a point where there would be serious or irreversible harm. SG80 is met for all scoring elements. The assessment team could not find any evidence to support SG100.
<table>
<tr><td>Scoring element</td><td>SG60</td><td>SG80</td><td>SG100</td></tr>
<tr><td>Fine substratum (with flat associated geomorphology and large erect biota) in NEAFC waters.</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Fine substratum (with flat associated geomorphology and large erect biota) in the Svalbard FPZ.</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Fine substratum (with flat associated geomorphology and large erect biota) in the Russian EEZ.</td><td>Y</td><td>Y</td><td>N</td></tr>
</table></td></tr>
<tr><td>B</td><td colspan="2">VME habitat status</td></tr>
<tr><td></td><td>Guide post</td><td>The UoA is unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.</td><td>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.</td><td>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.</td></tr>
<tr><td></td><td>Met?</td><td>Y for all scoring elements</td><td>N for all scoring elements</td><td>N for all scoring elements</td></tr>
<tr><td></td><td>Justification</td><td colspan="3">Different species described by NEAFC and OSPAR as indicator species of VME ecosystems have been identified in the UoA fishing grounds. Both Jørgensen et al (2015) and Jakobsen and Ozhigin (2011) have located the spatial distribution of sponges, seapens, and soft corals. These species have been designated by NEAFC as indicators of VMEs in the Barents Sea. Besides, different types of sponges are considered as threatened and declining in the Barents Sea.
The assessment team has considered the following scoring elements (VME habitats), following ICES and NEAFC advice and Jorgensen et al (2015) identification of benthic species present in the area:
• Cold water coral reefs: Lophelia pertusa reef and Solenosmilia variabilis reef.
• Coral garden: Hard bottom coral garden and soft bottom coral garden.
• Deep sea sponge aggregations: Hard bottom sponge gardens and glass sponge communities
• Seapen fields and burrowing megafauna communities.
In considering the potential impact of the fishery, the assessment team took into account the distribution of fishing activity in relation to known distribution of the VME habitats, the bio-regional distribution of habitat types, the irregular reproduction and slow growth rates of the vulnerable species with the consequent slow recovery rates, the nature of the fishing gear used, and the behaviour of fishermen in avoiding habitats which might damage the fishing</td></tr>
</table>

<table>
<tr><td colspan="2">PI 2.4.1</td><td colspan="4">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.</td></tr>
<tr><td></td><td></td><td colspan="4">gear. According to VMS tracks, the UoA fishing grounds overlap with the location of different species which are indicators of VME habitats, such as seapen fields and sponges in the Northwestern area of the Svalbard Islands, and soft corals in the central Barents Sea.

Norwegian Regulation J-40-2016 establishes that if a trawl vessel catches more than 30 kg corals or 400 kg sponges in a single haul the vessel shall stop fishing and move position at least 2 nautical miles in order to avoid such catches and report such incident to the Directorate of Fisheries. Similar requirements are set in the Loophole area through NEAFC Recommendation 19 (2014). There are no similar management measures implemented in the Russian EEZ. While these management measures have been implemented for several years so far, to date there are no records of such interactions (by any shrimp fishery). In addition, there are no records of any catches of corals or sponges in log books irrespective of whether the catches are above or below the thresholds designated under the move-on rules. It is expected that the length of the hauls are not long enough to allow for such thresholds to be achieved. Besides, it could be the case that sponges and corals are released from the codend through the escapement hole at the sorting grid.
Faroese vessels have very recently implemented an underwater camera on the trawl to watch the fishing operation. This should serve captains to avoid interactions with unwanted catch such as benthic species. There are also some area closures in the Svalbard FPZ directed to the protection of corals, sponges, and very recently (May 2017) also seapens.

The team considers that due to the overlap between documented distribution of indicator species of VME and the UoA fishing grounds it is not possible to state that the UoA is highly unlikely to reduce structure and function of VME habitats in the Barents Sea to a point where there would be serious or irreversible harm. SG80 is not met for any scoring element. The fact that there is certain regulation in some jurisdictions protecting indicator species of VME habitats such as sponges, soft and hard corals and seapens, gives sufficient confidence to these scoring elements to meet SG60. Besides, and according to Figure 44, recovery times in the Barents Sea have been estimated in between 3 to 9 years in the different fishing areas if all the Barents Sea fisheries were to cease. This study serves to support that serious or irreversible harm is unlikely. SG60 is met for all scoring elements.
<table>
<tr><td>Scoring element</td><td>SG60</td><td>SG80</td><td>SG100</td></tr>
<tr><td>Cold water coral reefs</td><td>Y</td><td>N</td><td>N</td></tr>
<tr><td>Coral gardens</td><td>Y</td><td>N</td><td>N</td></tr>
<tr><td>Deep sea sponge aggregations</td><td>Y</td><td>N</td><td>N</td></tr>
<tr><td>Seapens fields and burrowing megafauna communities</td><td>Y</td><td>N</td><td>N</td></tr>
</table>
</td></tr>
<tr><td>c</td><td colspan="5">Minor habitat status</td></tr>
<tr><td></td><td>Guide post</td><td></td><td></td><td colspan="2">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.</td></tr>
</table>

<table>
<tr><td colspan="2">PI 2.4.1</td><td colspan="3">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.</td></tr>
<tr><td rowspan="2"></td><td>Met?</td><td></td><td></td><td>N for all scoring elements</td></tr>
<tr><td>Justification</td><td colspan="3">Expected minor habitats would be gravel patches dispersed in the Barents Sea.
<table><tr><td>Scoring element</td><td>SG100</td></tr><tr><td>Gravel Patches</td><td>No</td></tr></table>Even though recovery of those areas is not expected to take longer than 5 to 10 years, there is no evidence that the UoA is highly unlikely to reduce structure and function of these habitats up to a point where there would be serious or irreversible harm. SG100 is not met.</td></tr>
<tr><td colspan="2">References</td><td colspan="3">Regulation J-209-2011
NEAFC Recommendation 19 (2014).
www.mareano.no
Kaiser, M. J., Clarke, K. R., Hinz, H., Austen, M. C. V., Somerfield, P. J., and Karakassis, I. 2006. Global analysis of response and recovery of benthic biota to fishing. Marine Ecology Progress Series, 311: 1 –14.
Jakobsen T., Ozhigin V. (2011). The Barents Sea. Ecosystem, resources, management. Half a century of Russian-Norwegian cooperation. Tapir Academic Press, Trondheim. 825 p.
Jørgensen, L. L., Planque, B., Thangstad, T. H., and Certain, G. 2015. Vulnerability of megabenthic species to trawling in the Barents Sea. – ICES Journal of Marine Science, doi: 10.1093/icesjms/fsv107.
Lepland Aivo, Rybalko Aleksandr & Lepland Aave 2014: Seabed Sediments of the Barents Sea. Scale 1:3 000 000. Geological Survey of Norway (Trondheim) and SEVMORGEO (St. Petersburg).
Lubin 2013 (from Denisenko S.G. and Zgurovsky, K.A. 2013). Impact of trawl fishery on benthic ecosystems of the Barents Sea and opportunities to reduce negative consequences. Murmansk. WWF. 2013. 55pp.</td></tr>
<tr><td colspan="4">OVERALL PERFORMANCE INDICATOR SCORE:
<table><tr><th>Scoring element</th><th>PI score</th></tr><tr><td>Fine substratum with flat associated geomorphology and large erect biota iNEAFC waters.</td><td>80</td></tr><tr><td>Fine substratum with flat associated geomorphology and large erect biota in the Svalbard FPZ.</td><td>80</td></tr><tr><td>Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.</td><td>80</td></tr><tr><td>Cold water coral reefs</td><td>60</td></tr><tr><td>Coral gardens</td><td>60</td></tr><tr><td>Deep sea sponge aggregations</td><td>60</td></tr><tr><td>Seapen fields and burrowing megafauna</td><td>60</td></tr></table></td><td>70</td></tr>
</table>

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.**			
	communities			
	Gravel patches	**N/A**		
	OVERALL SCORE	**70**		
CONDITION NUMBER (if relevant):				**3**

Evaluation Table for PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	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?	Y for all scoring elements	Y for all scoring elements.	N for all scoring elements
	Justification	There are different measures in place expected to ensure that the UoA does not pose a risk of serious harm to the habitats. These include: - Russian Regulation nº 414/2014 (article 16) establishes area closures (originally intended for the protection of juvenile fish). Fishing with bottom trawl gears is forbidden in these areas, which are located close to the Russian mainland and the islands of Franz Joseph and do not overlap with the UoA fishing grounds (see Figure 42). - General prohibition of trawling within the 12 nautical miles outside the coast baseline (however this limit is sometimes shorter in the Svalbard archipelago). - Norwegian Regulation J-40-2016 which apply in Svalbard FPZ and NEAFC Recommendation 19 (2014) establish that if a trawl vessel catches more than 30 kg corals or 400 kg sponges in a single haul the vessel shall stop fishing and move position at least 2 nautical miles in order to avoid such catches and report such incident to the respective management authority (no incidents were reported so far). - Norwegian Regulation J- 187-2008, which prohibits trawling near coral reefs, and establishes Marine Protected Areas to protect them (all of which are located near the coast line of Norwegian mainland or the different archipelagos in the Barents Sea). - New area closures have recently been established around the Svalbard archipelago to protect seapens and sea stars (see Figure 43). New fishing areas have also been established in the area were special requirements apply. - When fishing in a new area in the Norwegian EEZ or the Svalbard FPZ, vessels must have a special permit from the Norwegian Directorate of Fisheries. Such special permission may only be granted if the vessel has submitted to the Directorate for approval: o A detailed protocol for trial fishing which includes a fishing plan for fishing gear, fish stocks, by-catches, time and areas. o A plan to avoid damage to sensitive marine ecosystems. o A plan for journal entry and reporting. o And a plan for collecting data on vulnerable soil habitats - Both the Joint IMR-PINRO annual ecosystem survey and the Mareano program are well established and ongoing mapping programs which serve to improve scientific knowledge and suggest management tools to be used in the area.		

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.

- Geomorphologic maps show that Barents Sea fishing grounds are mainly formed by clay, mud or sandy areas.
- The Norwegian Marine Resources Act establishes, in its Section 19, that Norwegian and Svalbard habitats that require protection can be permanently closed to fishing with short notice.
- In 2013, over approximately 35 000 km2 of the Barents Sea were affected by bottom trawling by Norwegian vessels in the area, corresponding to about 2% of the ecoregion's spatial extent (but it should be highlighted that the proportion of swept seafloor increased by ca. 1% from 2009 until 2013). It is expected that the 10 vessels in the UoA under assessment do not exceed similar areas as the Norwegian fleet.
- The Norwegian Coast Guard and the Russian Federal Fisheries Agency enforce the different management measures.

However, all these measures still fall short in managing all impacts that the fishery has on the Barents Sea habitat:

- Detailed mapping of the Barents Sea through the Mareano program has not covered yet the Barents Sea fishing grounds, as the program has so far concentrated on the Norwegian mainland coastal waters. This problem will be reduced as research activities from the Mareano program advance every year, but it is expected that it will still take several years to cover all the UoA fishing grounds in the central Barents Sea.
- There is space for improvement in the knowledge of the habitat of the central waters in the Barents Sea.
- Certain NEAFC indicator species of VME habitats, present in the NEAFC area, are not yet specifically protected.
- There are no specific habitat protection measures in the Russian EEZ.

The team reaches the following conclusions as regards the different scoring elements:

- Commonly encountered habitats (fine substratum) and minor gravel patches present in NEAFC waters, Svalbard FPZ and Russian EEZ, all reach SG80, as there are different measures which constitute a partial strategy to manage these areas, which, on the other hand, have a better response to the bottom trawl fishing pressure. These measures include effort regulation and gear design.
- Cold water reefs, coral gardens, deep-sea sponge aggregations and seapen fields reach SG80 as there are specific measures to protect these habitats in certain areas, mostly in the Svalbard FPZ. These measures include move on rules (directed to the protection of corals and sponges and which are implemented in Svalbard FPZ and NEAFC waters) and protected areas (most of which are located near the Svalbard or the Franz Joseph Islands coastline), but also in Russian coastal zone. These measures, along with effort limitations and gear design, are considered as a partial strategy to ensure that the UoA does not pose a risk of irreversible harm to these habitats.

Scoring element	SG60	SG80	SG100
Fine substratum with flat associated geomorphology and large erect biota in the	Y	Y	N

PI 2.4.2		**There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.**			
		Loophole area.			
		Fine substratum with flat associated geomorphology and large erect biota in the Fisheries Protection Zone around Svalbard.	Y	Y	N
		Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.	Y	Y	N
		Cold water coral reefs	Y	Y	N
		Coral gardens	Y	Y	N
		Deep sea sponge aggregations	Y	Y	N
		Seapen fields and burrowing megafauna communities	Y	Y	N
		Gravel patches	Y	Y	N
b	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 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?	Y for all scoring elements	Y for commonly encountered habitats and gravel patches N for VME indicator species (specifically in the Russian EEZ).	N for all scoring elements
	Justification	The team considers that the measures described in PI 2.4.2.a are already implemented and working in managing the UoA's impacts on main habitat types (clay/mud and sandy habitats), and also on some VME habitat types in certain jurisdictions (Svalbard FPZ and NEAFC waters). There is concern that described measures are not enough to manage the UoA impacts on all indicator species of VME in the different jurisdictions included in the UoA, mostly in Russian waters. Indicator species of VME such as corals and sponges are protected by move on rules implemented in the Svalbard FPZ and in NEAFC waters (but not in the Russian EEZ). There are area closures implemented in the Svalbard FPZ directed to the protection of coral, sponges and also recently to protect seapens. There are also precautionary closures where fishing is permitted with special permits in the Svalbard FPZ and in NEAFC waters. There are also certain area closures directed to the protection of juvenile fish close to the Russian mainland coastline and near Franz Joseph Islands. Management authorities confirm that implemented measures are generally followed. Encounters of the UoA vessels with VME habitats such as seapen fields, sponges or soft corals communities are expected, as described by Jørgensen *et al,* (2015). So far it is not possible to conclude that there is some objective basis for confidence that the partial strategy will work, either due to the recent implementation of the measure (as for protected seapens in Svalbard FPZ) or			

PI 2.4.2	There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.

due to the limited size of protected areas (50 km2).

The team reaches the following conclusions as regards the different scoring elements:

- NEAFC waters, Russian EEZ and Svalbard FPZ commonly encountered habitats (fine substratum) and gravel patches reach SG80 thanks to the response of soft bottoms to trawling. According to Kaiser *et al* (2006), expected impacts of bottom trawling in soft bottoms are the relocation of shallow burrowing infaunal species to the surface of the seafloor, and resuspension of surface sediment. Lubin (2013) estimated in 5 to 10 years the time that main habitats in the Barents Sea would need to recover after bottom trawling.
- Cold water reefs, coral gardens and deep-sea sponge aggregations are subject to management measures such as move on rules which are enforced in Svalbard FPZ and in NEAFC waters. The move on rule assures the avoidance of depletion of the species in these habitats by moving fishing grounds when species are encountered. Besides, records of these encounters should serve to avoid these areas in the future. There are also designated area closures around Svalbard Islands which were implemented to protect sponges and corals. According to Denisenko et al (2013), coral reefs are not expected in Russian waters.
- The recent establishment of a small closed area (50 km2) to protect seapens gives an objective basis for confidence that seapens will be protected inside that area. Other measures such as effort limitations (10 vessels in the UoA) also bring confidence that management measures to protect seapens will work.

While the team considers that implemented measures afforded for the protection of VME in the Svalbard FPZ and NEAFC waters are sufficient to justify that there is some objective basis for confidence that the partial strategy will work in these areas, the UoA also takes place in the Russian EEZ, where there are limited management measures afforded to VME indicator species. SG80 would be met for VME indicator species in the Svalbard FPZ and NEAFC waters, but not in the Russian jurisdiction. The limited number of vessels in the UoA, the underwater camera that Faroese vessels use and the fact that they do not generally go into Russian waters (as they are required to sail further south and pick up a Russian enforcement observer), along with the area closures (directed to the protection of juvenile fish) are considered likely to work in avoiding serious or irreversible harm. SG60 is met in the Russian jurisdiction.

Scoring element	SG60	SG80	SG100
Fine substratum with flat associated geomorphology and large erect biota in the Loophole area.	Y	Y	N
Fine substratum with flat associated geomorphology and large erect biota in the Fisheries Protection Zone around Svalbard.	Y	Y	N
Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.	Y	Y	N
Cold water coral reefs	Y	N	N
Coral gardens	Y	N	N

PI 2.4.2		**There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.**			
		Deep sea sponge aggregations	Y	N	N
		Seapen fields and burrowing megafauna communities	Y	N	N
		Gravel patches	Y	Y	N
c	Management strategy implementation				
	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?		Y for commonly encountered habitats and gravel patches. N for VME indicator species (cold water coral reefs, coral gardens, deep sea sponge aggregations and seapen fields and burrowing megafauna communities scoring elements).	Y for commonly encountered habitats and gravel patches. N for VME indicator species (cold water coral reefs, coral gardens, deep sea sponge aggregations and seapen fields and burrowing megafauna communities scoring elements).
	Justification	There is clear evidence that the partial strategy has been implemented for some years now in the Svalbard FPZ. There is also evidence of the implementation of management measures designated to protect habitat types in NEAFC waters in 2015. There is no such evidence for the Russian EEZ. The 1925 Svalbard Act protected water areas around the islands. This protection has been maintained through different regulations to date. 75% of the Svalbard territorial waters are subject to protection. The Norwegian Government has set a target of at least 10% of Norwegian coastal and marines areas to be protected by 2020. The first Norwegian regulation managing trawling areas is the Act on trawling free zones, of 17th January 1975. The Fishery Protection Zone around Bear Island was created in 1978. The first joint IMR-PINRO ecosystem survey took place in 2003 and has continued annually since then. Research and collaboration between both institutions as regards studies of the Barents Sea began much earlier. The Mareano program began mapping the Norwegian Sea seafloor in 2005 and continues to increase its coverage of the Norwegian EEZ and Barents Sea FPZ seafloor annually. The Norwegian Marine Resources Act was established in 2008. Norwegian Regulation J- 187-2008, which prohibits trawling near coral reefs, was implemented in 2008, and Norwegian Regulation J-40-2016, which protects corals and sponges through the implementation of a move on rule, was implemented in 2016. The Norwegian Coast Guard enforces these regulations. The team reaches the following conclusions as regards the different scoring elements: - The NEAFC, Svalbard and Russian commonly encountered habitats (fine		

<table>
<tr><td colspan="2">PI 2.4.2</td><td colspan="4">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.</td></tr>
<tr><td rowspan="3"></td><td rowspan="3"></td><td colspan="4">substratum), and the Gravel patches minor habitats reach SG80 as there is evidence that different management measures (such as effort limitation, VMS localization and gear design) are successfully implemented (SG80 is met). The quantitative evidence to support that the strategy is achieving its objective would be based on the estimated recovery times in the Barents Sea, which range from 4 to 9 years if the fishery were to cease. SG100 is met for common habitat types.
- VME indicator species such as cold water coral reefs, coral gardens, deep-sea sponge aggregations and seapens reach SG80, as there is evidence that specific management measures were implemented in 2016 in certain jurisdictions (and as such is only considered as a partial strategy) but there is no information yet on if they are achieving its objective. SG100 is not met.
<table>
<tr><td>Scoring element</td><td>SG80</td><td>SG100</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in NEAFC waters.</td><td>Y</td><td>Y</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in the Svalbard FPZ.</td><td>Y</td><td>Y</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.</td><td>Y</td><td>Y</td></tr>
<tr><td>Cold water coral reefs</td><td>Y</td><td>N</td></tr>
<tr><td>Coral gardens</td><td>Y</td><td>N</td></tr>
<tr><td>Deep sea sponge aggregations</td><td>Y</td><td>N</td></tr>
<tr><td>Seapen fields and burrowing megafauna communities</td><td>Y</td><td>N</td></tr>
<tr><td>Gravel patches</td><td>Y</td><td>Y</td></tr>
</table></td></tr>
<tr><td>d</td><td colspan="4">Compliance with management requirements and other MSC UoAs’/non-MSC fisheries’ measures to protect VMEs</td></tr>
<tr><td rowspan="3"></td><td>Guide post</td><td>There is qualitative evidence that the UoA complies with its management requirements to protect VMEs.</td><td>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.</td><td>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.</td></tr>
<tr><td>Met?</td><td>Y for all VME scoring elements</td><td>Y for all VME scoring elements</td><td>Y for all VME scoring elements</td></tr>
<tr><td>Justification</td><td colspan="3">According to information provided by management authorities on the UoA compliance with Norwegian and Russian regulations and NEAFC Recommendations, there is clear quantitative evidence that the fishery does comply with the regulations relevant to the fishery and to the protection of indicator species of VME such as sponges and corals, as no infringements are reported. A new MPA has been created in 2017 in the Svalbard FPZ directed to the protection of seapens. Vessels positions are monitored by management authorities through the mandatory use of VMS in all vessels of the UoA.
To the team’s knowledge, the only voluntary management measure in other</td></tr>
</table>

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.
		fisheries in the region is the Cod Industry Group Agreement, intended for the cod fishery (see full text in Appendix 1.5). This cod industry group (signed by 2 fishing companies, Fiskebat and Karat) has agreed that *"from the 2016 season the catching sector will not expand their Cod fishing activities with trawl gear into those areas where regular fishing has not taken place before. This is a precautionary measure until through initiatives such as those mentioned below the fishing activity in future years will be determined by improved knowledge replacing the need for this precautionary approach"....."* The agreement is also signed by 5 different processors and manufacturers, and 6 different retailers groups. It is noteworthy to mention that while the cod industry group agreement states that "they will not expand cod fishing into areas where regular fishing has not taken place before" some of the areas which fall under this agreement (see map in Appendix 1.5) are regular fishing grounds for prawn fisheries. A comparison of the area covered by the voluntary closure and VMS tracks for 2001-2016 (as shown in the proposal for review of Regulation J-40-2016, in Appendix 1.6) shows that some of the areas closed in the cod voluntary agreement are regular fishing grounds for prawns. The cod industry group agreement had the intention of stopping the expanse of demersal fish trawling expansion and the additional impacts on pristine fishing grounds, not the intention of closing fishing grounds that have been used for decades. Historical fishing grounds of the prawn fishery have not therefore been taken into account in the definition of the proposed voluntary closures, and therefore the underlying rationale of the voluntary agreement – to prohibit expansion of the cod fishery into previously unfished grounds – is not relevant to the prawn fishery. Moreover, Regulation J-40-2016 (now under proposal for review) already manages fishing opportunities in the so called "New Areas", by establishing requirements which take into account a precautionary approach in order to protect VMEs. This regulation was implemented in 2016 and affects all fisheries (including cod and prawn fisheries) both in Norway's EEZ and Svalbard FPZ. According to MSC FCR v2.0 SA3.14.3.2, PI 2.4.2.d shall only take into consideration areas where closure is clearly aimed (i.e., based on scientific rationale and best practice) at precautionary protection of VMEs, and not closures that are designed for other purposes. The Norwegian Marine Research Institute (IMR) has publicly criticized the scientific basis for the definition of the proposed area closures (http://www.imr.no/publikasjoner/andre_publikasjoner/kronikker/2016/malrettet_marint_vern_gir_best_vern/nb-no). According to IMR, Svalbard fishing grounds have been fished for over a century, and while there are some areas that would benefit from protection, the establishment of a massive no-go area is not the solution to this threat. IMR has mapped and analyzed benthic habitats in the Svalbard FPZ for over 10 years so far and has identified both vulnerable and common habitats which fall within the proposed area closure. In IMR words, "*targeted ecosystem-based management would be therefore more suited to safeguard vulnerable organisms in the Arctic than unpredictable and widely established protection".* The team concludes that the voluntary closure of the cod fishery to new fishing grounds is not relevant to the prawn fishery for various reasons: - It is not supported by the main scientific institution in the area (IMR), and therefore not based on scientific rationale - While the written statement refers that "the cod fishery won't expand to

areas where trawl fishing has not taken place before", the area closures as described in the associated map show that the historical prawn fishing grounds have not been taken into account. Therefore, the restriction on fishing grounds only refers to historical cod fishing grounds.

