MSC FISHERY ASSESSMENT REPORT

FINAL REPORT

RUSSIAN FEDERATION BARENTS SEA COD AND HADDOCK

CLIENTS: ZAO STRELETS AND ZAO ERIDAN

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Client :ZAO Strelets, ZAO Eridan

Determination Phases/Type of report:

☐ Preliminary Draft Report (Client's review)
☐ Peer Review Report
☐ Public Comment Draft Report (Stakeholders review)
☒ Final Report
☐ Public Certification Report

The objective of this assessment is the initial certification assessment of the Russian Federation Barents Sea Cod and Haddock Fishery against the Marine Stewardship Council Principle and Criteria for Sustainable Fisheries. The scope of certification covers the Russian Federation Barents Sea Cod (*Gadus Morhua*) and Russian Federation Barents Sea Haddock (*Melanogrammus Aeglefinus*) fisheries in ICES Sub-areas I and II using bottom trawl as harvesting method.

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Report title:
MSC Fishery assessment report: Russian Federation Barents Sea cod and haddock

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Work verified by:
NA

Key words:

cod

haddock

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CONTENT

GLOSSARY

ACOM	(ICES) Advisory Committee
AFWG	(ICES) Arctic Fisheries Working Group
BBTU	The Barents and White Sea Territorial Administration of the Federal Fisheries Agency
CAB	Conformity Assessment Body
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPUE	Catch per unit effort
CR	Certification Requirements
DNV	Det Norske Veritas
EEZ	Exclusive Economic Zone
ETP	Endangered, Threatened and Protected
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FFA	Federal Fisheries Agency of Russian Federation
FPZ	Fishery Protection Zone
HCR	Harvest Control Rule
ICES	International Council for the Exploration of the Sea
IMR	Institute of Marine Research, Norway
ISBF	Introduced Species Based Fisheries
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unregulated and Unreported
JNRFC	Joint Norwegian Russian Fisheries Commission
JSC	Joint Stock Company
LTL	Low Trophic Level
MSE	Management Strategy Evaluation
NAFO	Northwest Atlantic Fisheries Organisation
NEAFC	North East Atlantic Fisheries Commission

NAMMCO	North Atlantic Marine Mammal Commission
NGO	Non - Governmental Organization
MSC	Marine Stewardship Council
OSPAR	Oslo – Paris Convention. The Convention for the Protection of the Marine Environment of the North-East Atlantic.
PI	Performance Indicator
PINRO	Polar Research Institute of Marine Fisheries and Oceanography, Russia
PISG	Performance Indicator Scoring Guideposts
PSC	Port State Control
REZ	Russian Economic Zone
SG	Scoring guidepost
SSB	Spawning Stock Biomass
TAC	Total Allowable Catch
UoC	Unit of Certification
UNLOSC	United Nations Law of the Sea Conference
UK	United Kingdom
VME	Vulnerable marine ecosystems
VMS	Vessel Monitoring System
XSA	Extended Survivor's Analysis
WWF	World Wildlife Fund

LIST OF SYMBOLS & 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_{pa} Precautionary biomass below which spawning stock biomass (SSB) should not be allowed to fall to safeguard it against falling to Blim.

$B_{trigger}$ Value of SSB that triggers a specific management action

F Instantaneous rate of fishing mortality

F_{lim} Exploitation rate that is expected to be associated with stock 'collapse' if maintained over a longer time (precautionary reference point).

F_{max} F where total yield or yield per recruit is highest

F_{msy} F giving maximum sustainable yield.

F_{pa} Precautionary buffer to avoid that fishing mortality at Flim.

MSY Maximum Sustainable Yield

LIST OF FISH SPECIES, MARINE MAMMALS, BIRDS AND OTHER MARINE ORGANISMS

Common name	Latin name
Angel shark	*Squatina squatina*
Anglerfish	*Lophius piscatorius*
Arctic cisco	*Coregonus autumnalis*
Atlantic halibut	*Hippoglossus hippoglossus*
Atlantic puffin	*Fratercula arctica*
Atlantic salmon	*Salmo salar*
Atlantic Wolffish	*Anarhichas lupus*
Basking shark	*Cetorhinus maximus*
Beaked redfish	*Sebastes mentella*
Black guillemot	*Cepphus grylle*
Black-legged kittiwake	*Rissa tridactyla*
Blue ling	*Molva dypterygia*
Blue skate	*Dipturus batis*
Blue whale	*Balaenoptera musculus*
Bowhead whale	*Balaena mysticetus*
Brittlestars	*Ophiura sarsi*
Chimera	*Chimaera monstrosa*
Cod (North East Arctic)	*Gadus morhua*
Common guillemot	*Uria aalge*
Common ling	*Molva molva*
Common seal	*Phoca vitulina*
Corals	*Lophelia petusa*
Deep Sea Sponges	*Geodia spp, Stelletta spp, Tethya citrina, Thenea muricata*
European eel	*Anguilla anguilla*
European plaice	*Pleuronectes platessa*