Notwithstanding this, Regulation J-40-2016 is at present (February 2018) subject to review (see document attached in Appendix 1.6 for proposed modifications) to modify and broaden the definition of "new fishing areas", which at present only covers waters deeper than 1000 m. To date, fishing in the so called "new fishing areas" is limited and subject to specific requirements afforded to the protection of vulnerable habitats as specified in the regulation itself and in the background section. Modifications to this regulation include area closures for bottom fishing gears, in areas where vulnerable species and habitats are known to occur and there has been little or no fishing in them. The location of these areas is described taking into account IMR research in the area and associated publications (see https://brage.bibsys.no/xmlui/bitstream/handle/11250/2480431/19-2017.pdf?sequence=1&isAllowed=y). Besides, the regulation proposal describes 8 new area closures for bottom trawling activity. If and when these modifications to Regulation J-40-2016 are implemented, the Cod Industry Group Agreement would become redundant, as binding regulation will forbid fishing with bottom gears in these areas.

Besides, and following international concerns on the access to previously ice-covered areas, arctic states (Canada, China, Denmark, Iceland, Japan, South Korea, Norway, Russia and USA) have recently (December 2017) reached a binding agreement in which all Parties agree that no commercial fishing will take place in the high seas portion of the central Arctic Ocean. At the same time they commit to gain a better understanding of the area's ecosystems, through a program of joint scientific research, to establish appropriate management measures (https://ec.europa.eu/maritimeaffairs/content/eu-and-arctic-partners-agree-prevent-unregulated-fishing-high-seas_en).

The team reaches the following conclusions as regards the different VME scoring elements:

Cold water coral reefs, coral gardens, seapens and deep-sea sponge aggregations reach SG100. This is because of the comprehensive enforcement system by the Norwegian and Russian Coast Guards and the lack of infringements as reported by the management authorities. This constitutes a clear evidence that the UoA complies with management requirement and protection measures afforded to protect VME. In the team's view, the cod agreement is not relevant to the prawn fisheries. SG100 is met by all scoring elements.

Cold water coral reefs	Y	Y	Y
Coral gardens	Y	Y	Y
Deep sea sponge aggregations	Y	Y	Y
Seapen fields and burrowing megafauna communities	Y	Y	Y

PI 2.4.2	There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.
References	Act 17 December 1976 relating to the establishment of the Economic zone of Norway. Arctic Agreement

<table>
<tr><td>PI 2.4.2</td><td>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.</td></tr>
<tr><td></td><td>Gullestad P., Blom G., Bakke G., and Bogstad, B. (2015). The “Discard Ban Package”: Experiences in efforts to improve the exploitation patterns in Norwegian fisheries. Marine Policy 54 (2015) 1–9
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Kaiser, M. J., Clarke, K. R., Hinz, H., Austen, M. C. V., Somerfield, P. J., and Karakassis, I. 2006. Global analysis of response and recovery of benthic biota to fishing. Marine Ecology Progress Series, 311: 1 –14.
Jakobsen T., Ozhigin V. (2011). The Barents Sea. Ecosystem, resources, management. Half a century of Russian-Norwegian cooperation. Tapir Academic Press, Trondheim. 825 p.
Jørgensen, L. L., Planque, B., Thangstad, T. H., and Certain, G. 2015. Vulnerability of megabenthic species to trawling in the Barents Sea. – ICES Journal of Marine Science, doi: 10.1093/icesjms/fsv107.
Lepland Aivo, Rybalko Aleksandr & Lepland Aave 2014: Seabed Sediments of the Barents Sea. Scale 1:3 000 000. Geological Survey of Norway (Trondheim) and SEVMORGEO (St. Petersburg).
Lubin 2013 (from Denisenko S.G. and Zgurovsky, K.A. 2013). Impact of trawl fishery on benthic ecosystems of the Barents Sea and opportunities to reduce negative consequences. Murmansk. WWF. 2013. 55pp.
http://www.mareano.no/en/about_mareano/activities</td></tr>
<tr><td colspan="2">OVERALL PERFORMANCE INDICATOR SCORE:
<table>
<tr><td>Scoring element</td><td>PI score</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in NEAFC waters.</td><td>85</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in the Svalbard FPZ.</td><td>85</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.</td><td>85</td></tr>
<tr><td>Cold water coral reefs</td><td>75</td></tr>
<tr><td>Coral gardens</td><td>75</td></tr>
<tr><td>Deep sea sponge aggregations</td><td>75</td></tr>
<tr><td>Seapen fields and burrowing megafauna communities</td><td>75</td></tr>
<tr><td>Gravel patches</td><td>85</td></tr>
<tr><td>OVERALL SCORE</td><td>75</td></tr>
</table></td><td>75</td></tr>
<tr><td colspan="2">CONDITION NUMBER (if relevant):</td><td>4</td></tr>
</table>

Evaluation Table for PI 2.4.3 – Habitats information

<table>
<tr><td colspan="2">PI 2.4.3</td><td colspan="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.</td></tr>
<tr><td colspan="2">Scoring Issue</td><td>SG 60</td><td>SG 80</td><td>SG 100</td></tr>
<tr><td rowspan="3">a</td><td colspan="4">Information quality</td></tr>
<tr><td>Guide post</td><td>The types and distribution of the main habitats are broadly understood.

OR

If CSA is used to score PI 2.4.1 for the UoA:

Qualitative information is adequate to estimate the types and distribution of the main habitats.</td><td>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.
OR
If CSA is used to score PI 2.4.1 for the UoA:
Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.</td><td>The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.</td></tr>
<tr><td>Met?</td><td>Y for all scoring elements.</td><td>Y for all scoring elements.</td><td>Y for commonly encountered habitats.
N for VME indicator species and minor habitats.</td></tr>
<tr><td>Justification</td><td colspan="3">As described in the background section, there is sufficient information on the nature, distribution and vulnerability of the main habitats in the UoA. Moreover, the general distribution of vulnerable habitats such as cold-water coral reefs, coral gardens, deep sea sponge aggregations and seapen fields and burrowing megafauna communities is also identified. Information on depths, sediments, distribution of biotopes, and presence of certain indicator species of VME has been gathered over the years by different institutions, such as IMR and PINRO through their Joint annual ecosystem survey, or by the Mareano program which undertakes echo-sound research. The Mareano program still falls short in providing specific information on the central Barents Sea, but is slowly increasing its coverage year by year. Besides, there are different publications on the distribution of benthic species, such as those by Jakobsen and Ozhigin (2011), Jørgensen et al. (2015), or Lubin (2013), which serve to increase the knowledge of habitats in the area.

The team considers that main habitats (i.e. commonly encountered habitats, minor habitats and VME indicator species) in the UoA are known at a level of detail relevant to the scale and intensity of the UoA, as they have been studied through benthic research in the Joint Russian Norwegian Barents Sea ecosystem survey. Information is gathered through sampling stations. SG80 is met by all scoring elements. While the occurrence of vulnerable habitats has been identified, it is difficult to state that ALL habitats are known over their range. SG100 is not met. SG100 is met for commonly encountered habitats (fine substratum) as there are detailed geomorphology maps of the Barents Sea.
<table>
<tr><td>Scoring element</td><td>SG60</td><td>SG80</td><td>SG100</td></tr>
</table>
</td></tr>
</table>

PI 2.4.3		**Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.**			
		Fine substratum with flat associated geomorphology and large erect biota in NEAFC waters.	Y	Y	Y
		Fine substratum with flat associated geomorphology and large erect biota in the Svalbard FPZ.	Y	Y	Y
		Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.	Y	Y	Y
		Cold water coral reefs	Y	Y	N
		Coral gardens	Y	Y	N
		Deep sea sponge aggregations	Y	Y	N
		Seapen fields and burrowing megafauna communities	Y	Y	N
		Gravel patches	Y	Y	N
b	Information adequacy for assessment of impacts				
	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. OR **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.	
	Met?	Y for all scoring elements	Y for all scoring elements	N for all scoring elements	
	Justification	VMS tracks provide reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. Seabed sediments maps (Lepland Aivo *et al.*, 2014) show that the UoA's main habitats are clay/muddy and sandy bottoms (fine substratum) in the Loop hole area, and also North of Svalbard. According to Kaiser *et al* (2006), expected main impacts of the UoA on these main habitats (clay/muddy and sandy bottoms: fine substratum) are the relocation of shallow burrowing infaunal species to the surface of the seafloor, and resuspension of surface sediment. Besides, Lubin (2013) estimated the timing that main habitats in the Barents Sea would need to recover after bottom trawling (see Figure 44 in the background section). The team considers that available information is adequate to allow for			

<table>
<tr><td colspan="2">PI 2.4.3</td><td>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.</td></tr>
<tr><td></td><td></td><td>identification of the main impacts of the UoA on the main habitats, and that VMS records provide reliable information on the spatial extent of interaction and on the timing and location of the use of the fishing gear. SG80 is met for all habitat types. The lack of quantitative reliable information on the physical impacts that the UoA has on both main and VME habitat types prevent the different scoring elements from achieving SG100. The team strongly recommends the record of interactions between the UoA and VME habitats, regardless of these being inside the established regulated limits.

<table>
<tr><td>Scoring element</td><td>SG60</td><td>SG80</td><td>SG100</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in NEAFC waters.</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in the Svalbard FPZ.</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Cold water coral reefs</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Coral gardens</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Deep sea sponge aggregations</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Seapen fields and burrowing megafauna communities</td><td>Y</td><td>Y</td><td>N</td></tr>
<tr><td>Gravel patches</td><td>Y</td><td>Y</td><td>N</td></tr>
</table>
</td></tr>
<tr><td>c</td><td colspan="2">Monitoring</td></tr>
<tr><td></td><td>Guide post</td><td></td><td>Adequate information continues to be collected to detect any increase in risk to the main habitats.</td><td>Changes in habitat distributions over time are measured.</td></tr>
<tr><td></td><td>Met?</td><td></td><td>Y for all scoring elements</td><td>N for all scoring elements.</td></tr>
<tr><td></td><td>Justification</td><td colspan="3">Information on habitats of the Barents Sea continues to be collected through different means. The Mareano program, which carries out a detailed mapping of Norwegian EEZ and the Svalbard FPZ, is annually increasing its (still small) coverage of the central Barents Sea.

Adequate new information continues to be obtained from research undertaken both by IMR and PINRO research institutions, which work closely on the annual Joint Russian-Norwegian ecosystem research survey, which maps different aspects of the Barents Sea, including the distribution of benthic species.

Some authors, such as Jakobsen and Ozhigin (2011) and Jørgensen et al. (2015), have identified and mapped the distribution of indicator species of VME habitats in the Barents Sea (see Figure 38).

Faroese vessels carry an underwater camera in the net which should serve to monitor interactions with the different habitat types.

Information is sufficient to meet SG80, but as changes in habitat distributions over time are not measured SG100 is not met.</td></tr>
</table>

PI 2.4.3	Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.

Scoring element	SG80	SG100
Fine substratum with flat associated geomorphology and large erect biota in NEAFC waters.	Y	N
Fine substratum with flat associated geomorphology and large erect biota in the Svalbard FPZ.	Y	N
Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.	Y	N
Cold water coral reefs	Y	N
Coral gardens	Y	N
Deep sea sponge aggregations	Y	N
Seapen fields and burrowing megafauna communities	Y	N
Gravel patches	Y	N

References

www.mareano.no

http://www.imr.no/tokt/okosystemtokt_i_barentshavet/en

Jakobsen T., Ozhigin V. (2011). The Barents Sea. Ecosystem, resources, management. Half a century of Russian-Norwegian cooperation. Tapir Academic Press, Trondheim. 825 p.

Jørgensen, L. L., Planque, B., Thangstad, T. H., and Certain, G. 2015. Vulnerability of megabenthic species to trawling in the Barents Sea. – ICES Journal of Marine Science, doi: 10.1093/icesjms/fsv107.

Kaiser, M. J., Clarke, K. R., Hinz, H., Austen, M. C. V., Somerfield, P. J., and Karakassis, I. 2006. Global analysis of response and recovery of benthic biota to fishing. Marine Ecology Progress Series, 311: 1 –14.

Lepland Aivo, Rybalko Aleksandr & Lepland Aave 2014: Seabed Sediments of the Barents Sea. Scale 1:3 000 000. Geological Survey of Norway (Trondheim) and SEVMORGEO (St. Petersburg).

Lubin 2013 (from Denisenko S.G. and Zgurovsky, K.A. 2013). Impact of trawl fishery on benthic ecosystems of the Barents Sea and opportunities to reduce negative consequences. Murmansk. WWF. 2013. 55pp.

OVERALL PERFORMANCE INDICATOR SCORE:

Scoring element	PI score
Fine substratum with flat associated geomorphology and large erect biota in NEAFC waters.	85
Fine substratum with flat associated geomorphology and large erect biota in the Svalbard FPZ.	85
Fine substratum with flat associated geomorphology and large erect biota in the Russian EEZ.	85
Cold water coral reefs	80
Coral gardens	80
Deep sea sponge aggregations	80
Seapen fields and burrowing megafauna communities	80

80

PI 2.4.3	Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.		
Gravel patches	80		
OVERALL SCORE			
CONDITION NUMBER (if relevant):			**N/A**

Evaluation Table for PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.		
Scoring Issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	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?	Y	Y	N
	Justification	Table 19 of the report describes the different ecosystem models, specific to the Barents Sea, that have studied the trophic relationships among the different species in the ecosystem. Table 18 reflects what parameters (physical, chemical or biological) are studied in the different research trips undertaken by IMR and PINRO. The shrimp mainly feed on detritus and may also be a scavenger. Shrimp is also important as a food item for many fish species and seals. They are preyed upon by thorny skates, cod and other species such as Greenland halibut, haddock, long rough dab or blue whiting. Shrimp is an abundant species and the catch taken by the UoA only represents a small proportion of the total stock. The ICES Arctic Fisheries Working Group, the ICES WG for Regional Ecosystem Description, and the WG on Integrated Assessment in the Barents Sea, provide annual assessments on the pressures for the Barents Sea and its response. The different models and assessments provide enough information to support that the Barents Sea ecosystem is relatively healthy (affected however by global warming and other human pressures), and that the current shrimp fishery activity is not disrupting ecosystem main functions. Declines in the populations of other species such as marine mammals or birds are attributed to other factors such as water warming or redistribution of prey species. The low level of bycatch and discards by the UoA also contributes to minimize ecosystem impacts. The UoA is considered as highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. The lack of evidence prevents the fishery from achieving SG100. SG80 is met.		
References		Plagányi, É.E. 2007. Models for an Ecosystem Approach to Fisheries. FAO Fisheries Technical Paper No. 477. Rome, FAO. 2007. 108p. ISBN 978-92-5-105734-6. ICES 2016 Report of the Arctic Fisheries Working Group (AFWG). Section 1: General description of the Barents Sea Ecosystem. ICES 2016 Report from the WG for Regional Ecosystem Description. ICES 2016 Report from the WG on Integrated Assessment in the Barents Sea.		

PI 2.5.1	The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.
OVERALL PERFORMANCE INDICATOR SCORE:	**80**
CONDITION NUMBER (if relevant):	**N/A**

Evaluation Table for PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary which take into account the **potential impacts** of the fishery 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?	Y	Y	N
	Justification	The Norwegian Barents Sea Ecosystem management plan includes the study and assessment of different threats to the Barents Sea ecosystem structure and function. Besides, there are different measures in the UoA (such as the mandatory use of sorting grids, the move on rules (both for protecting juveniles of certain species and for protecting corals and sponges), closed areas, …) which apply to the different jurisdictions and are expected to restrain the impacts of the UoA on the ecosystem. Besides, the Joint Russian- Norwegian cooperation framework and ICES monitoring contribute to monitoring and providing scientific advice for management measures in the area. However, the team concludes that these measures are not sufficient to guarantee that all impacts of the UoA on the ecosystem on all areas are addressed, as there is still limited control of the impacts that the fishing pressure may have on the international waters of the Loop hole, where a high proportion of the catches take place and on the Russian EEZ. SG100 is not met. SG80 is met.		
b	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/ 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?	Y	Y	N
	Justification	The healthy status of the Barents Sea ecosystem, along with the clean catches taken by the fleet, give confidence that the partial strategy will continue to work in the future as it is working already in the present. Moreover, any change in the ecosystem will rapidly be noticed by the different research institutions (IMR and PINRO) and addressed through the different management bodies (Norwegian Directorate of Fisheries and Russian Federal Fisheries Agency). SG80 is met. There are however some uncertainties as regards all impacts on international		

PI 2.5.2		**There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.**		
		waters, where management measures, if needed, can take longer to be implemented and enforced. SG100 is not met.		
c	**Management strategy implementation**			
	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?		Y	N
	Justification	There is clear evidence that the partial strategy is being successfully implemented. This can be verified with: - VMS tracks - Catch records - Vessel inspections and analysis of infractions - Analysis of the fishing activity However, there is no evidence that this partial strategy is successfully achieving its objective in international waters such as the Loop hole. SG80 is met.		
References		Olsen, E., Gjøsæter, H., Røttingen, I., Dommasnes, A., Fossum, P., and Sandberg, P. 2007. The Norwegian ecosystem-based management plan for the Barents Sea. – ICES Journal of Marine Science, 64: 599–602. ICES 2016 Report of the Arctic Fisheries Working Group (AFWG). Section 1: General description of the Barents Sea Ecosystem. Gullestad P., Blom G., Bakke G., and Bogstad, B. (2015). The "Discard Ban Package": Experiences in efforts to improve the exploitation patterns in Norwegian fisheries. Marine Policy 54 (2015) 1–9. Modulf Overvik (Directorate of Fisheries) personal comment.		
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	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?	Y	Y	
	Justification	Information provided by the different Barents Sea ecosystem models mentioned in Table 19 in the background information section is more than adequate to broadly understand the key elements of the ecosystem. SG80 is met.		
b	Investigation of UoA impacts			
	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?	Y	Y	Y
	Justification	Besides the good level of information on the ecosystem, there is also a broad knowledge of the impacts that the UoA has on the different ecosystem elements. Bycatch and interactions with ETP species is minimal. This information is collected via VMS records, landing records and inspection records. Besides, different institutions such as IMR, PINRO follow up the status of the different elements of the Barents Sea ecosystem by conducting different research trips (see Table 18 for a description on the different parameters studied in the different research trips undergoing in the area). SG100 is met.		
c	Understanding of component functions			
	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?		Y	Y
	Justification	There is a broad level of information on the UoA impacts on target, primary, secondary and ETP species, which is gathered through landing records and research trips. There is also a good understanding of the functions of these elements in the ecosystem. Information on the impacts on habitat types can be obtained from VMS tracks. The main functions, role and importance of the different habitats and related benthic species present in the area are also studied, described and understood by different researchers at IMR, PINRO and WWF Russia.		