Fin whale	*Balaenoptera physalus*
Golden redfish	*Sebastes marinus*
Greenland halibut	*Reinhardtius hippoglossoides*
Grenadier	*Macrouridae spp*
Haddock (North East Arctic)	*Melanogrammus aeglefinus*
Harp Seals	*Pagophilus groenladicus*
Hooded seal	*Cystophora cristata*
Humpback whale	*Megaptera novaeangliae*
Lumpfish	*Cyclopterus lumpus*
Minke whale	*Balaenoptera acutorostrata*
Mussel	*Modiolus modiolus*
Northern Wolffish	*Anarhichas denticulatus*
North Atlantic Right whale	*Eubalaena glacialis*
Narwhal	*Monodon monoceros*
Plaice	*Pleuronectes platessa*
Porbeagle	*Lamna nasus*
Razorbill (Svalbard)	*Alca torda*
Sabine's gull (Svalbard)	*Xema sabini*
Saithe (North East Arctic)	*Pollachius virens*
Sei whale	*Balaenoptera borealis*
Skate	*Not identified to species*
Spiny dogfish	*Squalus acanthus*
Spotted Wolffish	*Anarhichas minor*
Shrimp	*Sabinea septemcarinata*
Starfish	*Ctenodiscus crispatus*
Starry ray	*Amblyraja radiate*
Steller's eider	*Plysticta stelleri*
Squid	*Not identified to species*

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Walrus (Svalbard)	*Odobenus rosmarus*
Whelk	*Pyrulofosus pyrulofosus*
White beaked dolphin	*Lagenorhynchus albirostris*

MSC FISHERY ASSESSMENT REPORT

1 EXECUTIVE SUMMARY

This report provides information on the assessment of the Russian Federation Barents Sea Cod and Haddock Fishery for the clients ZAO Eridan and ZAO Strelets against the Marine Stewardship Council's Principles and Criteria for Sustainable Fishing. The report is prepared by Det Norske Veritas Certification AS. The assessment team used the default assessment tree as defined in the MSC Certification Requirements v1.2.

This assessment as of 02.04.2014 is limited exclusively to the client's fishery and their affiliated companies as specified in the section 3.2.2 of this report.

1.1 Assessment timeline

Announcement of Main Assessment:	21 March 2013
Site Visit and Stakeholder Consultation:	13– 17 May 2013
Expected Date of Certification:	March 2014
The original target Eligibility date:	16 May 2013
The revised target Eligibility date[1]:	1 August 2013

1.2 Assessment team

Name	Role
John Nichols	Expert for Principle 1
Mike Pawson	Expert for Principle 2
Geir Hønneland	Expert for Principle 3
Anna Kiseleva	Lead Auditor and Team Leader, DNV

1.3 Scores for separate Principles

Final Principle Scores Cod

Principle	**Score**
Principle 1 – Target Species	98,.1 PASS
Principle 2 – Ecosystem	87.0 PASS
Principle 3 – Management System	89.9 PASS

[1]The target Eligibility date was moved from 16th of May 2013 till 1st of August 2013, in line with the revised assessment timeline. The target Eligibility date is set to six months prior to the publication of the most recent Public Comment Draft Report.

Final Principle Scores Haddock

Principle	Score
Principle 1 – Target Species	91.9 PASS
Principle 2 – Ecosystem	87.0 PASS
Principle 3 – Management System	89.9 PASS

Table 1Final Principle Scores

1.4 Main strengths and weaknesses of the client's operation

1.4.1 Strengths

The attributes of the Russian Federation Barents Sea Cod and Haddock Fishery that are helpful in achieving sustainability and thereby complying with MSC Principles and Criteria for Sustainable Fisheries are:

- The cod and haddock stocks in the North East Arctic are well above Bpa. Fishing mortality for cod is currently below Fpa and well below Flim. Fishing mortality for haddock has now fallen just below Fpa and well below Flim.
- The NEA cod and haddock have been subject to intense research, monitoring and stock assessments over the past 60 years. Thus, there is a significant body of reference data on life history, fecundity, spawning, distribution, growth, length at age, etc. all of which contribute to reliable stock assessments.
- Norway and Russia maintain a robust and effective control and surveillance regime through the joint arrangements (JNRFC), which ensures a high degree of compliance across all fishing fleets participating in this fishery.
- The harvesting strategy is designed to respond to the current status of the cod and haddock stocks and to maintain stocks at a level that supports "high long-term yield".
- Through the JNRFC, important research areas are identified and followed up resulting in a strong movement towards an ecosystem-based approach to the management of the fishery.
- Research is on-going in plotting the distribution of sponges, corals and other vulnerable marine habitats in the Barents Sea (MAREANO project). Some sensitive habitat areas have been identified and these areas closed to fishing.
- Strict adherence of skippers to laws, regulations and requirements
- Pro-active cooperation with stakeholders, incl. green NGOs. E.g. in august 2013, the Client Group and WWF has signed an agreement on cooperation in environmental protection and protection of marine bio-resources.

1.4.2 Weaknesses

- The main weakness of the Russian Federation Barents Sea Cod and Haddock fishery in the context of fully meeting the MSC Principles and Criteria for Sustainable Fisheries is that there is at present no statutory requirement from the Norwegian and Russian authorities for vessels to record interactions (fatal or otherwise) with seabirds or marine mammals. Thus, reliable records of contact and potential impact on ETP species are not available other than through the existing MSC logbooks.

- The problem of illegal, unregulated and unreported (IUU) catches has been a major problem in the past in both fisheries, but since 2008 the practice appears to have ceased. Nevertheless the unreliability of past estimates of the catch could still be affecting the current assessment.

- Incomplete survey coverage in recent years has generated some uncertainty in relation to the resultant tuning indices for both cod and haddock assessments. In 2012 the spatial coverage in the joint winter survey was incomplete beacuse of technical problems with a Norwegian survey vessel.

- The consultation process in the Russian Federation Barents Sea Cod and Haddock fishery provides opportunity for all interested and affected parties to be involved; cf. information on the public chambers at different levels. Meetings are publicly announced and all interested parties can attend, including NGOs and the media. However, this stops short of management authorities encouraging and actively facilitating their effective engagement.

1.5 Determination with supporting rationale

The Russian Federation Barents Sea Cod and Haddock 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. The assessment team therefore recommends the certification of the Russian Federation Barents Sea Cod and Haddock Fishery for the clients ZAO Strelets and ZAO Eridan. This decision as of 02.04.2014 is limited exclusively to the client's fishery and their affiliated companies as specified in the section 3.2.2 of this report.

1.6 Conditions for certification and time-scale for compliance

The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 80 against any MSC Criteria. Neither conditions, nor client action plan are therefore required prior to certification being granted.

Recommendation 1

Performance Indicator 2.4.2	**There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.**
Score	80
Rationale	Bottom trawl gear has the potential to cause habitat damage. Though the available information suggests that this is 'highly unlikely' in this fishery, due mainly to the way in which the fishery operates, management and mitigation efforts should be tailored accordingly.
Recommendation	There are a number of potential approaches to further reduce the likelihood of serious or irreversible harm to habitats, and the clients are encouraged to actively pursue: » the possibility to switch to lighter / less impacting fishing gears, such as semi-pelagic gears for targeting demersal species or other models of trawls/parts of gear which can reduce the impact on benthos. » collect information on fishing patterns relative to habitat areas to help explore potential for further strategic closed areas – or fishing areas where lighter gears are possible. » continue using the navigation systems in order to completely avoid areas with sponges and corals.

Recommendation 2

Performance Indicator 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**
Score	90
Rationale	The consultation process provides opportunity for all interested and affected parties to be involved; cf. information on the public chambers at different levels in a) and b) of this SG. Meetings are publicly announced and all interested parties can attend, including NGOs and the media. However, this stops short of management authorities encouraging and actively facilitating their effective engagement.
Recommendation	The clients shall facilitate the communication between NGOs and organisations involved in the fishery management system.

Recommendation 3

Performance Indicators 2.2.3 2.3.3 2.4.3	**PI 2.2.3** Information on the nature and the amount of by-catch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage by-catch. **PI 2.3.3** Relevant information is collected to support the management of fishery 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. **PI 2.4.3** Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.
Score	2.2.3: 90 2.3.3: 80 2.4.3: 90
Rationale	The vessels currently in the UoC have previously completed MSC logbooks under another Certificate, in which information on catches of ETP species, discarded by catch and other indicators of interactions with benthos and habitat is recorded that is not found in skippers' logbooks or landings declarations. This information is important when environmental and ecosystem impacts are being evaluated.
Recommendation	The clients shall continue to use MSC logbooks, specifically to collect information on ETP species, discards and habitat interactions.