PI 2.5.3		**There is adequate knowledge of the impacts of the UoA on the ecosystem.**		
		Information collected is more than sufficient to support the development of strategies to manage ecosystem impacts on target, primary, secondary, ETP species and affected habitats. SG100 is met.		
d	Information relevance			
	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?		Y	N
	Justification	Information gathered both by management measures (VMS tracks, catch records) and by research institutions (IMR, PINRO), serve to identify and describe the main consequences that the UoA has on the ecosystem. SG80 is met. There is still limited information both on impacts of the UoA on minor primary or secondary ETP species which at present are only recorded as miscellaneous fish (such information could increase by identifying such catches in the landing records) and on the impacts that the gear causes on the different components and elements of the ecosystem (such as catch of benthic species which is not yet quantified), especially in areas of high fishing pressure such as the Loop hole. SG100 is not met.		
e	Monitoring			
	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?		Y	Y
	Justification	There is a comprehensive monitoring of the area both by IMR and by PINRO, through different annual research trips to evaluate the status of different fishing stocks, ETP species and habitats. There also are different ecosystem models in the area (as described in Table 19) which serve to foresee future changes in the status of the ecosystem. The Norwegian Integrated Management Plan for the Barents Sea is an example of a strategy already in place (in the Norwegian EEZ and the Svalbard FPZ) which is based on the collected information. Besides, other regulatory measures such as temporary closures are permanently updated according to the information obtained through different means (research trips or landing records). Similar information is also available in the Russian EEZ and in the Loophole area. SG100 is met.		
References		Jørgensen, L. L., Planque, B., Thangstad, T. H., and Certain, G. 2015. Vulnerability of megabenthic species to trawling in the Barents Sea. – ICES Journal of Marine Science, doi: 10.1093/icesjms/fsv107. Olsen, E., Gjøsæter, H., Røttingen, I., Dommasnes, A., Fossum, P., and Sandberg, P. 2007. The Norwegian ecosystem-based management plan for the		

PI 2.5.3	There is adequate knowledge of the impacts of the UoA on the ecosystem.
	Barents Sea. – ICES Journal of Marine Science, 64: 599–602. ICES 2016 Report of the Arctic Fisheries Working Group (AFWG). Section 1: General description of the Barents Sea Ecosystem.
OVERALL PERFORMANCE INDICATOR SCORE:	**95**
CONDITION NUMBER (if relevant):	**N/A**

Principle 3

Evaluation Table for 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); and • 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.		
Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	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?	Y	Y	Y
	Justification	The management system that applies to the cold water prawn fishery in the Barents Sea is consistent with national and international laws. The fishery is covered by the management systems of the Norway, Russia. The EU, Faroe Islands, Greenland, Lithuania and NEAFC. There is the EU Common Fisheries Policy, the Faroe Islands and Greenlan legal systems and the Norwegian jurisdiction in the Svalbard fishing area and the Russian jurisdiction in the Russian EEZ. The NEAFC Commission regulates fisheries in the NEAFC Regulatory area in ICES Areas Ia and Ib (International waters). Faroe Islands, Greenland, Lithuania, the EU, Norway and Russia have signed and ratified relevant international agreements such as the 1982 Law of the Sea Convention and the 1995 Straddling Stocks Agreement. All the management systems the fishery falls under are generally consistent with local, national or international laws or standards. In the Svalbard area and the Russian EEZ respectively Norwegian and Russian management measures apply and in international waters (Loophole) NEAFC regulations apply and the agreements made in NEAFC form binding procedures governing cooperation between member countries. Norway, Russia, the EU and Faroe Islands, Greenland (represented by Denmark) and Lihuania are represented in NEAFC. The totality of national legal systems and in international cooperation delivers management outcomes consistent with MSC Principles 1 and 2 and therefore SG100a is met.		
b	Resolution of disputes			
	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?	Y	Y	N

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); and** • **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.**		
	Justification	Legal disputes are dealt with within the Faroese, Greenlandic, Lithuanian, Norwegian and Russian legal systems. In the case of infringements within the Svalbard FPZ, disputes could be resolved within the Norwegian legal system. In the case of disputes involving EU regulations, the disputes could be referred to the European Court of Justice. At the international level, a state can also institute proceedings against another state through mechanisms such as the International Court of Justice in The Hague and the International Tribunal for the Law of the Sea in Hamburg, or bring a dispute in to the Permanent Court of Arbitration in The Hague. This has so far not been widely used as a means for solving fisheries disputes, but more in disputes about jurisdiction. The same holds true for dispute resolution mechanisms within NEAFC. Hence, dispute resolution mechanisms exist at the national level in Faroe Islands, Greenland, Lithuania, Norway and Russia and at the international level and they are appropriate to the context of the fishery and thus SG80 is met. The dispute resolution in the international context is mainly based on discussion and compromises between parties and thus SG 100b is not met since it cannot be concluded that the system has been tested and has been proven to be effective in the international context.		
c	Respect for rights			
	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?	Y	Y	Y
	Justification	The Barents Sea cold water prawn fishery is a long-distance deep-water fishery in a very remote area and there are no people dependent on fishing shrimp for food and livelihood. Mechanisms 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 are not needed as far as the cold water prawn is concerned. However the Norwegian management system includes a principle for ensuring that management measures help to maintain the material basis for Sami culture (Section 7, bullet g) of the Norwegian Act of 6 June 2008 no. 37 relating to the management of wild living marine resources). The rights of fishery-dependent communities are explicitly stated in the Russian Federal Fisheries Act. For both countries bordering the Barents Sea there is thus a formal commitment to the legal rights of people dependent on these resources and therefore SG100 is met.		
References		Svalbard Treaty 1920, §2 Norwegian Directorate on Fisheries: www.fiskeridir.no Norwegian Ministry of Trade, Industry and Fisheries: https://www.regjeringen.no/en/dep/nfd/id709/ Russian Federal Agency for Fishery http://www.fish.gov.ru/ NEAFC Commission: www.neafc.org NEAFC Dispute Resolution Mechanism, Annex K – Amendment of the Convention on Dispute Settlement, 2004 Regulation on the Execution of Marine Fisheries, Directorate of Fisheries (Norway), 2016 Regulations for Fisheries in Russia's Northern Fishery Basin, Ministry of Agriculture (Russia),		

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); and** • **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.**	
	2014 Faroe Islands Act on Management of Marine Resources (18 December 2017) Faroe Islands Ministry of Fishery: www.fisk.fo Government of Greenland Executive Order No. 12 of 9 November 2011 on Regulation of Fisheries through Technical Conservation Measures Lithuanian Fisheries Service http://www.zuv.lt/index.php?1381214678 Greenland Government, 2013. Protokoll Fra Mote I Det Norsk-Gronlandske Kontaktutvalg Russian Federation, 2004. Federal Law No. 166-FZ on fisheries and conservation of aquatic biological resources.	
OVERALL PERFORMANCE INDICATOR SCORE:		**95**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties.** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	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?	Y	Y	Y
	Justification	Organisations and individuals involved in the management process have been identified. Main players in the general Barents Sea fisheries management system are the Norwegian Ministry of Trade, Industry and Fisheries and the Norwegian Fisheries Directorate, The Russian fisheries ministry and NEAFC. The executive body at governmental level in Norway is the Ministry of Trade, Industry and Fisheries, while the practical regulation of fisheries is delegated to the Directorate of Fisheries. Enforcement at sea is taken care of by the Coast Guard, which is part of the Royal Norwegian Navy, but performs tasks on behalf of several ministries, including the Ministry of Trade, Industry and Fisheries. Scientific research is performed by the Institute of Marine Research in Bergen.The roles, functions and responsibilities of the various actors are clearly defined in longstanding practice and are now codified in the Marine Resources Act. According to interviews at site visit, they are well understood by all involved entities in all areas of responsibility and interaction. In Russia, the Federal Fisheries Agency is the implementing body for fishery policies under the Ministry of Agriculture. The Federal Border Service (since 2003 part of the Federal Security Service, the FSB) is responsible for enforcement at sea. The Barents and White Sea Territorial Administration of the Federal Fisheries Agency (the BBTA) was established in 2007 as the implementing body of the Federal Fisheries Agency in the northern basin, located in Murmansk. At the international level, the relationship between the NEAFC signatories is explicitly defined in the NEAFC Convention and the relationship between Norway and EU in the framework agreement between the two parties. Besides the roles that Norway, Russia and NEAFC play in the management of the Barents Sea cold water prawn fishery the vessels fishing in the Barents Sea also fall under the jurisdiction of their flag states whilst vessels of EU member states are also subject to the EU Common Fisheries Policy (CFP) management measures. For Faroe islands, Greenland and Lithuania organisations that play a role in management are identified and their roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction. The Faroese organisations identified are: - Faroe Islands Ministry of Fisheries (Allocation of fishing rights, licenses, Stock management, fisheries control, habitat protection) - Fisheries Inspectorate (fisheries control and inspection, Safety at Sea)		

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**		
		- Faroe Islands Marine Institute (marine research) - Faroe Islands Ship Owners Association - Fiskivinnuráðið (Fisheries Council, the Advisory-Board of stakeholders) Organisations identified in the Greenlandic management system are: - Ministry of Fisheries, Hunting and Agriculture (MFHA) - Greenland Fishing License Control Authority (Grønlands Fiskerilicenskontrol - GFLK) - Greenland Institute of Natural Resources Organisations identified in the Lithuanian management system are: - Lithuanian Ministry of Agriculture incorporating Fisheries Service (responsibility for fisheries management, licensing, regulation and enforcement and research) - Lithuanian Local Fisheries Councils - Lithuanian long distance fishermen's association - Okeaninio žvejybos laivyno įmonių asociacija (Association of the enterprises of Oceanic fishery) Concerning the EU the Council of Ministers, the European Commission and the European Parliament are involved in the framework of the CFP. Functions, roles and responsibilities of the organisations mentioned above are explicitly defined and well understood for all areas of responsibility and interaction and thus SG100a is met.		
b	Consultation processes			
	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?	Y	Y	N
	Justification	Within the Faroe Islands fishery regulation, 1994, there is a clear defined consultative process. The Faroese Ministry of Fisheries consults with major fisheries stakeholders on fisheries legislation, regulations and international negotiations. Such consultations take place both through a number of formal standing advisory committees, as well as through focused consultative meetings dealing with specific issues. All Faroe Islands main groups of stakeholders (incl. fisherman, ship-owners, academics, producers, unions and other interested parties) are represented on the Fishery advisory board "Fiskivinnuráðið" which must be consulted prior to implementation of new fisheries regulations. This is enshrined within the National Fisheries regulation of 1994. Fiskivinnuráðið has regular meetings through the year. In Greenland the Fisheries Act contains the legal basis for the Fisheries Council, which is the main mechanism for consultation in the general fisheries framework. The Fisheries Council meets monthly or more regularly at the request from a member organization for an extraordinary meeting. The Fisheries Council is composed of fishing industry representatives (voting members) and other interested parties among which the Nature Protection Association (AVATAQ). The Fisheries Council plays an important role in facilitating		

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**
		interaction between fisheries stakeholders (and other parties) and the Government of Greenland, including identification of management priorities. The Lithuanian Fisheries Service consults with the Local Fisheries Council on all new fisheries regulations. Consultation will also occur with fishermen's associations such as Lithuanian long distance fishermen's association - Okeaninio žvejybos laivyno įmonių asociacija (Association of the enterprises of Oceanic fishery). All Deep Sea fishing companies are invited through the association and directly. In the Norwegian management process there is a strong tradition of stakeholder consultation. The Norwegian fisheries management systems provides opportunity for all interested parties to be involved in consultation processes. The Norwegian fisheries authorities consult with all relevant stakeholders regarding new fisheries measures prior to their implementation. Consultation processes cover policies and regulatory issues, and also include discussions of the annual scientific recommendations by the Institute of Marine Research (IMR). Generally the Directorate of Fisheries first makes a proposal on the regulatory measures for different stocks. These proposals then go to the Advisory meeting for fisheries regulation, which review the proposals and stakeholders present their views and recommendations. Also in Russia there is a strong tradition of stakeholder consultation in the management process. The fishery councils referred to under SI 3.1.2a above consist of representatives of the fishing industry, federal executive authorities, executive bodies of the Russian federal subjects (the regions), research institutions and non-governmental organizations (NGOs). The current regulations of the Northern Basin Scientific and Fishery Council were given in 2002 and corresponding regulations for the Murmansk Territorial Fishery Council in 2005, stating, inter alia, that the council shall contribute to a harmonized fishery policy in the region, liaise between the fishing industry, fishery authorities, scientific institutions and NGOs. In addition, FIUN has developed into an important lobbying organization in the northern fishery basin, with direct access to the highest levels of federal authorities. At a more general level, all new federal regulations in Russia have to go through public hearings; i.e. all draft proposals for new regulations have to be published at the website https://regulation.gov.ru, administered by the Ministry of Economic Development, where the public are given 15–30 days to provide their comments. The management system demonstrates consideration of the information obtained by continuously adapting its policies in accordance with user-group opinion as expressed at the fishery councils at different levels. The EU has a comprehensive stakeholder consultation framework for its member nations. In the EU for every renewal of the Common Fisheries Policy there is an extensive consultation process. For NEAFC, the Commission adopts management measures for the fisheries in the NEAFC Regulatory Area. All Contracting parties are involved in the decision making process. At its 20th Annual Meeting, 5-9 November 2001, NEAFC agreed rules for observers in order to admit NGOs as observers to the meetings of the Commission. The rules with respect to observers state: All non- governmental organisations (NGOs) which support the objectives of the Convention, have a demonstrated interest in the species under the purview of NEAFC and are in good standing should be eligible to participate as an observer in all plenary meetings of the Commission, except meetings held in executive sessions or meetings of Heads of Delegations. It can be concluded that the management system includes consultation processes that regularly seek and accept relevant information, including local knowledge and that the management system demonstrates consideration of the information obtained. Therefore

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**		
		SG80 is met. Because on the international level the assessment team was not able to identify clear evidence on how the management system "explains how it is used or not used" it was considered that the second part of the SG100b scoring issue is not met. Therefore SG 100b is not met.		
c	Participation			
	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?		Y	N
	Justification	The consultation processes that are in place in the general fisheries management systems of Norway, Russia and NEAFC do also apply to the fishery specific management system for the cold water prawn fishery in the Barents Sea that occurs under these general management systems. As is described under SI 3.1.2b the consultation processes in Norway, Russia and NEAFC give opportunity for interested parties to be involved in the fishery management process both at the national and at the international level. In the Faroe Islands, Greenland and Lithuania consultation processes between the fisheries authorities and the fishing industry exist. These processes provide opportunity for all interested and affected parties to be involved.throug their engagement in the Faroe Islands, Greenlandic and Lithuanian fisheries councils. Since the fishery is mainly managed by Norway and Russia. The Norwegian and Russian fisheries management systems do provide opportunity for all interested parties to be involved (SG80 is met), but they do not specifically facilitate the participation of foreign fishers operating in its waters as it does with international scientists and NGOs. Since the Norwegian system does not specifically encourage the particip ation of foreign fishers operating in its waters and facilitate their effective engagement, it is concluded that SG100 is not met.		
References		http://www.fisheries.no Norwegian Directorate on Fisheries: www.fiskeridir.no Norwegian Ministry of Trade, Industry and Fisheries: https://www.regjeringen.no/en/dep/nfd/id709/ Russian Federal Agency for Fishery http://www.fish.gov.ru/ NEAFC Commission: www.neafc.org Regulation on the Execution of Marine Fisheries, Directorate of Fisheries (Norway), 2016 Regulations for Fisheries in Russia's Northern Fishery Basin, Ministry of Agriculture (Russia), 2014 Faroe Islands Act on Management of Marine Resources (18 December 2017) Faroe Islands Ministry of Fishery: www.fisk.fo Government of Greenland Executive Order No. 12 of 9 November 2011 on Regulation of Fisheries through Technical Conservation Measures Greenland Government, 2013. Protokoll Fra Mote I Det Norsk-Gronlandske Kontaktutvalg		
OVERALL PERFORMANCE INDICATOR SCORE:				**85**
CONDITION NUMBER (if relevant):				

Evaluation Table for 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.		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	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?	Y	Y	Y
	Justification	Management objectives are clearly defined and explicit within the EU Common Fisheries Policy, the Faroe Islands Act on Management of Marine Resources (2017), the Greenland Fisheries Act, the Lithuanian Law on Fisheries, the Norwegian Marine Resource Act, the Svalbard Treaty, the Federal Fisheries Act of the Russian Federation and the NEAFC convention are consistent with the MSC Principles and Criteria and precautionary approach. The **Faroese Act on Management of Marine Resources** states that a long-term strategy for the management and utilization of marine resources is to be designed and implemented for each stock in order to maintain the industry and the fish stocks at sustainable levels. The strategy should take into account the recommendations of experts in the field. 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". **Lithuania**: The Lithuania Law on Fisheries (2000, revised 2016) regulates fishing, aquaculture, processing and marketing of fish. The objective of the Law is "to ensure sustainable fishing, protection of fish resources and their restocking, fishing control, with account of the ecological conditions, economy of fisheries and the interests of the fishermen, fish producers, processors and consumers." **The Norwegian Marine Resources Act states:** "The purpose of this Act is to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them and to promote employment and settlement in coastal communities". Objectives for the protection of fish stocks in the Svalbard Fisheries Protection Zone area are formulated within the Zone act and Norwegian fisheries management system (Marine Resources Act). Ecosystem-based management has been established in Norwegian waters through the Integrated Management Plan of the Marine Environment of the Barents Sea and the sea areas off the Lofoten Islands (2006, updated in 2011). **Russian fisheries law defines** protection and rational use of aquatic biological resources as the main goal of the country's fisheries management. 'Protection and rational use' was an established concept in Soviet legislation on the protection of the environment and exploitation of natural resources, and has remained so in the Russian Federation. 'Rational use' bears resemblance to the internationally recognized ideal of sustainability, in so far as the emphasis is on long-term and sustained use of the resource, supported by science for socio-economic purposes. The Federal Fisheries Act states that the protection of aquatic biological resources shall be given priority to their rational use. The precautionary approach is not mentioned explicitly in the Federal Fisheries Act, but the requirement to protect aquatic biological resources and take the best scientific knowledge into account equals the requirements of the precautionary approach, as laid out in the FAO Code of Conduct. Furthermore, the provisions of international agreements entered into by the Russian		

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.
		Federation stand above those of national law, according to the 1993 Russian Constitution. On September 15, 2010, the foreign ministers of Norway and Russia signed a treaty on maritime delimitation and cooperation in the Barents Sea and the Arctic Ocean: the "**Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean**". In this treaty it is stated that the precautionary approach shall be applied to the conservation of fish stocks and the preservation of the marine environment: "The Parties shall apply the precautionary approach widely to conservation, management and exploitation of shared fish stocks, including straddling fish stocks, in order to protect the living marine resources and preserve the marine environment (Article 4 under 3)". **The NEAFC convention states: "**The objective of this Convention is to ensure the long-term conservation and optimum utilisation of the fishery resources in the Convention Area, providing sustainable economic, environmental and social benefits (Article 2.) **For the EU** clear over-arching long term objectives are set out in the EU Common Fisheries Policy. These long term objectives are clear and explicitly defined and entirely consistent with MSC P&Cs. The EU CFP was reformed in 2002 and 2014. The 2002 reform of the CFP also embraced a more long-term approach to fisheries management, involving the establishment of multi-annual recovery plans for stocks outside safe biological limits and of multi-annual management plans for other stocks. It aimed to progressively implement an eco-system-based approach to fisheries management. More recent a second reform took place. In December 2013, the European Commission's proposed reforms were adopted, with phased implementation taking place from 1 January 2014 through to 2020. The most important changes were the phased introduction of a landing obligation (discard ban), legally binding commitment to fishing at sustainable levels (the Maximum Sustainable Yield (MSY) and more decentralised decision making, allowing Member States to agree the measures appropriate to their fisheries. Article 15 of Council Regulation EC 1198/2006 on the European Fisheries Fund, requires that all member states: "Shall adopt, following appropriate consultation... a national strategic plan covering the fisheries sector (which) ...sets out the priorities, objectives, the estimated public financial resources (in accordance with the CFP) ...for: (a) ... adjustment of fishing effort / capacity with regard to the evolution of fisheries resources, promotion of environmentally-friendly fishing methods and sustainable development of fishing activities; (e) the sustainable development of fisheries areas, (g) preserving human resources in the fisheries sector, through upgrading professional skills, securing sustainable employment and enhancing the position and role of women; (h) protection and enhancement of the aquatic environment related to the fisheries sector". The CFP was revised in 2013 and Article 2, paragraphs 1-4, of the revised CFP establish a range of objectives for managing fisheries in the EU, including: long-term environmental sustainability; being consistent with achieving economic, social and employment benefits; using a precautionary approach and restoring resources above levels that will produce MSY; implementing an ecosystem approach; and contributing to the collection of scientific data (Regulation (EU) No 1380/2013). The team concludes the long term objectives that are formulated are consistent with the MSC Principles and Criteria and the precautionary approach and explicit within the management policy. Therefore SG80a is met. The treaty between Norway and Russia requires that the precautionary approach shall be applied so it can also be concluded that objectives are required by management policy and thus SG100a is met.
References		Federal Fisheries Act of the Russian Federation Norwegian Government, 2008. Norwegian Marine Resources Act, Act of 6 June 2008 no. 37. Treaty between the Kingdom and Norway and the Russian Federation concerning Maritime

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.**
	Delimitation and Cooperation in the Barents Sea and the Arctic Ocean, 2010. Available in English translation at the website of the Norwegian Ministry of Foreign Affairs (https://www.regjeringen.no/globalassets/upload/ud/vedlegg/folkerett/avtale_engelsk.pdf) Regulations for Fisheries in Russia's Northern Fishery Basin, Ministry of Agriculture (Russia), 2014 Faroe Islands Act on Management of Marine Resources (18 December 2017) Lithuanian Law of Fisheries Government of Greenland 2011 Executive Order No. 12 of 9 November 2011 on Regulation of Fisheries through Technical Conservation Measures Greenland Government, 2013. Protokoll Fra Mote I Det Norsk-Gronlandske Kontaktutvalg
OVERALL PERFORMANCE INDICATOR SCORE:	**100**
CONDITION NUMBER (if relevant):	

Evaluation Table for PI 3.2.1 Fishery-specific objectives

PI 3.2.1		**The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.**		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	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?	Y	Y	N
	Justification	The fishery takes place in the Protection Zone around Svalbard and in international waters in the Loophole. In the Svalbard zone Norwegian fishery regulations apply. The NEAFC Commission regulates fisheries in the NEAFC Regulatory area in ICES Areas Ia and Ib and thus in the Loophole. The Norwegian Marine Resources Act states; "The purpose of this Act is to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them, and to promote employment and settlement in coastal communities". According to article 7 of the act, it is mandatory for fisheries management to apply "an ecosystem approach, taking into account habitats and biodiversity". In Norway also a management plan for the Barents Sea (and the Lofoten Area) is implemented. One of the goals of this management plan is: "Living marine resources are managed sustainably through the ecosystem approach." The NEAFC convention states**:** **"**The objective of this Convention is to ensure the long-term conservation and optimum utilisation of the fishery resources in the Convention Area, providing sustainable economic, environmental and social benefits (Article 2.). On September 15, 2010, the foreign ministers of Norway and Russia signed a treaty on maritime delimitation and cooperation in the Barents Sea and the Arctic Ocean: the Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean. In this treaty it is stated that the precautionary approach shall be applied to the conservation of fish stocks and the preservation of the marine environment. "The Parties shall apply the precautionary approach widely to conservation, management and exploitation of shared fish stocks, including straddling fish stocks, in order to protect the living marine resources and preserve the marine environment (Article 4 under 3)". Short and long-term objectives for the Barents Sea shrimp fishery are formulated within the Faroe Islands and Greenland Fisheries regulations. These objectives amongst others are that 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. Short-term objectives are well established for this fishery and include the improvement of monitoring of fisheries activities through the implementation of ERS. The Lithuania Law on Fisheries (2000, revised 2016) regulates fishing, aquaculture, processing and marketing of fish. The objective of the Law is "to ensure sustainable fishing, protection of fish resources and their restocking, fishing control, with account of the ecological conditions, economy of fisheries and the interests of the fishermen, fish producers, processors and consumers." Within ICES stock the main objective of the fishery specific management advice is to set		

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.
		maximum catch limits based on the MSY approach which is a short and long term management objective consistent with achieving the outcomes expressed by MSC's Principle 1. Concerning MSC's Principle 2, the objectives of the Norwegian and NEAFC management systems is to minimize the impacts on the wider ecosystem with measures like minimum mesh size, move on rules, MPA's and grids that are all consistent with the outcome of Principle 2. The aim to minimize the impact on the ecosystem can be considered both a short and long term objective. Hence both short and long term objectives as they are formulated in the different management systems that apply to this fishery, are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, and are explicit within the fishery's management system.. Therefore SG80a is met. Since the objectives are formulated in general terms it cannot be concluded that they are well defined and measurable and therefore SG100a is not met.
References		Svalbard Treaty 1920, §2 Norwegian Directorate on Fisheries: www.fiskeridir.no Norwegian Ministry of Trade, Industry and Fisheries: https://www.regjeringen.no/en/dep/nfd/id709/ NEAFC Commission: www.neafc.org Lithuanian Law of Fisheries Norwegian Ministry of the Environment, 2005. Integrated Management of the Marine Environment of the Barents Sea and the Sea Areas off the Lofoten Islands. Report N0 8 to the Storting. Norwegian Ministry of the Environment, 2006. Environment of the Barents Sea and the Sea Areas off the Lofoten Islands. Report No. 8 to the Storting (2005–2006).
OVERALL PERFORMANCE INDICATOR SCORE:		**80**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	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?	Y	Y	
	Justification	Within Norwegian, Russian, NEAFC, Faroe Islands, Greenlandic and Lithuanian fisheries management systems decision-making process takes place that have resulted in management measures for this fishery. For the Svalbard area Norway has developed several measures like closed areas, days at sea, technical measures. Within Russian waters quota are set on an annual basis. Within the International waters, there are established decision making processes (in NEAFC) which have been used to develop measures and strategies for fisheries other than shrimps in the Barents Sea e.g. cod and haddock and can be used to develop measures and strategies to achieve objectives set for the shrimp fishery. It can be concluded that there are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. Thus SG80a is met.		
b	Responsiveness of decision-making processes			
	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?	Y	Y	N
	Justification	Decision making processes for this fishery are guided by scientific advice by NAFO/ICES. The scientific assessments are published rapidly on NAFO and ICES web-sites. Decision-making processes take into account the wider implications of management measures. Findings and relevant recommendations emerging from research, monitoring, evaluation and review activity related to this fishery, such as catch levels, catch and fishing effort, potential impact of fishing on the marine environment, are formally reported and available on web-pages (e.g. Faroe Island Ministry of Fisheries, Greenland Ministry of Fisheries, Hunting and Agriculture, Lithuanian Fisheries Service, Norwegian Ministry of Trade, Industry and Fisheries, Norwegian Fisheries Directorate, Ministry of Agriculture (Russia), Federal Fisheries Agency (Russia), NEAFC Commission, ICES, NAFO). Thus, it can be concluded that serious and other issues are dealt with in an effective and timely manner and SG80b is met. Existing decision-making processes have not yet responded to all issues identified. E.g. absence of effort limitations on the shrimp fishery in the international waters and it's implication for the shrimp stock as a whole. Therefore SG100b is not met.		
c	Use of precautionary approach			
	Guide		Decision-making processes use the precautionary	

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.**		
	post		approach and are based on best available information.	
	Met?		Y	
	Justification	In Norway fish stock rebuilding takes place primarily under the Act relating to the Management of wild living marine resources. However, in special cases with a threatened and endangered marine species, this species can be prioritized according to the Nature Diversity Act. Then this Act sets out requirements to protect and implement recovery strategies for the species. The purpose of the Act relating to the management of wild living marine resources is among others to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them. The Act also states that special importance shall be given to among others a precautionary approach in accordance with international agreements and guidelines, and an ecosystem approach that takes into account habitats and biodiversity, when managing living marine resources. The Institute of Marine Research (IMR) has been reorganized to take this into account. In the NEAFC Convention the use of the precautionary approach is described in Article 4.: It is stated that: "When making recommendations in accordance with Article 5 or 6 of this Convention the Commission shall in particular: a) ensure that such recommendations are based on the best scientific evidence available; b) apply the precautionary approach; c) take due account of the impact of fisheries on other species and marine ecosystems, and in doing so adopt, where necessary, conservation and management measures that address the need to minimize harmful impacts on living marine resources and marine ecosystems; and d) take due account of the need to conserve marine biological diversity." The Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean states: "The Parties shall apply the precautionary approach widely to conservation, management and exploitation of shared fish stocks, including straddling fish stocks, in order to protect the living marine resources and preserve the marine environment (Article 4 under 3)". In the OSPAR Convention the precautionary approach is mentioned: Article 3 (ii) reads: "to develop means, consistent with international law, for instituting protective, conservation, restorative or precautionary measures related to specific areas or sites or related to particular species or habitats." Within the Faroese,Greenlandic and Lithuanian management system the decision making process is based on the precautionary approach and stakeholder involvement and ensures that all relevant issues regarding research, monitoring, evaluation and consultation are considered annually. It can be concluded that by implementing closed areas and move on rules the precautionary approach is used in the decision-making process. Decision-making is based on scientific advice of the Institute of Marine Research (IMR) and ICES. Therefore it can be concluded that SG80c is met.		
d	Accountability and transparency of management system and decision-making process			
	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.

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.**		
	Met?	Y	Y	N
	Justification	Minutes from NEAFC Commission are published on www.neafc.org. Findings and relevant recommendations emerging from research, monitoring, evaluation and review activity related to this fishery, such as catch levels, catch and fishing effort, potential impact of fishing on the marine environment, are reported and available on web-pages (Faroe Island Ministry of Fisheries, Greenland Ministry of Fisheries, Lithuanian Fisheries service, Norwegian Ministry of Trade, Industry and Fisheries, IMR, Russian Federal Agency for Fishery http://www.fish.gov.ru/, ICES and the ICES working group NIPAG). In Norway regular consultations are held with the fishing industry and other stakeholders. At these meetings proposed management measures and policies are discussed 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. Therefore SG80d is met. There is no formal reporting to all interested stakeholders however and therefore SG100d is not met.		
e	Approach to disputes			
	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?	Y	Y	Y
	Justification	The Faroese, Greenlandic, Lithuanian, Norwegian and Russian fisheries authorities consult with all relevant stakeholder groups regarding new fisheries measures prior to their implementation. Fisheries authorities try to avoid legal disputes through dissemination of timely information and stakeholder involvement. Regulations set by Norway in Svalbard FPZ are non-discriminatory in relation to other national fleets (Ref. Svalbard Treaty 1920, §2). Regulations regarding Svalbard Fishery are published by the Norwegian Directorate of Fisheries (www.fiskeridir.no) . The team concludes that the management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges and that SG80e is met. By consulting with stakeholders before regulations are implemented the management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges. Therefore SG100e is met.		
References		Norwegian Directorate of Fisheries:www.fiskeridir.no NEAFC Commission: www.neafc.org ICES website: *www.ices.dk* NIPAG website: http://www.ices.dk/community/groups/Pages/NIPAG.aspx Norwegian Institute of Marine Research: http://www.imr.no/en Faroe Islands Ministry of Fishery: www.fisk.fo Lithuanian Fisheries Service http://www.zuv.lt/index.php?1381214678 Faroe Islands Act on Management of Marine Resources (18 December 2017) Greenland Ministry of Fisheries, Hunting and Agriculture website: http://naalakkersuisut.gl/da/Naalakkersuisut/Departementer/Fiskeri-Fangst-og-Landbrug Faroe Islands Registry of vessels and fishing licences: www.teyggjan.fo Russian Federal Agency for Fishery http://www.fish.gov.ru/		

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.
OVERALL PERFORMANCE INDICATOR SCORE:	**85**
CONDITION NUMBER (if relevant):	

Evaluation Table for PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	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?	Y	Y	Y
	Justification	The monitoring, control and surveillance system for the fishery includes reports from the fishing vessels, physical inspections at sea and in harbour, as well as information exchange between the various countries' enforcement authorities. The fishery in the Barents Sea is monitored by the Norwegian Coast Guards and the Russian Federal Border Service, subordinate to the Royal Norwegian Navy and the Russian Federal Security Service (FSB), respectively. All catches must be reported on a daily basis to the Norwegian Directorate of Fisheries and the Barents and White Sea Territorial Administration (BBTA) of the Federal Fisheries Agency. Electronic logbooks and VMS are obligatory. The Norwegian Coast Guard and the Russian Federal Border Service conduct spot checks at sea, including inspections at check points that foreign vessels have to pass when entering or leaving the Norwegian and Russian economic zones, and in connection with transshipments, which have to be reported in advance. Inspectors check the catch and fishing gear (e.g. mesh size) on deck and the volume of fish in the holds. When foreign vessels fish in the Russian economic zone, they have an inspector from the Russian Coast Guard on board at all times. Traditionally, in Russia the federal body for fisheries management (since 2004: the FFA) has been responsible for all fishery-related issues in Russia, including enforcement. In 1997, the President decided to transfer responsibility for enforcement in the Russian EEZ to the Federal Border Service, which was incorporated into the Federal Security Service (FSB) in 2003. The Border Service of the Federal Security Service – in the following referred to as the Border Service – inspects fishing vessels at sea during fishery operations (based on spot checks) or transshipment, to see whether the catch log, fishing gear and catch on board are in compliance with the requirements of fishery regulations. The FFA and its regional branches continued to enforce fishery regulations in Russian territorial waters and convention areas – in addition to inland fisheries. Quota control in the northern basin is performed by the BBTA, based on daily catch reports by all fishing vessels, which are also sent to the Border Service. In addition to the Border Service's inspections in the Russian EEZ, the BBTA carries out inspections in port and at sea in Russian territorial waters and outside the Russian EEZ (e.g. in NEAFC convention areas and in the Fishery Protection Zone around Svalbard). The VMS data are also collected and analysed by the BBTA. Throughout all fishing zones there is thus a rigorous enforcement regime to ensure a high degree of compliance across all fishing fleets participating in this fishery. All vessels must be equipped with VMS and maintain up to date logbooks which are subject to frequent at sea inspections by Norwegian and Russian fishery inspection vessels. These inspections also ensure that technical measures are being complied with and the catches tally with log book		

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
		records and quota allocations. Vessels must also report when they intend to enter or leave the coastal states waters and may have to await inspection before commencing fishing or leaving a coastal state's waters. Hence there is a rigorous enforcement regime to ensure a high degree of compliance across all fishing fleets participating in this fishery. Vessels can be, and are, warned, fined, have gear confiscated and licences suspended or withdrawn for non-compliance. Monitoring, control and surveillance mechanisms are implemented and include the following: • VMS • ERS/Catch control/e-log books • Port State Control (PSCF) in NEAFC • Landing control • European Fisheries Control Agency (EFCA) • Inspections at sea by Norwegian Coast Guard and Russian Inspection authorities • NEAFC inspections (joint deployment plans) • National cross-check controls (e.g. landings against VMS position, etc.) • gear control at port It can therefore be concluded that 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. Therefore SG100a is met.		
b	Sanctions			
	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?	Y	Y	N
	Justification	The coastal states apply severe penalties for any infringements of any regulations at any time a vessel is in their waters. Penalties can be financial, suspension or loss of licence all of which are effective deterrents against non-compliance. There is general satisfaction among all parties that application of penalties is consistent and effective. The international efforts coordinated through NEAFC for port-state reporting of landings has established a 'black-list' system to eliminate IUU fishing. It is concluded that sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence. Therefore SG80b is met. SG100b is not met since sanctions are thought to be an effective deterrence but no further evidence for this was provided.		
c	Compliance			
	Guide post	Fishers are **generally thought** to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	**Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	Y	Y	Y
	Justification	Cross checks of fishing activity recorded on the VMS system and landings data did not identify any cases of systematic non-compliance within the fishery. Vessels have been inspected in the Svalbard Area by Norwegian Coast Guard and in the Russian EEZ by the		

PI 3.2.3		**Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.**		
		Russian Coast Guard. In the Russian zone it is obligatory to have a Russian fisheries inspectors on board. In the Loophole inspections can take place by both the Norwegian end Russian coast guard. The outcome of inspections demonstrates that the fishery generally complies with fisheries regulations. Both among fishing skippers and officials there is a high degree of confidence that regulations are complied. Therefore SG100c is met.		
d	Systematic non-compliance			
	Guide post		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	Inspections have been carried out in the Svalbard Area by Norwegian Coast Guard and in the Russian EEZ by the Russian Coast Guard.and no major infringements have been reported. Cross checks of fishing activity recorded on the VMS system and COE/COX forms and landings data did not identify any cases of systematic non-compliance within the fishery. There is no evidence of systematic non-compliance and therefore SG80d is met.		
References		Hønneland, G. Compliance in the Barents Sea Fisheries: How Fishermen Account for Conformity with Rules", *Marine Policy* 24(1): 11–19, 2000. https://psc.neafc.org/ https://www.efca.europa.eu/en/content/neafc NEAFC: www.neafc.org		
OVERALL PERFORMANCE INDICATOR SCORE:				**95**
CONDITION NUMBER (if relevant):				

Evaluation Table for PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		**There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives.** **There is effective and timely review of the fishery-specific management system.**		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	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?	Y	Y	N
	Justification	Within the Faroe Islands,Greenlandic and Lithuanian fisheries management systems there are mechanisms in place to periodically evaluate parts of the management system. The Faroese Fisheries management system has been reformed very recently (December 2017) by implementing a new fisheries act after a long period of evaluation of existing regulations (http://www.government.fo/en/news/news/the-faroese-parliament-passes-fisheries-reform/). The new legislation provides for an annual review. The Minister of Fisheries will present a report to Parliament detailing changes in the industry and other relevant factors as background in assessing the need for any revisions. The Lithuanian Law of Fisheries has. recently been updated . In Greenland evaluations of management measures within these management systems could be considered occasional external review of the Faroe Islands and Greenlandic distant water fisheries. The Norwegian fisheries management system is reviewed by the Parliament upon submission by the Government (through the Ministry of Trade, Industry and Fisheries) of annual reports on the state of affairs in Norwegian fisheries management. At the Regulatory Meetings that take place twice a year management authorities receive feedback on management practices from the industry and other interested stakeholders, including NGOs. The National audit office can perform audits on the management system and has done this in the past. In Russia internal review of the management system is performed by the fishery councils at different levels and by the Federal Fisheries Agency, which in turn reports to the 1st Deputy Prime Minister, who is responsible for fisheries management in the Russian Government. The Federal Fisheries Agency can also report to the President about its activities. In the Federal Fisheries Agency, there is regular review of the performance of the agency's regional offices. Recommendations from the regional fishery councils are important in the regional offices' feedback to the federal office. External review is performed by the Russian Auditor General. NEAFC has mechnisms in place to revieuw its managements measures. For intstance in 2012 a comprehensive review of its bottom fishing regulations has taken place. The NEAFC Commission at its Annual Meeting in November 2011 adopted the Process for the Review of the NEAFC Regulation on Bottom Fishing. The objective of the review was to assess NEAFC measures on regulating bottom fishing and, if required, to make recommendations to the Commission, in order to ensure alignment between the NEAFC regulations and the measures called for in the most recent relevant UN General Assembly Resolutions and the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas. For the Barents Sea The scientific research component of the fisheries management system is regularly reviewed in ICES reports and advice. IMR has also had two major scientific reviews over the last decade by independent committees. The enforcement component is subject to continuous evaluation at meetings between the various bodies involved in enforcement activities, where priorities are hammered out on the basis of risk-based		

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.**		
		monitoring of past experience. Therefore SG80a is met. The Barents Sea cold water prawn fishery is for a great extend managed by Norway, Russia and NEAFC. Although evaluations take place withing these management systems it cannot be concluded that there are (clear) mechanisms in place to evaluate <u>all</u> parts of the management system for this fishery. Therefore SG100a is not met.		
b	Internal and/or external review			
	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?	Y	Y	N
	Justification	The Faroe Islands and Greenlandic colt water shrimp fisheries in the Barents Sea are part of the larger Barents Sea cold water prawn fishery which is managed by Norway, Russia and NEAFC. Evaluations of management measures within these management systems and evaluation within ICES working groups (NIPAG) could be considered occasional external review of the Faroe Islands, Greenlandic and Lithuanian distant water fisheries. The fishery-specific management system is subject to regular internal self-evaluation within the Norwegian and Russian bodies of governance and within NEAFC. It can be concluded that the fishery specific management system is subject to regular internal review and occasional external review and thus that SG80b is met. The Norwegian shrimp fishery is part of the larger fishery which is managed by Norway, Russia and NEAFC. Since it is not clear to what extent all parts of the management system are subject to regular external review SG100b is not met.		
References		Hønneland G. (2012), Making Fishery Agreements Work: Post-Agreement Bargaining in the Barents Sea, Cheltenham & Northampton, MA: Edward Elgar.		
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
CONDITION NUMBER (if relevant):				

Appendix 1.2 Risk Based Framework (RBF) Outputs

The RBF was not used in this assessment.

Appendix 1.3 Conditions

Condition 1

Performance Indicator	**PI 1.2.1 There is a robust and precautionary harvest strategy in place** **SIa. 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.**
Score	70
Rationale	For the shrimp stock as a whole, the components of this harvest strategy form an implicit management plan and work together to limit fishing mortality and maintain a high level of stock biomass, which along with rigorous monitoring of the fishery, ensure that stock management objectives are achieved. SG60 is met. The annual assessment of the status of the stock in relation to reference points ensures that the harvest strategy can be responsive to the state of the stock and works to maintain B>Bmsy by setting upper limits of catch based on an MSY framework. However, a significant component of the shrimp fishery takes place in International waters where only technical measures apply, and there is currently therefore no scope for limiting fishing effort within this sub-area of the fishery. Although the proportion of the stock which is in international waters is relatively small and there is a limit on the number of the vessels from the various nations, and the overall lack of effort limitation in this small area is not expected to have any impact on the likelihood of achieving the overall stock management objectives, this is nevertheless a significant weakness in the harvest strategy and therefore SG80 is not met. This condition is similar to a condition raised in the original certification, which was not met within the timeframe of the certification. FCR v2.0 7.11.1.3a and related guidance provides scope for condition milestones and timelines to be extended beyond the 5 years of a fishery certificate in some specific cases. In this case the fishery is managed through an RFMO (NEAFC) through which changes can only be made at the annual meeting in November, and the delay in meeting this condition is because the fishery has been above Bmsy since the start of the fishery and therefore introducing full limitation of fishing effort in the Loophole (which covers only a small part of the stock) is not considered a priority objective for the management authorities, particularly in comparison with the cold water prawn fishery in the Skagerrak and Norwegian Deep, which has declined recently to below MSYBtrigger, and which is the subject of major negotiations between relevant nations to develop a robust management plan. Whilst the Skagerrak and Norwegian Deep fishery is managed through the EU-Norway consultations, and not NEAFC, the main player driving the discussion in both fisheries is the Norwegian Ministry, who have stated quite clearly that a management plan for the Skagerrak and Norwegian Deep fishery must be the priority. There has been no specific research on mechanisms for limiting fishing effort in the Loophole, but there are two other areas of R & D which relate directly to the issue of ensuring that there is a harvest strategy which is responsive to the state of the stock. Firstly scientists at IMR in Norway have provided some options to the Norwegian Ministry for a harvest control rule for the stock, which if implemented will negate the need for a control on fishing effort. Secondly a detailed management plan for the Skagerrak and Norwegian Deep cold water prawn fishery is at an advanced stage of

	development, and the Norwegian Ministry confirms that this approach is likely to be used as a blueprint for a similar management plan for the Barents Sea fishery. There is research currently underway in IMR in Norway developing options for a harvest control rule. When a harvest control rule is agreed and implemented, which may be either through a TAC (most likely, based on management plans and approaches in the Skagerrak and Norwegian Deep cold water prawn fishery) or through full limitation on fishing effort, then the condition on PI 1.2.1 will no longer be required because management of the fishery will be fully responsive to the state of the stock. Norway is leading on the development of an HCR and the Norway fishery has a condition that a well-defined HCR should be implemented by 2021. Based on the rationales outlined above, MSC agreed that there are exceptional circumstances under which it is appropriate to extend the deadline for meeting this condition into the recertification period.
Condition	By the fourth annual surveillance, regulations limiting fishing effort in international waters (ICES Ia), that are responsive to the state of the stock, should be implemented to demonstrate that the elements of the harvest strategy work together towards achieving management objectives for the Barents Sea shrimp stock as a whole.
Milestones	**Annual surveillance 1**: Show written evidence of consultation with relevant authorities and stakeholder groups in relation to options limiting fishing effort in international waters, in particular to request that shrimp is included in the list of species in Annex 1 of the NEAFC Scheme of Control and Enforcement. This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 70 **Annual surveillance 2:** Ensure that shrimp is included in the list of species in Annex 1 of the NEAFC Scheme of Control and Enforcement through consultation with the relevant authorities. Provide an evaluation of options considered for potential mechanisms for limiting fishing effort. This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 70 **Annual surveillance 3:** Propose regulations for limiting fishing effort to relevant authorities. This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 70 **Annual surveillance 4:** Implementation of regulations for limiting shrimp fishing effort within the NEAFC region known as the Loophole through consultation with relevant authorities. Expected score: 80
Client action plan	**Action 1.1** Complete meetings with Ministry of Fisheries to explore options limiting fishing efforts in international waters. Faroese Shrimptrawlers Assocaition (FSA) will also present the Ministry with a formal request to include shrimp in the list of species in Annex 1 of the NEAFC Scheme of Control and Enforcement. **Action 1.2** Ensure that shrimp is included in the list of species in Annex 1 of the NEAFC Scheme of Control and Enforcement. Present an evaluation of options of mechanisms to limit fishing effort. **Action 1.3**

	Depending on outcomes of 1.2, NFA will propose regulations for limiting fishing effort to relevant authorities. **Action 1.4** FSA will demonstrate that the proposed regulations have been implemented.
Consultation on condition	Consultation with the Minstry of Fisheries in relation to this condition is already underway.