2 AUTHORSHIP AND PEER REVIEWERS

2.1 Assessment team

Name	Role	Qualifications
John Nichols	Expert for Principle 1	John Nichols is a retired UK government fisheries biologist with 42 years research experience in plankton ecosystems in the North Atlantic specializing in the taxonomy of North Atlantic & NW European plankton including phytoplankton, micro and meso-plankton, ichythoplankton and young fish. He has been a member of ICES working groups on herring, mackerel, horse mackerel, sardine and anchovy assessments; and mackerel and horse mackerel egg surveys. He was also a member of ICES study groups on herring larval surveys and plankton sampling. He was scientist in charge of numerous research vessel surveys for fish stock assessment purposes and directly involved in the assessment of pelagic and western demersal fish stocks from 1994 to 2000. Since retirement from his government post he has participated in numerous MSC assessments and re-assessments as the Principle 1 expert. The assessments include Norway North East Arctic and North Sea saithe, Faroe Islands saithe, Thames estuary herring, PFA North Sea Herring, Hastings Fleet Dover sole, the north–east coast of England bass fishery and others.
Mike Pawson	Expert for Principle 2	Mike Pawson recently retired as senior fisheries advisor at Cefas, Lowestoft, after 39 years carrying out biological research and providing scientific advice to Defra, the EC and other national and international organisations on fish stock abundance (marine teleosts, elasmobranches, salmonids and eels), technical conservation measures and fisheries management regulations, and on related monitoring, sampling, survey and research programmes. Between 1974 and 1980, he initiated and led acoustic surveys on blue whiting and mackerel west of UK, and trawl surveys in the North Sea, and then spent 1 year working as an UNESCO Expert in Ichthyology in Tripoli, Libya. From 1980 to 1990, Mike designed and managed MAFF's coastal fisheries programme, implementing biological sampling, trawl surveys, a fishermen's logbook scheme and socio-economic evaluation of sea bass fisheries, and between 1990 and 2000 he led the Cefas Western demersal team, providing analytical assessments and management advice for 12 finfish stocks. During this time he was chairman of the ICES Southern Shelf Demersal Stock Assessment Working Group (1996-98), and subsequently chaired the ICES Seabass Study Group (2000-04) and Elasmobranch Study Group (2001-02). Mike has provided scientific evaluation, quality assurance and advice to several national and EC-funded projects on fisheries biology, monitoring and assessment, and has been involved in 8 MSC assessments.

Geir Hønneland	Expert for Principle 3	Geir Hønneland is a Research Director of the Fridtjof Nansen Institute and adjunct professor at the University of Tromsø, Norway. He holds a Ph.D in political science from the University of Oslo, speaks Russian fluently and has followed the developments of Russian fishery politics and the Barents Sea fisheries management for more than two decades. Among his books are *Implementing International Environmental Agreements in Russia* (Manchester University Press, 2003), *Russian Fisheries Management: The Precautionary Approach in Theory and Practice* (Martinus Nijhoff, 2004), and *Making Fishery Agreements Work: Post-Agreement Bargaining in the Barents Sea* (Edward Elgar, 2012). He was member of the assessment team that performed the first MSC assessment of the Russian Barents Sea cod and haddock fishery in 2010. Dr. Hønneland also has wide range of evaluation experience, e.g. for the FAO relating to the FAO Code of Conduct for Responsible Fisheries.
Anna Kiseleva	Lead Auditor and Team Leader, DNV	10 years of experience in assessment services, project management, planning, sales and marketing, risk management and risk-based assessments. Since 2008 has been working with third-party management system conformity services for Norwegian and International customers. For detailed CV see: http://www.msc.org/track-a-fishery/fisheries-in-the-program/in-assessment/north-east-atlantic/russian_federation_barents_sea_cod_haddock/assessment-downloads-1/20130322_CV_ANNA_KISELEVA_COD.pdf

2.2 Peer Reviewers

Peer reviewers proposed and confirmed are:

Name	Role	Qualifications
David Bennett	Peer Reviewer 1	David Bennett has 40 years' experience in fisheries research, specialising in the biology, population dynamics, and assessment of commercially exploited fish and shellfish stocks (e.g. lobsters, crabs, Nephrops, shrimps) the provision of national and international fisheries management advice, and fisheries aspects of environmental impact studies. He chaired the ICES Working Group on *Nephrops* stocks, has been a member of a number of ICES Working and Study Groups and of the ICES Advisory Committee on Fisheries Management, and an expert for DG XIV of the EU Commission. Recently he has been both an assessor and peer reviewer for the Marine Stewardship Council fisheries certification scheme.
Bernard Keus	Peer Reviewer 2	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 Environmental 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.