Condition 2

Performance Indicator	**PI 1.2.2 There are well defined and effective harvest control rules (HCRs) in place.** **SIa. 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.** **SIb. The HCRs are likely to be robust to the main uncertainties.** **SIc. Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.**
Score	60
Rationale	**SIa.** Although there are no formally defined harvest control rules, the fishery is managed through a series of regulations including effort limitation, technical conservation measures (minimum landing size, mesh size and sorting grid regulations, closed areas, move-on rules) and partial TACs in some areas. These management measures have been changed during the history of the fishery, and may in future be changed in order to reduce the exploitation rate if limit reference points are approached. However the stock has been above Bmsy since the start of the fishery, so it is not clear that management measures have previously been changed in response to changes in stock status. The assessment team concluded that HCRs are not in place, but evidence from the Norwegian *Pandalus borealis* fishery in the Skagerrak and Norwegian Deep, which is managed under the EU-Norway agreement and by the Norwegian authorities, shows that HCRs are available for the Barents Sea *Pandalus* fishery. In addition, there are already many MSC-certified fisheries in the Barents Sea region which have well-defined harvest control rules in place. The Norway North East Arctic cod and Norway North East Arctic haddock are managed under the Joint Norwegian-Russian Fisheries Commission and the Norwegian Authorities based on ICES advice. The Norway North East Arctic saithe is managed under the EU-Norway agreement and the Norwegian authorities. The Russian Federation Barents Sea cod and haddock fisheries which are managed through the Russian and Norwegian authorities, the Joint Norwegian-Russian Fisheries Commission and NEAFC are also MSC certified. Norwegian herring fisheries in the North East Atlantic which range across the EEZ's of Russia, Iceland, Norway, Faroe Islands and in international waters have also been certified and have well-defined harvest control rules. The herring fisheries are managed under the coastal states agreement between EU, Norway, Iceland, Faroe Islands and Russia. The agreements are implemented under national management systems and advised by ICES. All these fisheries have harvest control rules that have been implemented and shown to be capable of achieving the exploitation levels required under the HCRs, and therefore the assessment team concluded that HCRs are available under international management systems if required and HCRs implemented in other fisheries have been shown to reduce exploitation rate when required. The stock has been above Bmsy since the start of the fishery and therefore SA2.5.2a is met, and the effective use of HCRs in other UoAs under the

	control of Norwegian management systems within an international framework provides evidence that it is appropriate that available HCRs are being scored under SA2.5.3a. SG60 is met therefore. Although annual stock assessments show that the stock has been above Bmsy throughout the history of the fishery, there are no explicit harvest control rules in place which define what management action will be invoked if the stock biomass declines to levels close to MSY Btrigger or Blim, or if fishing mortality increases to levels above Fmsy and/or close to Flim. The key HCR in relation to stock levels declining below reference points is not well-defined. SG80 is not met therefore and a condition is raised. **SIb.** Available HCRs and any future modifications to current management measures will be underpinned by the outputs from stock assessments. The current stock assessment model explicitly accounts for inherent uncertainties in input parameters in a quantitative manner, so it can be concluded that available harvest control rules are likely to be robust to the main uncertainties. However as there are currently no formal HCRs in place to trigger the reduction of exploitation rates if stock levels decline below reference points, the SG80 is not met. **SIc**. In line with SA2.5.5a, evidence from other Norwegian fisheries managed under international agreements where HCRs are in use shows that the available tools are effective in controlling exploitation rates when stock status falls below reference points, ensuring that recruitment is not impaired and that stock biomass is at a level consistent with MSY. SG60 is met therefore. As the tools are not yet in use, and in line with recent advice on the MSC Interpretations webpage (see link below), as the HCRs are only regarded as 'available' in scoring issue (a), it is not possible to score more than 60 for issue (c) since the SG80 refers to the tools 'in use' in the fishery in assessment, not the tools 'in use or available'. SG80 is not met therefore. This condition is similar to a condition raised in the original certification, which was not met within the timeframe of the certification. However the assessment team noted that the MSC has issued new guidance in relation to the timeframe required in which to meet conditions raised against PI 1.2.2 in relation to harvest control rules. The MSC has acknowledged that for certified fisheries in which the stock biomass has consistently been above Bmsy during the history of the fishery, that F is consistently below Fmsy, and for which HCRs are available, additional time may be given to the Client in meeting any condition which requires the implementation of a well-defined HCR under PI 1.2.2. This additional flexibility can only be granted to fisheries that will undergo the re-certification process under MSC CRv2.0, and that any additional time required to meet the condition must not take more than five years after agreement by MSC, in this case therefore beyond the third annual surveillance audit of the re-certification. The audit team concluded that as biomass has been above Bmsy for the entire history of the Barents Sea shrimp fishery, that F is consistently below Fmsy, and that the re-certification of the fishery was conducted using MSC CRv2.0, the MSC agreed therefore that it is appropriate under new MSC Guidelines to extend the deadline for meeting this condition to the third surveillance audit of the recertified fishery.
Condition	By the third annual surveillance, well defined harvest control rules shall be implemented for the shrimp stock as a whole to ensure that the exploitation rates are reduced as limit reference points are approached, the HCRs are likely to be robust to the main uncertainties, and that available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.
Milestones	**Annual surveillance 1**: Show written evidence of consultation with relevant

	authorities and stakeholder groups in relation to options for HCRs, and request that shrimp is included in the list of species in Annex 1 of the NEAFC Scheme of Control and Enforcement. This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 60 **Annual surveillance 2:** Ensure that shrimp is included in the list of species in Annex 1 of the NEAFC Scheme of Control and Enforcement through consultation with the relevant authorities, and provide an evaluation of options considered for potential HCRs. This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 60 **Annual surveillance 3:** Implement HCR through consultation with relevant authorities. Expected score: 80
Client action plan	This action plan is a direct continuation of FSA´s efforts towards implementing an HCR in this fishery during the first certification period. So far, these efforts have not yielded results, but work on this issue continues even as the reassessment is still ongoing. It is FSA´s assessment that the main key to fulfilling this condition is to get political acceptance within the Faroese Ministry of Fisheries. Crucial meetings are already scheduled between industry and management during the fall of 2018 that may provide important progress on this condition. **Action 2.1** FSA will consult with relevant authorities – principally the Ministry of Fisheries – and propose including shrimp on the list of species in Annex 1 of the NEAFC Scheme of Control and Enforcement, and implementing potential HCRs. **Action 2.2** FSA will ensure that shrimp is included in the list of species in Annex 1 of the NEAFC Scheme of Control and Enforcement and provide an evaluation of options considered for potential HCRs. **Action 2.3** An HCR shall be implemented at this stage.
Consultation on condition	Consultation with the Minstry of Fisheries in relation to this condition is already underway.

Condition 3

Performance Indicator	**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.** **SIb: 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.**
Score	70
Rationale	Different species described by NEAFC and OSPAR as indicator species of VME ecosystems have been identified in the UoA fishing grounds. Both Jørgensen *et al* (2015) and Jakobsen and Ozhigin (2011) have located the spatial distribution of sponges, seapens, and soft corals. These species have been designated by NEAFC as indicators of VMEs in the Barents Sea. Besides, different types of sponges are considered as threatened and declining in the Barents Sea. The assessment team has considered the following scoring elements (VME habitats), following ICES and NEAFC advice and Jorgesen et al (2015) identification of benthic species present in the area: • Cold water coral reefs: *Lophelia pertusa* reef and *Solenosmilia variabilis* reef. • Coral garden: Hard bottom coral garden and soft bottom coral garden. • Deep sea sponge aggregations: Hard bottom sponge gardens and glass sponge communities • Seapen fields and burrowing megafauna communities. In considering the potential impact of the fishery, the assessment team took into account the distribution of fishing activity in relation to known distribution of the VME habitats, the bio-regional distribution of habitat types, the irregular reproduction and slow growth rates of the vulnerable species with the consequent slow recovery rates, the nature of the fishing gear used, and the behavior of fishermen in avoiding habitats which might damage the fishing gear. According to VMS tracks, the UoA fishing grounds overlap with the location of different species which are indicators of VME habitats, such as seapen fields and sponges in the Northwestern area of the Svalbard Islands, and soft corals in the central Barents Sea. Norwegian Regulation J-40-2016 establishes that if a trawl vessel catches more than 30 kg corals or 400 kg sponges in a single haul the vessel shall stop fishing and move position at least 2 nautical miles in order to avoid such catches and report such incident to the Directorate of Fisheries. Similar requirements are set in the Loophole area through NEAFC Recommendation 19 (2014). There are no similar management measures implemented in the Russian EEZ. While these management measures have been implemented for several years so far, to date there are no records of such interactions (by any shrimp fishery). In addition, there are no records of any catches of corals or sponges in log books irrespective of whether the catches are above or below the thresholds designated under the move-on rules. It is expected that the length of the hauls are not long enough to allow for such thresholds to be achieved. Besides, it could be the case that sponges and corals are released from the codend through the escapement hole at the sorting grid. Faroese vessels have very recently implemented an underwater camera on the trawl to watch the fishing operation. This should serve captains to

<table>
<tr><td></td><td>avoid interactions with unwanted catch such as benthic species. There are also some area closures in the Svalbard FPZ directed to the protection of corals, sponges, and very recently (May 2017) also seapens.

The team considers that due to the overlap between documented distribution of indicator species of VME and the UoA fishing grounds it is not possible to state that the UoA is highly unlikely to reduce structure and function of VME habitats in the Barents Sea to a point where there would be serious or irreversible harm. SG80 is not met for any scoring element. The fact that there is certain regulation in some jurisdictions protecting indicator species of VME habitats such as sponges, soft and hard corals and seapens, gives sufficient confidence to these scoring elements to meet SG60. Besides, and according to Figure 44, recovery times in the Barents Sea have been estimated in between 3 to 9 years in the different fishing areas if all the Barents Sea fisheries were to cease. This study serves to support that serious or irreversible harm is unlikely. SG60 is met for all scoring elements.
<table>
<tr><td>Scoring element</td><td>SG60</td><td>SG80</td><td>SG100</td></tr>
<tr><td>Cold water coral reefs</td><td>Y</td><td>N</td><td>N</td></tr>
<tr><td>Coral gardens</td><td>Y</td><td>N</td><td>N</td></tr>
<tr><td>Deep sea sponge aggregations</td><td>Y</td><td>N</td><td>N</td></tr>
<tr><td>Seapens fields and burrowing megafauna communities</td><td>Y</td><td>N</td><td>N</td></tr>
</table>
</td></tr>
<tr><td>Condition</td><td>Demonstrate that the UoA is highly unlikely to reduce structure and function of the VME habitats located in the different UoA fishing grounds, to a point where there would be serious or irreversible harm.</td></tr>
<tr><td>Milestones</td><td>Annual surveillance 1: There shall be evidence of the Client’s plan to evaluate potential damage to VME habitats appropriate to this UoA. There shall be evidence of engagement with a research institution with the goal of evaluating potential damage to all VME habitats by fishing activities of this UoA.

This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 70

Annual surveillance 2: By the end of year 2 there shall be evidence of ongoing work towards the design of necessary plans (i.e. developing options for conservation) and management measures to all VME habitats affected by the UoA, such that the fishery does not cause serious or irreversible harm to VME habitats located in the different fishing grounds.

This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 70

Annual surveillance 3: Evaluate the options developed in year 2. Consider suggested modifications if needed, and finalise and agree on conservation and management measures. By the end of the year a partial strategy for the protection of the different VME habitats from trawling shall be agreed upon, either at client group or at a higher level.</td></tr>
</table>

	This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 70 **Annual surveillance 4**: Implement the agreed upon partial strategy. A formal commitment to the agreed upon conservation and management measures shall remain in place for the duration of the certification period. The client shall provide overlapped maps of VMS records for the UoA and OSPAR threatened or declining habitats, to show avoidance of VME. Demonstrate that the UoA is **highly unlikely** to reduce structure and function of the VME habitats located in the different fishing grounds, to a point where there would be serious or irreversible harm. Expected score: 80
Client action plan	**Action 3.1** Faroese Shrimptrawlers Association (FSA) will consult with Havstovan – or third parties if necessary- to perform VMS data analysis of bottom gear affected area and probable overlap with VME habitats. The analysis shall include models of rate of destruction and regeneration times. Completed by SA2 **Action 3.2** Review the results of the study and consult management authorities regarding any needs for protective measures that may arise from the study. Completed by SA2. **Action 3.3** Depending on the outcomes of Actions 3.1 and 3.2; if further management measures are identified as necessary, FSA will implement voluntary closures of areas to avoid further damage to VMEs, and work where appropriate with Norwegian, Russian or NEAFC management authorities to promote the implementation of the voluntary closures as official MPAs. An implementation process can then be reported at SA3, and evaluated at SA4.
Consultation on condition	The client will need to contact research and management authorities to obtain information both on detailed VMS tracks and on the location of VME areas in the fishing grounds.

Condition 4

Performance Indicator	This condition is only relevant for all VME located in the Russian EEZ, and seapen fields and burrowing megafauna communities located in Svalbard FPZ and NEAFC waters. **PI 2.4.2. There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.** SIb: 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.
Score	75
Rationale	2.4.2.b: The team considers that the measures described in PI 2.4.2.a are already implemented and working in managing the UoA's impacts on main habitat types (clay/mud and sandy habitats), and also on some VME habitat types in certain jurisdictions (Svalbard FPZ and NEAFC waters). There is concern that described measures are not enough to manage the UoA impacts on all indicator species of VME in the different jurisdictions included in the UoA, mostly in Russian waters. Indicator species of VME such as corals and sponges are protected by move on rules implemented in the Svalbard FPZ and in NEAFC waters (but not in the Russian EEZ). There are area closures implemented in the Svalbard FPZ directed to the protection of coral, sponges and also recently to protect seapens. There are also precautionary closures were fishing is permitted with special permits in the Svalbard FPZ and in NEAFC waters. And, to the team's knowledge, there are certain area closures directed to the protection of juvenile fish close to the Russian mainland coastline and near Franz Joseph Islands. Management authorities confirm that implemented measures are generally followed. Encounters of the UoA vessels with VME habitats such as seapen fields, sponges or soft corals communities are expected, as described by Jørgensen *et al*, (2015). So far it is not possible to asseverate that there is some objective basis for confidence that the partial strategy will work, either due to the recent implementation of the measure (as for protected seapens in Svalbard FPZ) or due to the limited size of protected areas (50 km2). The team reaches the following conclusions as regards the different scoring elements: - NEAFC waters, Russian EEZ and Svalbard FPZ commonly encountered habitats (fine substratum) and gravel patches reach SG80 thanks to the response of soft bottoms to trawling. According to Kaiser *et al* (2006), expected impacts of bottom trawling in soft bottoms are the relocation of shallow burrowing infaunal species to the surface of the seafloor, and resuspension of surface sediment. Lubin (2013) estimated in 5 to 10 years the time that main habitats in the Barents Sea would need to recover after bottom trawling. - Cold water reefs, coral gardens and deep-sea sponge aggregations are subject to management measures such as move on rules which are enforced in Svalbard FPZ and in NEAFC waters. The move on rule assures the avoidance of depletion of the species in these habitats by moving fishing grounds when species are encountered. Besides, records of these encounters should serve to avoid these areas in the future. There are also designated area closures around Svalbard Islands which were implemented to protect sponges and corals. According to Denisenko et al (2013), coral reefs are not expected in Russian waters.

	- The recent establishment of a small closed area (50 km2) to protect seapens gives an objective basis for confidence that seapens will be protected inside that area. Other measures such as effort limitations (10 vessels in the UoA) also bring confidence that management measures to protect seapens will work. While the team considers that implemented measures afforded for the protection of VME in the Svalbard FPZ and NEAFC waters are sufficient to justify that there is some objective basis for confidence that the partial strategy will work in these areas, the UoA also takes place in the Russian EEZ, where there are limited management measures afforded to the protection of VME indicator species. SG80 would be met for VME indicator species in the Svalbard FPZ and NEAFC waters, but not in the Russian jurisdiction. The limited number of vessels in the UoA, the underwater camera that Faroese vessels use and the fact that they do not generally go into Russian waters (as they are required to sail further south and pick a Russian enforcement observer), along with the area closures (directed to the protection of juvenile fish) are considered likely to work in avoiding serious or irreversible harm. SG60 is met in the Russian jurisdiction. This condition relates to condition 3 of this recertification report (on PI 2.4.1.b), which requires the UoA to demonstrate that it is highly unlikely that the UoA activity reduces the structure and function of the VME habitats located in the UoA fishing grounds to a point where there would be serious or irreversible harm. While condition 3 applies to all VME habitats in all fishing grounds, Condition 4 only applies to seapen fields and burrowing megafauna communities scoring element in all fishing grounds and all overlapping VMEs in Russian EEZ.
Condition	Provide evidence that the management measures (designed to ensure that the UoA does not pose a risk of serious or irreversible harm to the habitats) are successfully implemented and working effectively in the different UoA fishing grounds, based on **information directly about the UoA and/or habitats** involved.
Milestones	**Annual surveillance 1**: There shall be evidence of the Client's plan to evaluate potential damage to VME indicator species appropriate to this UoA. There shall be evidence of engagement with a research institution with the goal of evaluating potential damage to these VME habitats by fishing activities of this UoA. This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 75 **Annual surveillance 2**: By the end of Year 2 there shall be evidence of ongoing work towards the implementation of the plan; i.e. developing options for conservation and management measures to VME indicator species affected by the UoA, such that the fishery does not cause serious or irreversible harm to these habitat structures, on a regional or bioregional basis, and function. These options may be developed with the support of a research institution, or may be developed within the client group, as appropriate. This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 75

	Annual surveillance 3: Evaluate the options developed in year 2. Consider suggested modifications if needed, and finalise and agree on conservation and management measures. By the end of the year a partial strategy for the protection of VME indicator species from trawling shall be agreed upon, either at client group level or at a higher level. This milestone is an incremental step toward fulfilling the condition. Its successful completion will not result in a change of score to this PI. Expected interim score: 75 **Annual surveillance 4**: Implement the agreed upon partial strategy. A formal commitment to the agreed upon conservation and management measures for VME indicator species shall remain in place for the duration of the certification period. The client shall provide evidence that the requirements of SIb are met at SG80 level. Provide evidence that the management measures (designed to ensure that the UoA does not pose a risk of serious or irreversible harm to the habitats) are successfully implemented and working effectively, based on **information directly about the UoA and/or habitats** involved. Expected score: 85.
Client action plan	This condition is closely linked to condition 3 and especially the outcomes of action 3.2 **Action 4.1** FSA will engage with Havstovan and Ministry of Fisheries to explore the need to identify and regulate areas where further protection of indicator species of VME may be needed, through the establishment of management measures. The possibility of extending the existing move on rules to other jurisdictions where at present it is not implemented, or to include encounters with other VME indicator species will be explored. **Action 4.2** The discussed management options will be evaluated and the client will engage with relevant authorities (Norwegian, Russian or NEAFC) to promote their implementation at an official level, and/or will work towards their implementation at a client level. **Action 4.3** Appropriate management measures shall be implemented by SA3. **Action 4.4** The results of the adopted measures are to be reviewed.
Consultation on condition	The client will need to contact research institutions and management authorities.

Recommendations

Recommendation 1

PI 1.2.3a: A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals, and any other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
Recommendation: The assessment team recommends that an observer programme is implemented for the Faroe Islands fleet to obtain catch composition data from the fishery in the Russian zone.

Recommendation 2

PI 2.3.3.b: 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.

Recommendation: The assessment team **recommends** that systems are put in place to ensure that all interactions with ETP species are recorded on log books irrespective of whether they are landed or discarded and that the captures of all ETP species are mapped.

Recommendation 3

PI 2.4.3.b: The physical impacts of the gear on all habitats have been quantified fully.

Recommendation: The assessment team recommends the recording of interactions with indicator species of VMEs (such as described by OSPAR) should be recorded, paying special attention to the location of the interaction, the identification of the indicator species of VMEs and the quantities taken by the hauls.

Appendix 1.4 Client Action Plan

See Client Action Plan in Appendix 1.3

Appendix 1.5 Arctic agreement for the cod fishery

Arctic agreement for the Barents Sea cod fishery

http://www.greenpeace.org/international/Global/sweden/Arktis/Industry%20Group%20Statement%2025th%20May%202016.pdf

Industry Group Agreement to Cod fishery in the northern part of North-East Atlantic (FAO area 27, ICES division IIb2 and Ib*)

We acknowledge that climate change and the melting of the ice sheet in the above areas has caused concern related to fishing activities in the vast area around Svalbard.

We acknowledge Greenpeace's role in bringing attention to the region under these changing circumstances.

We understand that the marine area around Svalbard have been identified in several scientific programs as important.

We recognise that the fisheries in the northern Barents Sea and Norwegian Sea including the marine areas around Svalbard are amongst the best regulated fisheries in the world. Most of these fisheries are independently certified by the Marine Stewardship Council (MSC) as compliant with their standard for sustainable and well-managed fisheries. Additionally there are many protected areas already established around Svalbard to safeguard ecological biodiversity.

We have agreed that from the *2016 season* the catching sector will not expand their Cod fishing activities with trawl gear into those areas where regular fishing has not taken place before. This is a precautionary measure *until* through initiatives such as those mentioned below the fishing activity in future years will be determined by improved knowledge replacing the need for this precautionary approach.

We would like to state that the Industry Group has been successful in gaining agreement to have an action orientated High-Level Roundtable. The Roundtable will include the Norwegian Governmental Fisheries Management agencies and institutions and welcomes other interested public stakeholders to participate. The objectives of the High-Level Roundtable will be to establish a transparent process that will continue to enable Cod to be sourced from the area but also to meet the MSC independent sustainable fishery standard for activities beyond 2016.

We call for the governments to assist these efforts and ensure all measures are based on best available science, to properly assess and map the area for example but not exclusively the Mareano program.

In parallel with the High-Level Roundtable, the Cod catching industry ***will accelerate their work to meet the MSC condition regarding Vulnerable Marine Ecosystems (VME's)*** identified in the MSC re-certification process. Together with the scientists from the Norwegian Institute of Marine Research and other relevant institutions, we will use all available data:

- To define areas that may be vulnerable to trawling.
- To develop effective and proportional measures that prevent environmental degradation in such areas.

We are also committed to a voluntary agreement to avoid fishing in such areas on a precautionary basis, whilst the appropriate measures are under development. The voluntary agreement will be in place before the Cod fishing starts in the region in 2016.

* the part of ICES Division Ib referred is West of the delimitation line as defined in the Treaty between Norway and Russia concerning maritime delimitation and cooperation in the Barents Sea and the Arctic Ocean 2010

Supported by:

Catching Sector:

Processors and Manufacturers:

Retailers and Food Service:

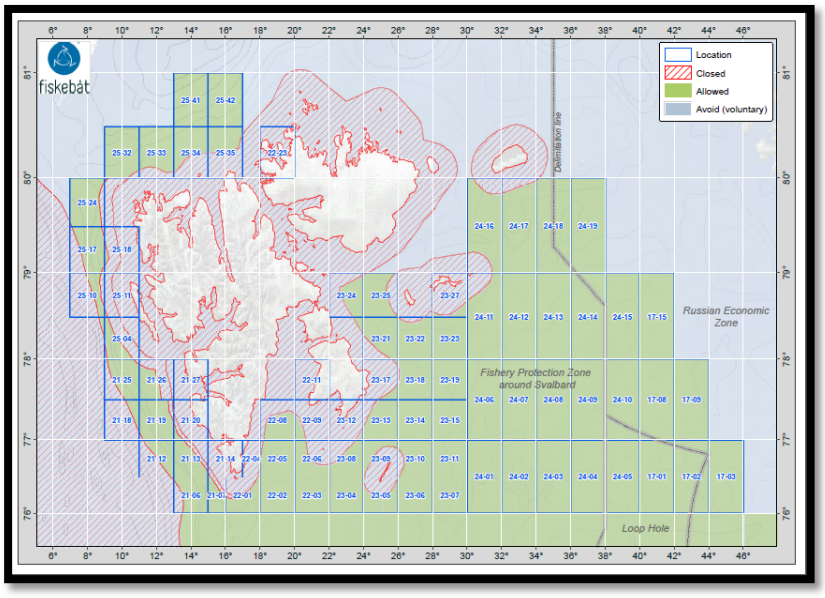


Figure 53. Voluntary area closures as described in the Industry Group Agreement. Source: Fiskebat.

Appendix 1.6: Modification Proposal For Regulation J-40-2016

FISKERIDIREKTORATET

Norges Fiskarlag
Postboks 1233 Torgarden

7462 TRONDHEIM

Adm.enhet: Ressursavdelingen
Saksbehandler: Gunnstein Bakke
Telefon: 99105452
Vår referanse: 16/3461
Deres referanse:
Dato: 01.12.2017

Høring – forslag om endringer i forskrift om regulering av fiske med bunnredskap i Norges økonomiske sone, fiskerisonen rundt Jan Mayen og i fiskevernsonen ved Svalbard

Forskrift om regulering av fiske med bunnredskap i Norges økonomiske sone, fiskerisonen rundt Jan Mayen og i fiskevernsonen ved Svalbard ble fastsatt 1. juli 2011 og trådte i kraft 1. september samme år. Formålet med forskriften er å beskytte sårbare bunnhabitat i Norges økonomiske sone, fiskerisonen rundt Jan Mayen og i fiskevernsonen ved Svalbard.

Gjennomgang av bunnforhold, fiskeriaktivitet og fangst- og forskningsdata viser at utformingen av forskriften ikke er hensiktsmessig for områdene rundt Svalbard. Hovedgrunnen er at utbredelsen av sårbare habitat ikke følger de samme dybder som lengre sør hvor grensen mellom eksisterende og nye fiskeområder er satt til 1000 meters dyp. Artene kan også være andre enn lengre sør. Grensen på 1000 meters dyp anses fortsatt som hensiktsmessig der, spesielt når den ses i sammenheng med andre regler som beskytter sårbare bunnhabitat på grunnere vann. De stengte korallrevområdene og det generelle forbudet mot å tråle innenfor 12 nm langs kysten er eksempler på slike regler. I områdene rundt Svalbard bidrar reglene som forbyr tråling etter fisk i naturvernområdene innenfor 12 nm til beskyttelse, men i områdene utenfor er det ingen spesielle regler som beskytter sårbare bunnhabitater utover flytteplikten som følger av forskrift om regulering av fiske med bunnredskap § 3. Terskelverdiene er imidlertid til en viss grad tilpasset arter som ikke opptrer rundt Svalbard, for eksempel steinkorallen Lophelia Pertusa. Nærings- og fiskeridepartementet ba i brev av 3.7.17 om at Fiskeridirektoratet sendte forslaget på høring.

Forskrift om fiske med bunnredskap tar ikke hensyn til tilfeller hvor man i eksisterende fiskeområder vil benytte seg av redskap som antas å være mer skadelig for bunnforholdene enn det fisket som allerede har foregått der. Dette i motsetning til for eksempel den Nordøstatlaniske fiskerikommisjon, NEAFC, sin VME regulering, hvor reglene for prøvefiske ikke bare gjelder i nye fiskeområder, men også «*if there are significant changes to the conduct and technology of bottom fishing activities within existing bottom fishing areas*» jf http://neafc.org/system/files/Rec_19-2014_as_amended_by_09_2015_fulltext_0.pdf. Et eksempel på slike tilfeller kan være skjellskraping. Nærings- og fiskeridepartementet ba i brev av 10.7.17 om at forslag til en slik regulering ble tatt med i høringen.

Forslaget har dermed tre hovedelementer. For det første foreslås det en inndeling av områdene rundt Svalbard i nye og eksisterende fiskeområder. For det andre foreslås opprettelse av områder der alt fiske med redskap som kan komme i berøring med bunnen forbys. Det tredje hovedelementet er forslag om regler som sikrer at effekter av nye redskap eller endret bruk av eksisterende redskap blir vurdert. Hvert hovedelement fremstilles hver for seg nedenfor. I tillegg foreslås utvidelse av forskriftens virkeområde slik at også utenlandske fartøy blir omfattet.

Inndeling i eksisterende og nye fiskeområder
I et nytt fiskeområde kan ikke fiske startes opp uten at det er søkt om og innvilget tillatelse, jf. forskriftens § 4. Dette sikrer at det blir gjennomført en vurdering av mulige effekter på sårbare bunnhabitat i forkant av fiske. Reglene legger også til rette for økt kunnskap om sårbare bunnhabitat gjennom innsamling av data under fisket, jf. forskriftens § 4.

Grensene er foreslått etter en gjennomgang av fiskeriaktiviteten i områdene. Kartet nedenfor viser all aktivitet som vi har registrert gjennom rapporter fra fiskefartøyene, særlig satellittsporingsdata, fra og med 2001 til og med 2016 og plasseringen i forhold til grensene. Langs 800 meters dybdekoten i nord er det registrert områder der noe fiskeriaktivitet går utenfor dybdekoten, det vil si dypere. Vi har ingen opplysninger fra næringen som tilsier at det fiskes reker dypere enn 800 meter. I tillegg så er dette sjøområder som ikke er dybdemålt nøyaktig. 800 meter fremstår dermed som en praktisk håndterlig grense også her. Alternativet vil være en linje med mange knekkpunkter noe som er mindre praktisk. Langs vestsiden av Spitsbergen er det noen få områder der det er registrert få hal noe dypere enn 800 meter. Dette er hovedsakelig eldre data, det vil si fra 2010 eller tidligere. Vi kan legge til grunn at dette mest sannsynlig er prøvehal som ikke har resultert i fangster som har ledet til et fiskeri. Blåkveite er trolig en art det har vært lett etter.

Alle satellittsporingsdata og data fra elektronisk rapportering som Fiskeridirektoratet har fra og med 2001 til og med 2016 er benyttet. Det er kun posisjonsdata under fiske som vises. Transittlinjer er altså fjernet.

Alle data vi har fra utenlandske fartøy er inkludert. Mot grensen til Russlands økonomiske sone er det et større område som ikke blir brukt av norske eller andre utenlandske fartøy vi har data fra. Russiske organisasjoner / fiskeriselskaper har på samme måte som Fiskebåtrederens forbund i Norge inngått en avtale med Greenpeace om hvor de skal tråle. I avtalen har den russiske parten avmerket dette området som fisket. Vi legger til grunn at dersom vi hadde data for russiske fartøy så ville dette vært bekreftet. Området er derfor ikke tatt med i forslaget som et nytt fiskeområde.

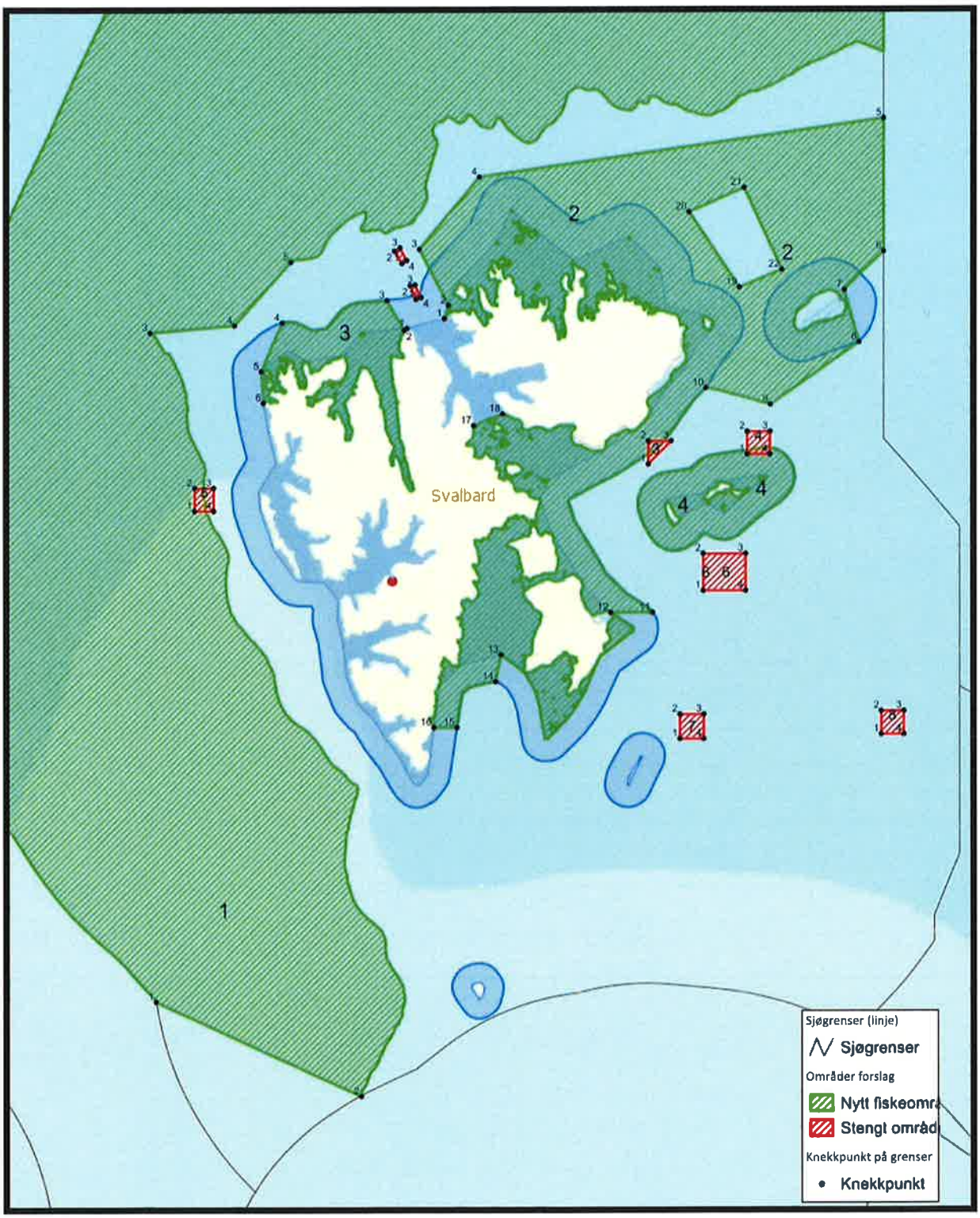
Det foreslås opprettet 4 områder som kategoriseres som nye fiskeområder. På kartet nedenfor er de nummerert fra 1 – 4. Beskrivelsene av områdene foreslås tatt inn som en del av definisjonen av «nye fiskeområder», jf. forskriftens § 2.

Område 1 har en yttergrense som helt i sør begynner ved grensen til Norges økonomiske sone. I vest, nord og øst følger yttergrensen grensen for fiskevernsonen. Inn mot Svalbard, følger grensen i vest 800 meters dybdekoten fra grensen for norsk økonomisk sone til et punkt nordvest for Spitsbergen. Over Yarmakplatået i nordvest hvor det er grunnere, følger grensen en rett linje fra dette punktet via et knekkpunkt før den igjen møter 800 meterskoten i nord. Den fortsetter videre langs denne østover til grensen mot Russlands økonomiske sone.

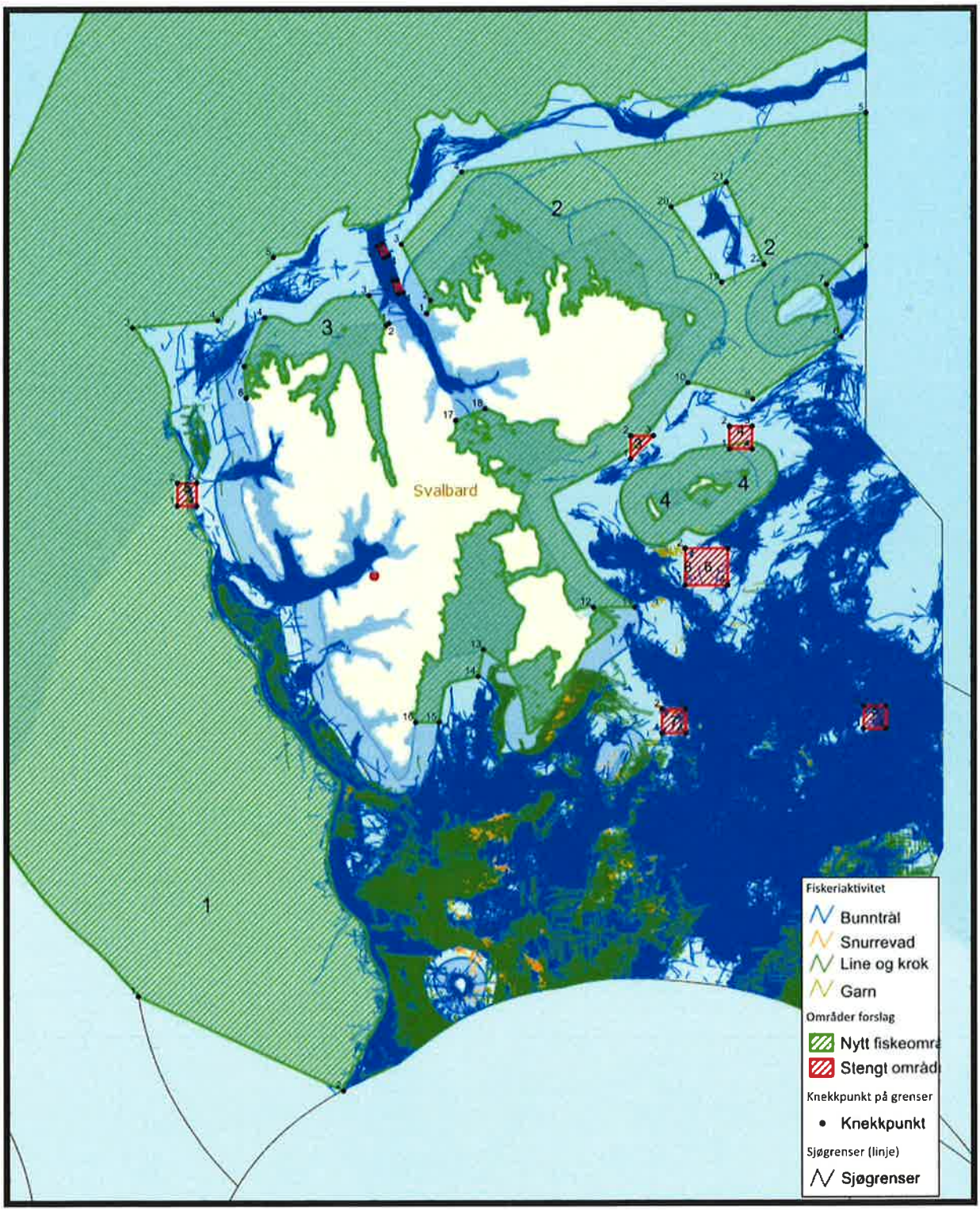
Område 2 er omfatter også deler av territorialfarvannet og indre farvann. Det er avgrenset av rette linjer med knekkpunkt i nord og sør og av grensen mot Russlands økonomiske sone i øst. Inne i dette

området nord for Kvitøya ligger et eksisterende fiskeområde avgrenset av rette linjer mellom fire koordinater.

Område 3 omfatter et område innenfor territorialgrensen nord på Spitsbergen og område 4 omfatter hele området innenfor territorialgrensen rundt Kong Karls land.



Kart over viser forslaget til inndeling i nye og eksisterende fiskeområder samt stengte områder. Bakgrunnskartet har ikke korrekt gjengivelse av alle landområder, se for eksempel Kvitøya og langs østsiden av Nordaustlandet der det ser ut som om noen sjøområder ikke er inkludert i de nye fiskeområdene. Bakgrunnkartet her er valgt fordi det best fremstiller selve forslaget uten å vise mye annen informasjon i kartet.



Kart som viser fiskeriaktiviteten fra 2001 til 2016. Trål er markert med blå farge ligger øverst, det vil si at det kan være andre fiskerier i samme område som ikke vises i kartet her. I den elektroniske kartløsningen kan det skilles mellom redskapstyper.

I kartløsningen som ligger på https://kart.fiskeridir.no/fiskeinord er de fire nye fiskeområdene tegnet inn. All fiskeriaktivitet og data om utbredelsen av sårbare bunnhabitat er også tilgjengelige. Kartløsningen tillater at det zoomes slik at grensenes forhold til fiskeriaktiviteten og økotoktets trålhal kan vurderes nærmere på et detaljert nivå. Det kan også skilles mellom hvilke fiskeredskap som vises og i for hvilket år data om dette skal vises.

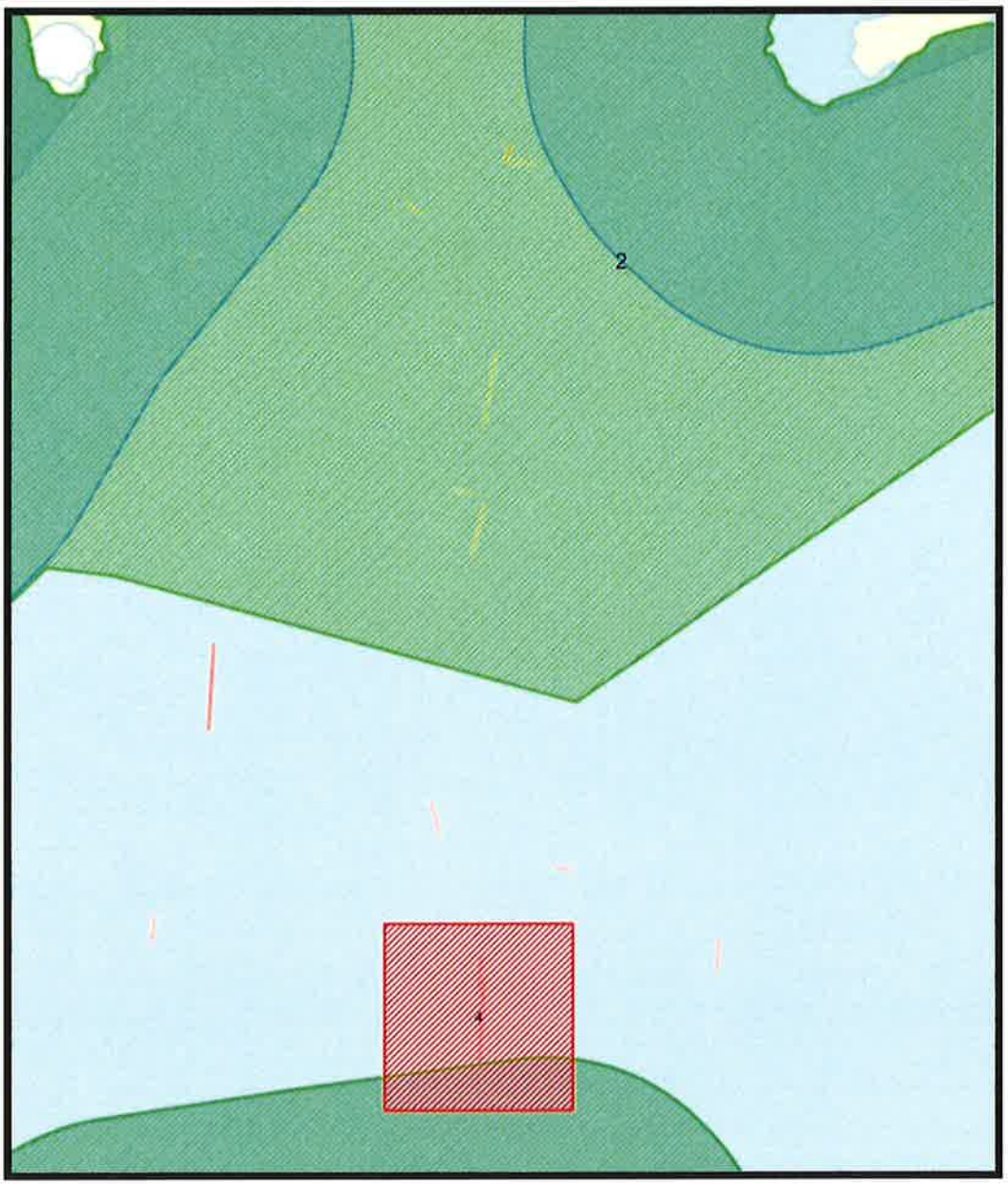
Deler av Svalbards territorialfarvann foreslås som en del av eksisterende fiskeområder selv om de helt eller delvis er en del av naturvernområdene på Svalbard. Disse delene er tatt med fordi noen fiskerier er tillatt og faktisk utøves i områdene. At de er tatt med betyr ikke at andre former for fiske enn de som er tillatt i verneforskriftene kan utøves. Det er altså fortsatt verneforskriftene som setter begrensningene her. Tilsvarende gjelder for de nye fiskeområdene som omfatter territorialfarvann som er underlagt verneforskriftene. Annet fiske enn det som er tillatt etter verneforskriftene vil ikke kunne tillates her.

Stengte områder

Områder der fiske med bunnredskap ikke tillates beskytter sårbare bunnhabitat mot all form for fysisk påvirkning fra fiskeri med redskap som berører bunnen, altså også bunngarn, line og teiner. Områdene hvor det foreslås at fiske med bunnredskap ikke tillates er identifisert ved bruk av to kriterier. For det første at de ut fra tilgjengelig kunnskap inneholder forekomster av sårbare arter og habitater og for det andre at det ikke eller bare i liten grad har vært fisket i dem.

Til bruk i denne saken har Havforskningsinstituttet skrevet rapporten «*Vurdering av sårbare bunnhabitat i det nordlige Barentshavet; trålfangete bunndyr fra det årlige «økotoktet»,* utgitt som Rapport fra Havforskningen nr.19 - 2017. Rapporten finnes her: http://hi.no/filarkiv/2017/05/19-2017_sarbare_bunndyr_i_nord_llj.pdf/nb-no. Det vises til denne for beskrivelse av artene og sårbarhet. Rapporten bygger på data samlet inn gjennom Havforskningsinstituttets økotokt. Dette er det eneste datasettet som dekker hele området. Data fra andre kilder finnes, men de dekker bare mindre områder som ofte ligger innenfor territorialgrensen hvor fiskeriene allerede er svært begrensede. MAREANO har så langt kartlagt noen få områder og data om blant annet forekomster av sjøfjær fra videoundersøkelsene er ferdig opparbeidet for to områder sør for Kong Karls land. Disse dataene er tatt med og gir grunnlag for å foreslå et eget stengt område, nummer 6. Dataene er presentert i kartløsningen som et eget tema merket «Sjøfjær – MAREANO».

På økotoktet tas det prøver med forskningstrål og fangsten av bunndyr registreres. Alle trålhalene registreres med posisjoner for hvor tråLen treffer bunnen og hvor trålingen avsluttes. Data er standardisert til fangst pr. 15 minutters tråling. Alle trålhalene er tegnet inn i kartet og viser dermed hvordan forekomster av sårbare arter og habitater er fordelt i området.



Kartet viser et eksempel på hvordan data fra økotoktet om forekomst av sårbare arter, her bløtkorall, er vist i Fiskeridirektoratets kartverktøy. Kartet viser et område mellom Kong Karls land og Kvitøya, Nordaustlandet øverst til venstre, Kvitøya øverst til høyre. Hver linje er et et trålhal fra økotoktet, markert som en linje mellom posisjon for start og stopp. Fargen indikerer mengde, jo mørkere jo høyere forekomst.