The reports from the Peer Reviewers are given in Appendix 2.

3 DESCRIPTION OF THE FISHERY

3.1 Unit(s) of Certification and scope of certification sought

3.1.1 Statement that the fishery is within the MSC scope

The assessment team confirms that the fishery under assessment meets the scope requirements, which are defined in MSC Certification Requirements Version 1.2, 10 January, 2012 (CR 27.4). Principle 3, Criterion A1: The fishery is not conducted under a controversial unilateral exemption to an international agreement. Principle 3, Criterion B14: The fishery does not use destructive fishing practices such as poisons or dynamite.

3.1.2 Rationale for unit of certification

According to the MSC Certification Requirements v1.2, the proposed unit of certification shall include the target stock (s), the fishing method or gear and the practice (including vessels) pursuing that stock. The MSC Certification Requirements Guidance V1.1 specifies that the unit of certification is *"The fishery or fish stock (= biologically distinct unit) combined with the fishing method/gear and practice (= vessel(s) pursuing that stock".*

3.1.3 Unit of certification

The scope of full-assessment will cover two units proposed for certification defined as:

- Russian Federation Barents Sea Cod (*Gadus morhua*) fishery in ICES Sub-areas I and II using bottom trawl as harvesting method.
- Russian Federation Barents Sea Haddock (*Melanogrammus aeglefinus*) fishery in ICES Sub-areas I and II using bottom trawl as harvesting method.

Federation Barents Sea Cod:

Species Common name(s):	Cod, Barents Sea cod, Atlantic cod
Species Latin Name:	*Gadus morhua*
Stock:	Barents Sea cod
Geographical area:	ICES Sub-areas I and II. FAO 27. Primarily Norwegian EEZ and Svalbard FPZ (Figure 1).
Harvest method:	Bottom trawl
Management:	Federal Agency of Fisheries (Russian Federation), Norwegian Ministry of Fisheries and Coastal Affairs (Norwegian EEZ and Svalbard FPZ) Joint Russian-Norwegian Fisheries Commission, NEAFC, PINRO, IMR and ICES.
Client group / Fishing boats:	The clients responsible for coordination of full-assessment for this fishery are ZAO Strelets (former JSC MTF1) and ZAO Eridan (former JSC MTF4). The client group is represented (per 05.12.2013) by the following ship owners: • ZAO Strelets with vessel Strelets (M-0269); • ZAO Eridan with vessel Korund (M-0245). • ZAO Taurus with new-build vessel Taurus (MK-0411)

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Russian Federation Barents Sea Haddock:

Species Common name(s):	Haddock, Barents Sea haddock, Atlantic haddock
Species Latin Name:	*Melangrammus aeglefinus*
Stock:	Barents Sea haddock
Geographical area:	ICES Sub-areas I and II. FAO 27. Primarily Norwegian EEZ and Svalbard FPZ.
Harvest method:	Bottom trawl
Management:	Federal Agency of Fisheries (Russian Federation), Norwegian Ministry of Fisheries and Coastal Affairs (Norwegian EEZ and Svalbard FPZ) Joint Russian-Norwegian Fisheries Commission, NEAFC, PINRO, IMR and ICES.
Client group / Fishing boats:	The clients responsible for coordination of full-assessment for this fishery are ZAO Strelets (former JSC MTF1) and ZAO Eridan (former JSC MTF4). The client group is represented (per 05.12.2013) by the following ship owners: • ZAO Strelets with vessel Strelets (M-0269); • ZAO Eridan with vessel Korund (M-0245). • ZAO Taurus with new-build vessel Taurus (MK-0411)

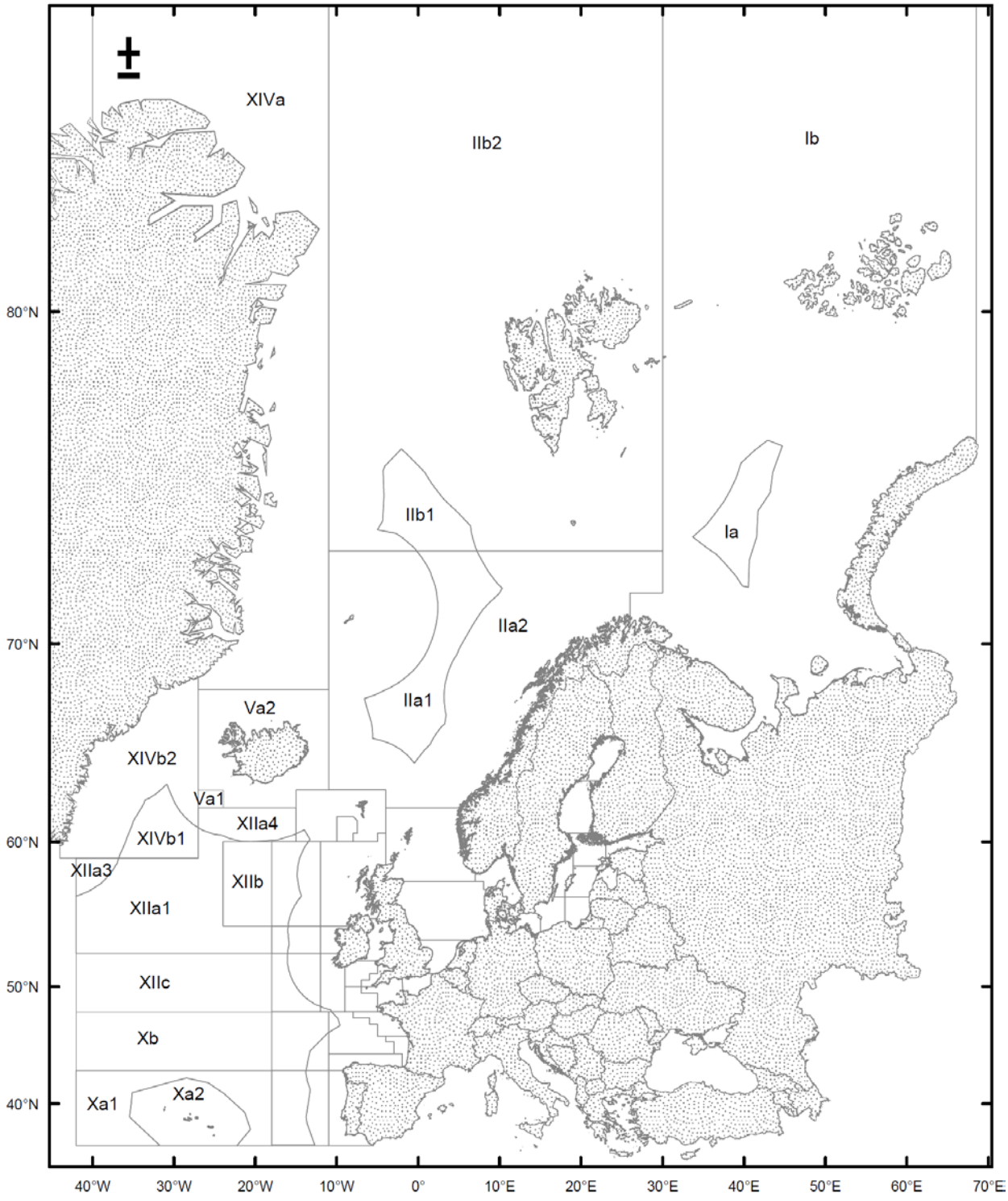

Figure 1 ICES statistical divisions (straight lines) and coastal states' 200 mile fishery limits (curvi-linear lines). The curvilinear polygons within ICES subareas I & II enclose international waters subject to NEAFC control.

3.1.4 Scope of Assessment in Relation to Enhanced Fisheries

There is no enhancement in the UoC.

3.1.5 Scope of Assessment in Relation to Introduced Species Based Fisheries (ISBF)

The scope of assessment does not include ISBF.

3.1.6 Inseparable or practically inseparable (IPI) stocks

There are no IPI stocks to the stocks included in UoC.

3.1.7 Other Eligible fishers

This assessment as of 02.04.2014 is limited exclusively to the client's fishery and their affiliated companies as specified in the section 3.2.2 of this report.

New vessels owned by the client group and their affiliated companies will automatically (subject to full compliance with MSC requirements) be eligible to share the MSC certificate. Shall a new vessel be added to a client certificate, a revised vessel list will be uploaded to www.msc.org.

It should be noted that at the start of the assessment process, other eligible fishers were originally defined as any fishing operator targeting cod and haddock in the ICES Sub-areas I and II using bottom trawl as harvesting method and operating under cod and haddock quota issued by authorities of Russian Federation.