Siden det ikke er sikkert i hvilken grad alle artene er fangbare med forskningstrålen som benyttes så er dette en kvalitativ tilnærming og ikke en kvantitativ. Det er det eneste flatedekkende datagrunnlaget som finnes og det er tilstrekkelig for å kunne gjøre de vurderingene vi har gjort i denne omgang. Videolinjene fra MAREANO er også plottet i kart og forekomst av sjøfjær vises. Disse datene er kvantitative, det vil si at alle observasjoner av alle arter langs videolinjen er registrert.

Fiskeridirektoratet har tatt utgangspunkt i de artene som kan danne habitater, bløtkoraller, svamper, sjøfjær og fjærstjerner. De tre første følger av definisjoner fra blant annet OSPAR, definisjoner som også er benyttet i MAREANO sitt arbeid hvor utbredelse av sårbare naturtyper blir modellert. Den siste, fjærstjerner er tatt med basert på rapporten som er utarbeidet av HI. Artene er altså delt inn i fire grupper, bløtkoraller, svamper, sjøfjær og fjærstjerner. Det er laget egne kart for hver av disse

gruppene som viser hvor de forekommer. Det er også laget et samlet kart for alle artene hvor de trålhalene som inneholder mest til sammen er vist.

Kartene finnes her: https://kart.fiskeridir.no/fiskeinord. I menyen til høyre under valget «Avansert temavelger» kan det velges mellom hvilke data som ønskes vist. Nærmere opplysninger om de forskjellige datane, metadata, er også tilgjengelig. Data er ikke nedlastbare, men egne visninger av kartene kan lages og lastes ned. Økotoktets trålhal er gradert med fire forskjellige farger for hver av de fire artsgruppene, jo mørkere farge jo høyere forekomst. Grensene mellom fargene er satt ved hjelp statistikkfunksjoner som er tilgjengelig i kartverktøyet. Det er også laget en egen gruppe der alle artene er slått sammen.

Fjærstjerner er arter som ikke sitter fast på bunnen på samme måte som de andre. De kan til en viss grad bevege seg. De er sårbare for tråling og kan opptre i tettheter som danner en egen type bunn. Områder som ikke fiskes vil være av verdi også for denne typen bunn selv om populasjonstettheten kan variere over tid.

Sjøfjærdata fra økotoktet omfatter bare en art, Umbellula encrinus, fordi det bare er registrert fangster av denne. I området som dekkes finnes det også andre sjøfjærarter, jf. MAREANO registreringene.

I Havforskningsinstituttets rapport er artene nærmere omtalt. I tillegg omtales to arter som vi ikke har tatt med i vår vurdering. Slangestjernen medusahode finnes i store deler av området saken omfatter. Denne arten vil i likhet med andre vi ikke har vurdert spesielt også oppnå en beskyttelse gjennom de tiltakene som foreslås uten at den er vurdert for seg selv. Denne arten er heller ikke med i for eksempel de bekrivelsene som OSPAR har utviklet. Den andre arten, hvit blekksprut, opptrer i vannsøylen og må håndteres gjennom andre tiltak enn de som handler om beskyttelse av sårbar bunn.

I kartløsningen som ligger på https://kart.fiskeridir.no/fiskeinord er alle forslagene om stengte områder tegnet inn. All fiskeriaktivitet og data om utbredelsen av sårbare bunnhabitat er også tilgjengelige. Kartløsningen tillater at det zoomes slik at områdenes plassering i forhold til fiskeriaktiviteten og økotoktets trålhal kan studeres nærmere.

Områdene 1 og 2 ligger helt nord i Hinlopenstredet. Her er det registrert høye verdier for bløtkoraller i tillegg til svamp.

Områdene 3 og 4 ligger nord for Kong Karls land. I område 3 er det forekomster av sjøfjæren Umbellula encrinus på grunnere vann enn der de ellers opptrer. I område 4 er det fjærstjerner som er dokumentert med høye verdier i tillegg til bløtkoraller og svamp.

Område 5 ligger på vestsiden av Spitsbergen og preges av et høyt antall svamparter og til dels høye verdier, det vi si mengder.

I område 6 er det registrert høye verdier av sjøfjærarter på MAREANO sine videolinjer.

I område 7 er det registrert høye verdier av fjærstjerner i tillegg til bløtkoraller og svamp.

I område 8 er det registrert høye verdier av fjærstjerner i tillegg til bløtkoraller og svamp.

Det foreslås at disse områdene beskrives i en ny § 5 i forskriften.

Vurdering av effekter av nye redskap og endret redskapsbruk
§ 3 i forskriften inneholder reglene som gjelder ved fiske i eksisterende fiskeområde. Forslag om regler som sikrer at effekt på bunnhabitatene av nye redskaper eller vesentlig endret bruk av vanlige redskap kan plasseres som nytt tredje ledd.

Nye redskaper kan for eksempel være bruk av utstyr for å høste skjell, for eksempel skraper. Med redskap som er i vanlig bruk menes her redskap som til vanlig brukes i det området det skal fiskes i, det vil si et nærmere avgrenset område innenfor et eksisterende fiskeområde. Fiske av nye arter i et område kan skje med ny redskap og aktiviteten vil dermed være søknadspliktig på det grunnlaget. Men det kan også tenkes at vanlig brukt redskap med mindre tilpasninger kan benyttes. Et slikt fiske kan på grunn av for eksempel hvor målarten lever innebære en vesentlig endring fra hvordan redskapet ellers benyttes til vanlig i det samme området. Slike endringer i måten et vanlig redskap brukes på bør også dekkes av forslaget for å bringe det mest mulig i samsvar med regelen i NEAFCs VME regulering artikkel 2, bokstav b. De eksisterende fiskeområdene er store og ressursene og dermed fiskeriaktiviteten varierer. Det er derfor nødvendig å ta hensyn til at et redskap kan ha vært vanlig i en nærmere avgrenset del av et eksisterende fiskeområde, men ikke i en annen del. Forslaget er dermed utformet slik at det gjelder også der redskap ønskes tatt i bruk i en annen del av et eksisterende fiskeområde. Det er ikke meningen at dette skal lede til søknadsplikt dersom forflytningen av redskapsbruken er liten. Områdene er som nevnt store og det er derfor forflytning av et visst omfang som må til. Det er imidlertid vanskelig å angi avstand eller andre konkrete avgrensningskriterier. At skjellskraping faller inn er klart, det er en aktivitet som ikke er vanlig i de områdene som forslaget her konkret omfatter.

Arealene som dekkes av forslaget

Areal nye fiskeområder

1	363 671 km^2
2	62 055 km^2
3	5 696 km^2
4	7 340 km^2
Til sammen	438 762 km^2

Areal stengte områder

1	44 km^2
2	40 km^2
3	179 km^2
4	349 km^2
5	320 km^2
6	1242 km^2
7	568 km^2
8	518 km^2
Til sammen	3260 km^2

Naturmangfoldlovens prinsipper for offentlig beslutningstaking
Reglene i §§ 7 – 10 gjelder i Norgens økonomiske sone, fiskerisonen ved Jan Mayen og i Fiskevernsonen ved Svalbard jf.naturmangfoldloven § 2, tredje ledd. Forslagets formål er å beskytte sårbare bunnhabitat som inntil nå ikke er gitt en hensiktsmessig beskyttelse. Virkningene for naturmangfoldet er dermed utelukkende positive og videre vurdering av prinsippene i §§ 8 – 10 er ikke nødvendig.

Virkeområde
Forskriftens slik den er utformet i dag omfatter ikke utenlandske fiskefartøyer i hele sitt geografiske virkeområde fordi virkeområdet ikke er gjort gjeldene for utenlandske fartøy slik havressurslovens §

5, første ledd, andre punktum krever. Skal forskriften oppnå sitt formål må den gjelde for alle som driver fiske i de områdene den gjelder. Virkeområdet foreslås derfor utvidet.

Økonomiske og administrative konsekvenser
Inndeling av området i nye og eksisterende fiskeområder er gjort basert på tidligere fiskeriaktivitet. Det har ikke vært fisket, annet enn helt unntaksvis, i områdene som blir nye fiskeområder. Forslaget har dermed ingen økonomiske konsekvenser for fiskeriene på den måten at områder som har vært fisket blir utilgjengelige. Forslaget vil få noen administrative og økonomiske konsekvenser dersom det blir interessant å fiske i de nye fiskeområdene. I henhold til planene for MAREANO kartleggingen fremover så skal det kartlegges i områder rundt Svalbard, herunder nord for Kong Karls land og forbi Kvitøya. Dette er områder det kan forventes at fisk blir mer tilgjengelig i på sikt. Kartleggingen vil bidra til kunnskap som kan redusere kostnadene knyttet til søknader om fiske i disse områdene.

De stengte områdene omfatter i all hovedsak områder som ikke eller bare i liten grad har vært fisket tidligere. Dermed vil konsekvensene for fiskeriene bli minimale. Det samlede arealet er også lite sammenlignet med det totale arealet i området som er tilgjengelig for fiske. Det er dermed ikke særlig relevant å regne med en eller annen tapt verdi for områder som ikke kan tas i bruk til fiske direkte, det vil si uten søknad.

For myndighetene vil forslaget ikke ha økonomiske konsekvenser utover det som allerede brukes i området på fiskerikontroll. Når det gjelder saksbehandling av søknader om fiske i et nytt fiskeområde så er det ingen saker så langt og det er dermed ikke grunnlag for konkrete analyser av kostnader. Det er imidlertid ingen grunn til å tro at antall saker blir høyt. Forslaget om søknadsplikt ved bruk av ny redskap i et eksisterende fiskeområde kan medføre noen saker uten at det er mulig å konkretisere ressursbruken. MAREANO kartleggingen og annen forsking og overvåkning som foregår for eksempel økotoktet, vil bidra med kunnskap som vil forenkle vurderingene også for myndighetene etter hvert som mer kunnskap blir tilgjengelig. Data som produseres kan fremstilles fortløpende for næringen gjennom kartløsningen som er laget til bruk i denne høringen.

Forslag
I forskrift om regulering av fiske med bunnredskap i Norges økonomiske sone, fiskerisonen rundt Jan Mayen og i fiskevernsonen ved Svalbard foreslås følgende endringer:

§ 1 endres til å lyde:

Formålet med denne forskrift er å beskytte sårbare bunnhabitat.

Forskriften gjelder ved fiske med bunnredskap i Norges territorialfarvann, Norges økonomiske sone inklusive fiskerisonen rundt Jan Mayen og fiskevernsonen ved Svalbard.

For fiske med utenlandsk fartøy gjelder forskriften i Norges økonomiske sone, inklusive fiskerisonen rundt Jan Mayen og i territorialfarvannet og fiskevernsonen rundt Svalbard.

§ 2 tittel endres til å lyde:

Definisjoner og avgrensning av områder

§ 2 bokstav b foreslås endret til å lyde:

b) *eksisterende fiskeområder, alle områder innenfor virkeområdet som ikke er omfattet av bokstav c. Kart over disse områdene finnes på hjemmesidene til Fiskeridirektoratet, www.fiskeridir.no.*

§ 2 bokstav c foreslås endret til å lyde:

c) nye fiskeområder, alle områder innenfor virkeområdet som er dypere enn 1000 meter samt følgende områder som er avgrenset av rette linjer mellom posisjoner angitt med koordinater i grader, minutter og sekunder (WGS 84), dybdekoter, kystlinje, grunnlinje, territorialgrense, grense mot andre nasjoner og internasjonalt farvann som nærmere angitt:

1. Nytt fiskeområde avgrenses slik:

1	*N 74°19'00.00''*	*Ø 06°23'00.00''*
2	*N 73°17'00.00''*	*Ø 14°27'00.00''*

Fra posisjon 2 følger avgrensingen 800 meters dyp til punkt 3

3	*N 80°02'00.00''*	*Ø 06°10'00.00''*
4	*N 80°05'00.00''*	*Ø 09°31'00.00''*
5	*N 80°30'00.00''*	*Ø 11°43'00.00''*

Fra posisjon 5 følger avgrensningen 800 meters dyp til delelinjen mot Russland og følger så videre yttergrensen for fiskevernsonen ved Svalbard tilbake til posisjon 1.

2. Nytt fiskeområde avgrenses slik:

1	*N 80°07'43.40''*	*Ø 17°42'43.93'' (grunnlinjepunkt: Langgrunnodden 2)*
2	*N 80°13'00.00''*	*Ø 17°52'00.00''*
3	*N 80°35'00.00''*	*Ø 16°44'00.00''*
4	*N 81°02'00.00''*	*Ø 19°05'00.00''*
5	*N 81°23'00.00''*	*Ø 34°59'25.42'' (på delelinjen)*

Avgrensningen følger delelinjen mot Russland til punkt 6

6	*N 80°34'01.61''*	*Ø 34°59'56.96'' (på delelinjen)*
7	*N 80°19'00.00''*	*Ø 33°26'00.00''*
8	*N 79°58'00.00''*	*Ø 34°01'00.00''*
9	*N 79°32'00.00''*	*Ø 30°31'00.00''*
10	*N 79°39'00.00''*	*Ø 27°59'00.00'' (på territorialgrensen)*

Avgrensningen følger territorialgrensen til punkt 11

11	*N 77°56'40.36''*	*Ø 25°54'00.00'' (på territorialgrensen)*
12	*N 77°56'40.36''*	*Ø 24°15'43.16'' (grunnlinjepunkt: Stonebreen (på isbre))*

Avgrensningen følger grunnlinjen til punkt 13

13	*N 77°35'40.78''*	*Ø 19°56'03.81'' (grunnlinjepunkt: Storfloskjeret)*
14	*N 77°22'00.00''*	*Ø 19°43'00.00'' (på territorialgrensen)*

Avgrensningen følger territorialgrensen til punkt 15

15	*N 76°58'06.11"*	*Ø 18°11'00.00" (på territorialgrensen)*
16	*N 76°58'06.11"*	*Ø 17°17'18.34" (grunnlinjepunkt: Davislaguna)*

Avgrensningen følger kystlinjen på østsiden av Spitsbergen til posisjon 17

17	*N 79°23'00.00"*	*Ø 18°51'00.00"*
18	*N 79°28'00.00"*	*Ø 20°00'00.00"*

Avgrensningen følger kystlinjen på sør-, øst og nordsiden av Nordaustlandet tilbake til posisjon 1.

Området avgrenset av rette linjer mellom følgende posisjoner nord for Kvitøya inngår ikke i dette nye fiskeområdet:

19	*N 80°20'00.00"*	*Ø 29°18'00.00"*
20	*N 80°49'00.00"*	*Ø 27°20'00.00"*
21	*N 80°58'00.00"*	*Ø 29°29'00.00"*
22	*N 80°27'00.00"*	*Ø 30°58'00.00"*

3. Nytt fiskeområde avgrenses slik:

1	*N 80°03'44.93"*	*Ø 16°14'23.64" (grunnlinjepunkt: Verlegenhuken)*
2	*N 80°03'00.00"*	*Ø 16°08'00.00"*
3	*N 80°15'00.00"*	*Ø 15°28'00.00" (på territorialgrensen)*

Avgrensningen følger territorialgrensen til posisjon 4

4	*N 80°06'00.00"*	*Ø 11°23'00.00" (på territorialgrensen)*
5	*N 79°46'05.38"*	*Ø 10°33'48.74" (grunnlinjepunkt: Ytterholmane N)*

Avgrensningen følger grunnlinjen til posisjon 6

6	*N 79°32'44.85"*	*Ø 10°38'38.64" (grunnlinjepunkt: Skjer V av Hamburgbukta 1)*

Avgrensningen følger kystlinjen østover tilbake til posisjon 1.

4. Nytt fiskeområde avgrenses slik:

Området omfatter territorialfarvannet rundt Kong Karls land.

Kart over disse områdene finnes på hjemmesidene til Fiskeridirektoratet, www.fiskeridir.no.

Nytt § 3, tredje ledd foreslås å lyde:

Reglene i § 4 gjelder dersom det skal benyttes bunnredskap som ikke er i vanlig bruk i det området det skal fiskes i. Det samme gjelder dersom bunnredskap brukes på måter som avviker vesentlig fra måten de brukes på til vanlig i det området det skal fiskes i.

Ny § 5 foreslås å lyde:

§ 5. Stengte områder

Fiske med bunnredskap er forbudt i områdene avgrenset av rette linjer mellom følgende posisjoner (jf. kartvedlegg):

Område 1		
1	*N 80°29'30.00''*	*Ø 16°03'00.00''*
2	*N 80°34'15.00''*	*Ø 15°45'30.00''*
3	*N 80°35'30.00''*	*Ø 15°58'20.00''*
4	*N 80°30'40.00''*	*Ø 16°14'20.00''*
Område 2		
1	*N 80°15'30.00''*	*Ø 16°36'00.00''*
2	*N 80°20'50.00''*	*Ø 16°22'00.00''*
3	*N 80°21'10.00''*	*Ø 16°33'40.00''*
4	*N 80°16'10.00''*	*Ø 16°48'00.00''*
Område 3		
1	*N 79°06'00.00''*	*Ø 25°44'00.00''*
2	*N 79°16'15.00''*	*Ø 25°44'00.00''*
3	*N 79°16'15.00''*	*Ø 26°38'00.00''*
Område 4		
1	*N 79°10'20.00''*	*Ø 29°36'00.00''*
2	*N 79°20'20.00''*	*Ø 29°36'00.00''*
3	*N 79°20'20.00''*	*Ø 30°30'00.00''*
4	*N 79°10'20.00''*	*Ø 30°30'00.00''*
Område 5		
1	*N 78°45'00.00''*	*Ø 07°55'30.00''*
2	*N 78°55'30.00''*	*Ø 07°55'30.00''*
3	*N 78°55'30.00''*	*Ø 08°41'00.00''*
4	*N 78°45'00.00''*	*Ø 08°41'00.00''*
Område 6		
1	*N 78°07'20.00''*	*Ø 27°52'30.00''*
2	*N 78°25'00.00''*	*Ø 27°52'30.00''*
3	*N 78°25'00.00''*	*Ø 29°32'20.00''*
4	*N 78°07'20.00''*	*Ø 29°32'20.00''*
Område 7		
1	*N 76°52'00.00''*	*Ø 26°58'00.00''*
2	*N 77°05'00.00''*	*Ø 26°58'00.00''*
3	*N 77°05'00.00''*	*Ø 27°54'00.00''*

4	*N 76°52'00.00"*	*Ø 27°54'00.00"*

Område 8

1	*N 76°54'20.00"*	*Ø 34°54'00.00"*
2	*N 77°06'40.00"*	*Ø 34°54'00.00"*
3	*N 77°06'40.00"*	*Ø 35°48'00.00"*
4	*N 76°54'20.00"*	*Ø 35°48'00.00"*

Gjeldene §§ 5 – 7 blir §§ 6 – 8

Høringsfrist

25. februar 2018

Med hilsen

Aksel Eikemo
direktør

Gunnstein Bakke
seniorrådgiver

Brevet er godkjent elektronisk og sendes uten håndskreven underskrift

Mottakerliste:

Fiskebåt	Røysegata 15	6003	ÅLESUND
Greenpeace-Norge	Postboks 33 Torshov	0412	OSLO
Havforskningsinstituttet	Postboks 1870 Nordnes	5817	BERGEN
Justis- og Beredskapsdepartementet	Postboks 8005 Dep.	0030	OSLO
Klima- og Miljødepartementet	Postboks 8013 DEP	0030	OSLO
Miljødirektoratet	Postboks 5672 Torgarden	7485	TRONDHEIM
Norges Fiskarlag	Postboks 1233 Torgarden	7462	TRONDHEIM
Norges Naturvernforbund	Mariboes gate 8	0183	OSLO
Norges Sjømatråd AS	Postboks 6176	9291	TROMSØ
Norsk Polarinstitutt	Framsenteret Postboks 6606 Langnes	9296	TROMSØ
Norske Sjømatbedrifters Landsforening	Postboks 639	7406	TRONDHEIM
Sjømat Norge	Postboks 5471 Majorstua	0305	OSLO
Stiftelse Wwf Verdens Naturfond	Postboks 6784 St Olavs Plass	0130	OSLO
Sysselmannen På Svalbard	Postboks 633	9171	LONGYEARBYEN
Utenriksdepartementet	Postboks 8114 DEP	0032	OSLO

Kopi til:

Fiskeridirektoratet Region Nord Ingrid Vikanes Kontrollseksjonen	Postboks 185 Sentrum	5804	BERGEN
Nærings- og fiskeridepartementet Reguleringsseksjonen	Postboks 8090 Dep	0032	OSLO

APPENDIX 2 PEER REVIEW REPORTS

Peer reviewer A

Summary of Peer Reviewer Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	**Yes/No** **YES**	**CAB Response**
Justification: The scores for each Principle are over 80 and for each Performance Indicator are over 60. There are some uncertainties in the information or the justifications used to score three of the Performance Indicators. However, resolving these uncertainties is unlikely to reduce the scores to a level that would reduce the PI scores to below 60 or the Principle scores to below 80.		No response required

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCR 7.11.1 and sub-clauses]	**Yes/No** **YES**	**CAB Response**
Justification: The conditions (specifically the timelines) relating to the Harvest Strategy and Harvest Control Rules PIs have been developed in line with revised guidance from the MSC, taking account of criteria that acknowledge the context and circumstances that will influence the achievement of SG80 outcomes within the life of the new certificate. The conditions for the Habitats Outcome and Habitats Management Strategy PIs now take account of MSC CR v.2.0 requirements relating to VMEs.		No response required

If included:

Do you think the client action plan is sufficient to close the conditions raised? [Reference FCR 7.11.2-7.11.3 and sub-clauses]	**Yes/No** **YES**	**CAB Response**
Justification: The client began work on the Harvest Strategy related conditions under the existing certification period – their action plan indicates they will continue to work with officials to build on progress and ultimately try to achieve the requirements set out in both conditions. In relation to the Habitats conditions, the clients acknowledge they will need the input and collaboration of other parties in order to achieve certain milestones. They also commit to taking action, depending on the results of investigative work, either through official management measures or by		No response required

implementing voluntary closures if indicated by the results of research.	