Although it was not apparent at the time of the site visit that there are other fishers who would like to share the client's certificate, this possibility was not excluded. In relation to scoring within the assessment, it was concluded by the assessment team that there are no material difference between the client vessels' operations or any other Russian operators using demersal trawl to catch cod and haddock in the Barents Sea. All fishing operators retain the same species and are all subject to the same discard ban, and fish under the same rules and legislation. Since any eligible vessels are already operating in this manner, their impacts were considered to be the same as for the client fleet. Additional reservations were implemented to ensure full-compliance with the scores assigned and included following:

- Full compliance with MSC certification requirements, including any conditions and/or recommendations set for MSC certification and associated plans of corrective action to address such conditions.
- Companies using different navigation systems were not allowed to share the certificate unless it can be demonstrated that such systems comply with the requirements to avoid vulnerable habitats.
- Any vessels that join the certificate were required to be the subject to the same registration systems (e.g. MSC logbooks).
- Black-listed vessels were not allowed to join the certificate.

26.03.2014 MSC has evaluated the decision of the assessment team and suggested a) full-harmonisation with the Ocean Trawlers fishery and b) complete data gathering on all eligible fishers in the UoC. See Appendix 3 for more details. As the client fishery had no possibility to cover costs connected to such an extensive activities and there were no other companies

willing to share the client's certificate and share these costs, it was concluded by the assessment team to limit this assessment to the client's fleet.

3.2 Overview of the fishery

3.2.1 Client name and contact information

ZAO Strelets (former Joint Stock Company Murmansk Trawl Fleet -1) and
ZAO Eridan (former Joint Stock Company Murmansk Trawl Fleet - 4)
183038, RUSSIAN FEDERATION, MURMANSK, SHMIDTA STR., 43

Contact person: Igor Grekov
ph.+ 8152 994-890
grekov@uk.msk.ru

3.2.2 Client information

The clients responsible for coordination of full-assessment for this fishery are ZAO Strelets (former JSC MTF1) and ZAO Eridan (former JSC MTF4). The clients (ZAO Strelets and ZAO Eridan) before 2012 were a part of the larger company – Murmansk Trawl Fleet (MTF). MTF was considered as one of the largest fishing companies in the former Soviet Union. Its official birthday dates back to 19th of March 1920. During the first years the fleet was based in Arkhangelsk and operated from spring till autumn. Transfer of the fishing fleet to Murmansk in 1924-1926 allowed fishermen to fish all year round. By the end of 1941 MTF owned more than 70 vessels. After WWII the fleet was enlarged even further and by 1960 accounted for more than 250 vessels.

In 1992 MTF was reorganized and a new Joint Stock Company MTF had emerged. The MTF group consisted of different affiliated companies including "MTF1", "MTF2", "MTF3" and "MTF4". In 2012 a new reorganization has started and MTF1,2,3,4 companies gained their independence from the parent JSC MTF company and in 2013 were renamed as specified below:
ZAO Strelets - former Joint Stock Company Murmansk Trawl Fleet -1
ZAO Eridan - former Joint Stock Company Murmansk Trawl Fleet – 4
ZAO Feniks - former Joint Stock Company Murmansk Trawl Fleet – 2
ZAO Taurus - former Joint Stock Company Murmansk Trawl Fleet – 3.

The new emerged group of companies promotes their products under Eurofish brand. In 2012, the group joined their forces and applied for MSC Fisheries certification under coordination of ZAO Strelets and ZAO Eridan. ZAO Feniks and ZAO Taurus are affiliated companies to the client.

eurofish
Figure 2: Eurofish logo

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The client group is represented (per 05.12.2013) by ship owners/ vessels specified below:
ZAO Strelets (former Joint Stock Company Murmansk Trawl Fleet -1)

Strelets (M-0269) Gross tonnage: 2001 ton Length: 57,8 m Year: 2003	

ZAO Eridan (former Joint Stock Company Murmansk Trawl Fleet - 4)

Korund (M-0254) Gross tonnage: 1198 ton Length: 54,8 m Year: 1988	

ZAO Taurus (former Joint Stock Company Murmansk Trawl Fleet – 3)

Taurus (MK-0411) Gross tonnage: 2403 ton Length: 63,85 m Year: 2013 **New build** fishing vessel under construction in accordance with Rules for the Classification and Construction of Sea-going ships of the Russian Maritime Register of shipping under technical supervision of RS Representation at “ULJANIK” Shipyard, Pula, Croatia. New building No. 493 RS Id. No. 120791 IMO No. 9657961 Port of registry: Murmansk	