Performance Indicator Review

Please complete the appropriate table(s) in relation to the CAB's Peer Review Draft Report:

- For reports using one of the default assessment trees (general, salmon or enhanced bivalves), please enter the details on the assessment outcome using

- Table 7.
- For reports using the Risk-Based Framework please enter the details on the assessment outcome at table 8.
- For reports assessing enhanced fisheries please enter the further details required at table 9

Table 7 For reports using one of the default assessment trees:

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

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
2.1.3	Yes	Partially	NA	The justification for SIa mentions "*secondary species*" – this is irrelevant as the SI refers only to "main primary species".	Sentence amended.
2.2.1	Yes	Yes	NA	NA	
2.2.2	Yes	Yes	NA	NA	
2.2.3	Yes	Yes	NA	NA	
2.3.1	Yes	Partially	NA	The justification for PI 2.3.1b (last sentence) is not clear that there is a high degree of confidence that there are no significant detrimental "*direct*" effects of the UoA on ETP species.	Sentence amended.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
2.3.2	Unsure	Partially	NA	The certifier has given this PI a score of 95 and relied principally on Norwegian management strategy and measures to justify this score. There is an absence of mention in the justifications for any of the scoring issues under this PI of any Russian management measures relating to ETP in general or golden redfish in particular. This appears to be an inconsistency given that the overview of the client group fishery (p.27) suggests that in recent years over 80% of the target catch comes from the "Russian zone", suggesting that significant fishing effort by vessels in the UoC is directed in the Russian EEZ. The justification for the score of 95 should either elaborate on how the Norwegian management measures are relevant or serve as a proxy for management of ETP species when the client group fishery is operating in the Russian zone; or add additional justification citing specific Russian zone management measures that may be considered applicable to ETP and/or golden redfish.	Additional information has been added to PI 2.3.2.a regarding the Russian red book of species in the Murmansk region and also about Russian Regulation 414/2014 (article 24), which establishes mandatory move on rules when there are 300 individuals of redfish in a tonne of shrimp. Additional information regarding these move on rules has also been added to PI 2.3.2.d. Scoring remains unchanged.

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

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
3.2.1	Yes	Yes	NA	NA	
3.2.2	Yes	Unsure	NA	The assessment team has given a score of 80 for scoring issue (SI) 3.2.2a (There are established decision-making process that result in measures and strategies to achieve the fishery-specific objectives) – yet in the justification, in relation to fishing in international waters, the team cites decision-making processes for fisheries *other* than the shrimp fishery that *could* be used to develop measures and strategies to achieve the objectives set for the fishery. This justification suggests that the fishery just falls short of meeting the 80 score for this one SI, despite the remaining areas of this complex jurisdictional mix clearly meeting the requirements to score 80 for this particular SI under 3.2.2.	The rationale for 3.2.2a has been amended. It is now stated that established decision making processes exist within NEAFC and that these *can* be used for the shrimp fishery. The score of 80 is maintained.
3.2.3	Yes	Yes	NA	NA	

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

Table 8 For reports using the Risk-Based Framework:

Performance Indicator	Does the report clearly explain how the process(es) applied to determine risk using the RBF has led to the stated outcome? Yes/No	Are the RBF risk scores well-referenced? Yes/No	Justification: Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response:
1.1.1			***NA***	
2.1.1				
2.2.1				
2.3.1				
2.4.1				
2.5.1				

Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary) can be added below and on additional pages

The following general comments point to omissions, inconsistencies or editorial issues in the Peer Review Draft Report. None of the comments in and of themselves suggest that the overall conclusion to re-certify the fishery is unjustified or that the conditions are incorrect.

Page 44:
The external peer review of the 2016 NIPAG stock assessment by the University of Maine Review Group recommended that a transition *"towards a better modelling framework should be considered at the next ICES benchmark".* This suggests there may be issues or flaws in the model/assessment methodology. Does the assessment team have a view about whether these issues would significantly alter their understanding or confidence in the stock status results (upon which the team has relied for high scoring of the fishery on the Stock Status PI)? There seems to be some exposition of this point in the Scoring Table, but it might be worth a sentence or two in the general background.
Assessment team response. The external peer review highlighted some areas in which the assessment methodology could be improved. However the peer review did not consider these areas to be serious flaws in the methodology and recommended that they be considered at the next ICES benchmark. The peer review did not suggest that overall evaluation of stock status would be significantly changed by making any agreed minor changes to the methodology. Some text has been added to section 3.

Page 49 (last paragraph) – p.50 (first paragraph):
This is a much more succinct summary of the UoC, which is easier to understand than previous detailed versions earlier in the report. Having said that, it seems repetitive and unnecessary in this section.
Assessment team response. It remains as a reminder to the reader.

Page 51 – in the paragraph beginning 'Table 14…' repeats the same information again. Unnecessary.
Assessment team response. Sentence modified.

Pages 48-55 // Scoring Table for PIs 2.1.1-2.1.3:
There appears to be a significant inconsistency between these two sections of the report in terms of what is described in the general description (pp. 48-55) as minor primary and minor secondary species and the Scoring Tables. Four species are scored in the scoring tables as minor primary species (beaked redfish; oceanic cod; haddock; and Greenland halibut). Yet in the general description on pp 51-52 only beaked redfish is discussed or mentioned. The explanation for considering the designation of beaked redfish (and presumably the other three unmentioned species) as minor primary is poorly worded (and incorrect): It is not SA3.4.1 that states *when* a species is considered 'main', it is SA3.4.2

- The passage should clarify that – as beaked redfish (and probably oceanic cod, haddock and Greenland halibut) do not meet the requirements set out in SA3.4.2 it/they can be considered "minor primary" in accordance with SA3.4.5 of MSC CR v2.0.

Similarly, the explanation for considering polar cod as "minor secondary" could be better worded.
Assessment team response. Sentence modified regarding the main or minor consideration. Additional information has been added in the background section on the stock status of cod, haddock and Greenland halibut.

Page 55:
Figure 24 legend should clarify that the distribution of polar cod is in red and shrimp fishery is in green (or vice versa) since the legend is in Norwegian it is not immediately obvious.
Assessment team response. Amended.

Page 61:
ETP species – second paragraph – it would be easier to understand if the Latin species name (*Sebastes norvegicus*) were inserted immediately after the first mention of golden redfish.
Assessment team response. Inserted.
Third paragraph – several spelling mistakes to tidy up, and the phrase "*the shrimp fishery move on…"* should refer to 'shrimp vessels' moving on?
Assessment team response. Modified.
Fourth paragraph – clarify that the landing obligation mentioned here is the Norwegian landing obligation (if that is what is meant) and presumably only valid in the Svalbard FPZ.
Assessment team response. Sentence clarified regarding the Norwegian landing obligation and the Russian prohibition of discarding of species of managed species.

Page 73:
First paragraph – tidy up spelling mistakes.
Assessment team response. Amended.

Page 74:
Bullet point on Russian fishing regulations – is the point being made here about sponges or corals – as written, it does not make sense.
Assessment team response. Sentence clarified. Russian fishing regulation does not mention either sponges or corals (however corals are not expected in Russian jurisdiction.

Bullet point commencing "*It is noteworthy…"* – this statement is about the cod fishery in areas mainly outside the UoA – what is actually noteworthy or even relevant about this industry voluntary arrangement for the cold water prawn fishery? It would appear to be a partial repeat of something that is more detailed in the scoring table under PI 2.4.2d where the team explicitly discounts this voluntary agreement as having any relevance to the fishery under assessment at all. Therefore, in the summary it is neither accurate, noteworthy or relevant. I suggest deleting the bullet point altogether.
Assessment team response. The bullet point remains for clarification that this agreement exists. The wording has been modified from "it's noteworthy" to "While not relevant to the shrimp fishery, .."

Principle 3 – Section 3.6:

A general comment – specific information about Russian management is very patchy or absent from the general description (note, in the Scoring Table there is a wealth of information used to justify scores, which serves to highlight the inconsistency in section 3.6).
Assessment team response. The observation is taken into account. More information that was already provided in the scoring tables is now also included in section 3.6.

Page 89:
What functions/roles do the two bulleted Russian organisations perform? The others listed have roles included in parentheses. (And there appears to be a good list for the Russian organisations to draw from on p.206 under PI 3.1.2)
Assessment team response. The functions of these organisations have now been included.

Page 90:
How do Russian authorities communicate with UoC vessels (particularly as they would be designated as 'foreign' vessels)?
Assessment team response. The vessels have to report to Russian fisheries inspection when they want to enter the Russian zone. They have to pick up an observer before they start fishing in Russian waters. They will be communicate by email and phone.

Page 91:
Are there any Russian regulations relating the UoC vessels?
How does the Russian Ministry communicate about the annual quota – to whom/which agency or licensees?

Are the vessels allocated quota? Or is there a general tally kept somehow? How is it reconciled?
Do the vessels have to be licensed?
Do the vessels have to report electronically / paper logbooks, to which authority? How frequently?
Assessment team response. The procedures are described in general in paragraph 3.6.7. Russian quota are allocated to flag states and quota uptake is monitored by the Russian authorities by logbook and by flag states by electronic logbook.

Pages 92-94:
General consultation by the Russian authorities with foreign vessels – is there any communication about management mechanisms, measures, science etc? (PI 2.1.2b. appears quite detailed about this – perhaps a sentence or two to summarise would be sufficient to build a better general picture under Section 3.6).
Assessment team response. The consultation procedures that were described in the scoring tables (PI 3.1.2b) are now included.

Page 95:
MCS mechanisms – there is no mention of Russian Federation mechanisms until the reference to inspections – in the scoring table there is a mention of vessels fishing in the Russian zone requiring Coast Guard inspectors on board (but unclear as to whether these are Norwegian coast guard inspectors). No mention of Russian mechanisms on page 95 under: VMS; Catch control/logbooks; Monitoring of fishing days (if relevant); or Monitoring of quota/fishing effort in Russian EEZ generally or specifically for UoC vessels.
Assessment team response. The inspectors that have to be on board in Russian waters are Russian. This is now included in the scoring table. Additional information is added on VMS, catch control and logbooks with regards to Russian waters.

Page 96:
Citing Hønneland's 18-year-old study to support the conclusion is slightly tenuous, given that is virtually a generation ago. It may be wise to include a statement about why the Hønneland's conclusions still hold true today. Even so, a better (more clear) way to summarise might be:

> "*…neither surveillance nor sanctions were decisive issues influencing compliant versus non-compliant behaviour, but the existence of a strong sense that there was a legitimate framework of regulation, authority and procedures resulted in largely compliant behaviour for most fishers most of the time."*

The last sentence of the paragraph does not make sense – not in my reading of the source material – perhaps it should say 'risks *to fishers* of non-compliance were considered high'.
Assessment team response. This advice is taken over and the following sentence was added. " It could be added that discussions with Faroese authorities and fishermen has showed that there still exists a strong sense that there is a rigorous framework of regulation, authority and procedures results in largely compliant behavior with existing regulations. "

Page 97:
Evaluation – no mention of Russian Federation mechanisms for evaluation.
Assessment team response. The information that was provided concerning Russia in the rationale for PI 3.2.4 is now also included in paragraph 3.6.9.

Peer reviewer B

Summary of Peer Reviewer Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	**Yes**	**CAB Response**
Justification: I have reviewed the report and the scoring table in detail and made appropriate comments in the table below. While I agree with the scores given, in a few cases I feel more information needs to be added to a few sections to support the rationale.		Additional information has been added to the rationales where required in response to the peer reviewer's comments.

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCR 7.11.1 and sub-clauses]	**Yes**	**CAB Response**
Justification: The conditions and recommendations are appropriate. However, there was a recommendation in the initial assessment 'that an observer programme is introduced for the Faroese fleet in the Barents Sea and Svalbard area to collect data on the catch and discards of shrimps and other species, and obtain representative samples of the size and sex distribution of shrimps.' This should be reinstated.		The recommendation for the introduction of an observer programme in the Faroese fleet has been reinstated primarily because the Faroese vessels fish regularly in the Russian zone and information on catch composition from that area would be desirable.

If included:

Do you think the client action plan is sufficient to close the conditions raised? [Reference FCR 7.11.2-7.11.3 and sub-clauses]	**Yes**	**CAB Response**
Justification: The client action plan does seem to cover the substance of the conditions. However, the milestones and actions require the involvement of other entities such as NEAFC which has already resulted in the extension of the deadline for certain conditions.		No further response required.

Performance Indicator Review

Please complete the appropriate table(s) in relation to the CAB's Peer Review Draft Report:

- For reports using one of the default assessment trees (general, salmon or enhanced bivalves), please enter the details on the assessment outcome using

- Table 7.

- For reports using the Risk-Based Framework please enter the details on the assessment outcome at Table 8.

Table 9 For reports using one of the default assessment trees:

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
Example:1.1.2	*No*	*No*	*NA*	*The certifier gave a score of 80 for this PI. The 80 scoring guidepost asks that there is evidence that rebuilding strategies are rebuilding stocks, or it is highly likely based on simulation modelling or previous performance that they will be able to rebuild the stock within the timeline specified. However, no timeline has been specified based on previous performance, or simulation models.*	
1.1.1	Yes	Yes	N/A	As there is a high degree of certainty that the stock is above the point where recruitment would be impaired, the score of 100 is justified. Annual assessments of stock status conclude that stock biomass has been well above the implicit target reference point of Bmsy, however no specific values for reference points are provided in the stock assessment.	No response required.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
1.1.2	N/A	N/A	N/A	N/A	
1.2.1	Yes	Yes	Yes	This condition was raised during the initial certification and was not met. Due to exceptional circumstances the deadline has been extended. No additonal time beyond this should be given.	No response required.
1.2.2	Yes	Yes	Yes	This condition was raised during the initial certification and was not met. Due to additional flexibiltity in the MSC rules the deadline has been extended. No additonal time beyond this should be given.	No response required.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
1.2.3	Yes	Yes	N/A	The rationale supports the score. However, there was a recommendation in the initial assessment 'that an observer programme is introduced for the Faroese fleet in the Barents Sea and Svalbard area to collect data on the catch and discards of shrimps and other species, and obtain representative samples of the size and sex distribution of shrimps.' This should be reinstated.	The recommendation has been reinstated primarily because the Faroese vessels fish regularly in the Russian zone and information on catch composition from that area would be desirable.
1.2.4	Yes	Yes	N/A	The rationale supports the score.	
2.1.1	Yes	Yes	N/A	The rationale supports the score.	
2.1.2	Yes	Yes	N/A	The rationale supports the score.	
2.1.3	Yes	Yes	N/A	The rationale supports the score.	

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
2.2.1	Yes	Yes	N/A	The rationale supports the score	
2.2.2	Yes	Yes	N/A	The rationale supports the score. However, under guidepost B, I think it would make a better point if you stated here the number of vessels that make up the Norwegain fleet to compare it to the six captains or companies that are fined annually.	The text has not been changed. The 6 captains or companies fined annually should be compared with the 2000 inspections carried per year, making a ratio of 0.3% of the inspections resulting in a fine. In any case, according to https://www.fiskeridir.no/English/Fisheries/Statistics/Fishermen-fishing-vessels-and-licenses (information on active registered vessels), for 2016 there were 5200 registered vessels in Norway (all fleets).
2.2.3	Yes	Yes	N/A	The rationale supports the score	

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
2.3.1	Yes	No	N/A	There is a Zero TAC for redfish and as mentioned elsewhere in the report the by-catch of redfish is limited to 3 fish per 10 kg of shrimp (or 300 fish per tonne in the Russian EEZ) and, should this limit be exceeded, vessels are required to move to another area. From the rationale it is not clear if Redfish bycatch are within the limits described.	The team had no access to records on how many times vessels move in order to avoid the catch of golden redfish or other juvenile fish. However the different consulted management authorities (this is, the Norwegian Directorate of Fisheries, in charge of enforcement of the fishery together with Norwegian Coast Guard and the different flag vessels management authorities (Faroese, Danish or Lithuanian)) confirmed that there are no infractions reported as regards the bycatch limit for ETP species. However the assessment team did not have access to Russian enforcement authorities to verify that limits were not exceeded.
2.3.2	Yes	Yes	N/A	The rationale supports the score	
2.3.3	Yes	Yes	N/A	The rationale supports the score	

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
2.4.1	No	Yes	Yes	While the rationale does support the score I think more information needs to be given about the design of the trawl (Which is given in background section 3.3.3.3) in order to show that it is designed in a way to minimize harm to the habitat.	Some information on the gear has been added to the rationale for PI 2.4.1.a.
2.4.2	Yes	Yes	Yes	The rationale supports the score	
2.4.3	Yes	Yes	N/A	The rationale supports the score	
2.5.1	No	Yes	N/A	The rationale broadly supports the score but the low levels of bycatch and discards could also be mentioned.	Information on the low level of bycatch and discards has been added to the rationale.
2.5.2	Yes	Yes	N/A	The rationale supports the score	
2.5.3	Yes	Yes	N/A	The rationale supports the score	

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response
3.1.1	Yes	Yes	N/A	The rationale supports the score	
3.1.2	No	Mostly yes	N/A	100a does not mention the role that the EU holds here, yet it is mentioned in 3.1.1.	The rationale for 3.1.2 is amended. The involvement of the EU and its organisations is now also mentioned.
3.1.3	Yes	Yes	N/A	The rationale supports the score	
3.2.1	Yes	Yes	N/A	The rationale supports the score	
3.2.2	Yes	Yes	N/A	The rationale supports the score	
3.2.3	Yes	Yes	N/A	The rationale supports the score	
3.2.4	No	Mostly yes	N/A	Russian and NEAFC fishery-specific mangement mechanisms are not mentioned in the rationale under scoring issue a.	The rationale has been amended. The mechanisms that are in place for the review of the Russian and NEAFC management systems are now included. It is also more clearly explained why SG100a is not met.

Table 10 For reports using the Risk-Based Framework:

Performance Indicator	Does the report clearly explain how the process(es) applied to determine risk using the RBF has led to the stated outcome? Yes/No	Are the RBF risk scores well-referenced? Yes/No	Justification: Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.	CAB Response:
1.1.1				
2.1.1				
2.2.1				
2.3.1				
2.4.1				
2.5.1				

Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary) can be added below and on additional pages

My review is based on a reading of the Peer Review Report. This is a competent and comprehensive assessment of the Faroe Islands North East Arctic Cold Water Prawn Fishery against the MSC Principles and Criteria for Sustainable Fisheries. The Report is well presented and provides an authoritative overview of the fishery and the issues that relate to the three MSC Principles. I agree with the majority of comments and scoring in the Report. The conclusions are generally compatible with previous assessments of fisheries involving the catch of Barents Sea prawn and differences are well accounted for. Some more information should be added to more fully justify certain scores as indicated.

I have a few minor comments:
Pg. 73 'Trawling is generally forbidden within the 12 nautical miles outside the baseline of the Norwegian EEZ (however this limit is sometimes set at 6 nautical miles in certain areas around Svalbard). The limit is set by Norwegian authorities depending on the topography and biology of the seafloor.' This sentence doesn't make sense to me, is trawling forbidden within or outside the 12 nautical miles?
Assessment team response. In general, trawling is forbidden in the area which is between the coastal baseline and the next 12 nautical miles (sometimes 6 nautical miles in the Svalbard area). The distance between the coast and the baseline depends on the topography of the coast but is generally small. Answering the peer reviewer's question, trawling is generally forbidden within the 12 (sometimes 6) nautical miles.

Pg. 87. Under Management Objectives for the EU the 2002 reform of the CFP is mentioned but not the 2014 reform. Also there is very limited information on the Russian management objectives.
Assessment team response. The 2014 reform of the CFP and the key changes resulting from this reform are now included in the text.

Pg. 92 Under the section on consultation there is not the same level of detail for all management systems involved in the fishery. There is very little detail on the EU which is located under the Norway heading. There is no information for Russia.
Assessment team response. Additional information is now provided concerning the consultation processes in the EU and Russia. Concerning Russia the information that was provided in the rationale for PI 3.1.2. is now also included in paragraph 3.6.6.

Pg. 95 Under the section on Monitoring, Control and Surveillance (MCS) There is very limited and unclear information under the headings: 'NEAFC inspections' and 'EU control'. Numbers of inspections and levels of non-compliance found should be included in the information here.
Assessment team response. Additional information is now provided to explain how joint deployment plan (JDP) can be operated in international waters where NEAFC measures management measures apply. It is also described that a JDP has not been operated for the Loop Hole in the past years. So there is basically no inspection by NEAFC or EU. The inspections are carried out by Russia and Norway.

Pg. 96 Limited information was supplied about the Faroese and Lithuanian sanctions and fines that could be applied to combat non-compliance. Also no information was given about Norwegian and Russian sanctions and fines.
Assessment team response. It is added to the text in paragraph 3.6.7 that sanctions in Faroe Islands or Lithuania can be a fine or withdrawal of the fishing license. However on the first sentences of paragraph 3.6.7 it is already mentioned that: "Vessels can be, and are, warned, fined, have gear confiscated and licences suspended or withdrawn for non-compliance."

Pg. 97. Under the heading on Evaluation, no information was supplied on the evaluation system that reviews the Russian management system.

Assessment team response. The information that was provided concerning Russia in the rationale for PI 3.2.4 is now also included in paragraph 3.6.9.

Pg.113 under Eligibility date 'product' in the first line should be replaced with 'cold water prawn' or whatever is appropriate. On the 6th line 'Norway' should be replace with 'Faroe Islands'
Assessment team response. Thanks for the input. The report is amended accordingly.

Some other typos were found within the report which I'm sure will be found by the assessment team before the final report.

APPENDIX 3 STAKEHOLDER SUBMISSIONS

1. The report shall include: a. All written submissions made by stakeholders during consultation opportunities listed in FCR 7.15.4.1. b. All written and a detailed summary of verbal submissions received during site visits regarding issues of concern material to the outcome of the assessment *(Reference FCR 7.15.4.2)* c. Explicit responses from the team to stakeholder submissions included in line with above requirements *(Reference: FCR 7.15.4.3)*

No written submissions were received from stakeholders.

(REQUIRED FOR FR AND PCR)

2. The report shall include all written submissions made by stakeholders about the public comment draft report in full, together with the explicit responses of the team to points raised in comments on the public comment draft report that identify: a. Specifically what (if any) changes to scoring, rationales, or conditions have been made. b. A substantiated justification for not making changes where stakeholders suggest changes but the team makes no change. • • *(Reference: FCR 7.15.5-7.15.6)*

APPENDIX 4 SURVEILLANCE FREQUENCY

There are no reasons why there should be any reduction from the default surveillance level (Level 6).

Table 1 Surveillance level rationale

Year		Surveillance activity	Number of auditors	Rationale
1		*On-site audit*	*2 or 3 auditors on site.*	*There are 4 conditions on this fishery, all of which require feedback from various stakeholders including the management authorities in addition to the Client, and it is considered essential to hold the surveillance audit on-site in year 1 with the option to review in later years.*

Table 2 Timing of surveillance audit

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
1	*Expected December 2018*	*December 2019*	*One calendar year after certification.*

Table 3 Fishery Surveillance Program

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 6	*On-site surveillance audit*	*On-site surveillance audit*	*On-site surveillance audit*	*On-site surveillance audit & re-certification site visit*

APPENDIX 5 OBJECTIONS PROCESS

(REQUIRED FOR THE PCR IN ASSESSMENTS WHERE AN OBJECTION WAS RAISED AND ACCEPTED BY AN INDEPENDENT ADJUDICATOR)

The report shall include all written decisions arising from an objection.

(Reference: FCR 7.19.1)

About DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter and greener.