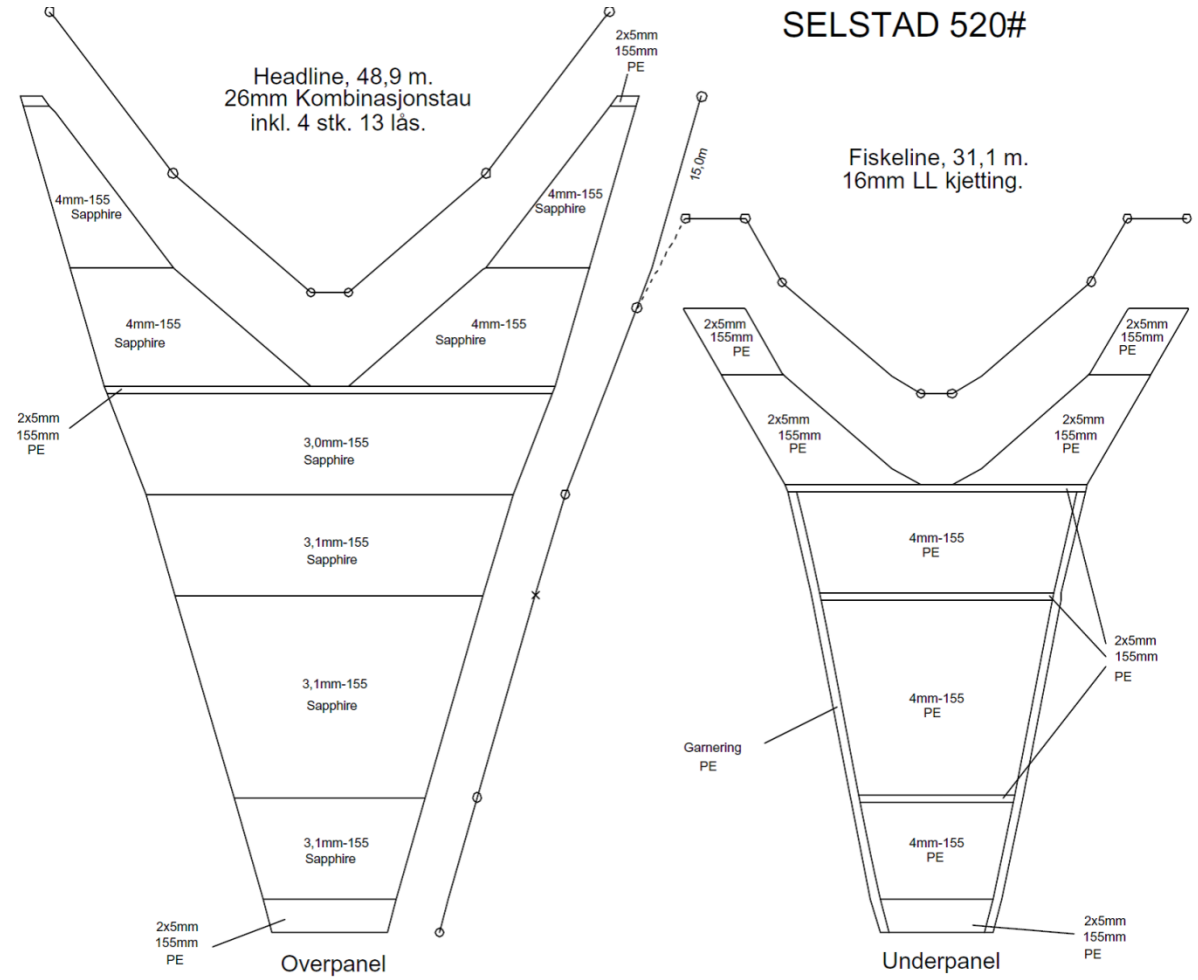
Client group vessels in the Unit of Certification are fully compliant with (and regularly inspected against) International MARPOL standards of pollution prevention. Vessels are under control of two classification societies: Russian Maritime Register of Shipping and DNV.

3.2.3 Fishing levels

Stock	Barents Sea cod		Barents Sea haddock	
Year	2012	2013	2012	2013
TAC (t)	751,000	1,000,000	318,.000	200,000
Annual quota of Russian Federation (t)	320,857	427,740	140,253	85,154
Annual quota of the Client fleet (t)	15,003.1	19,80.4	6,008.8	3,536.1
Total catch of the client fleet taken according to **own quota**(t)	15,003.1	5,141.5	6,008.8	1,317.4
Total catch of the client fleet taken according to **rented/purchased quota**(t)	13,382.2	0	4,864.5	0

Table 2: TACs, quotas and level of catches in the UoCs. Year 2012-2013 (as of 28.02.2013)

3.2.3.1 Gear used



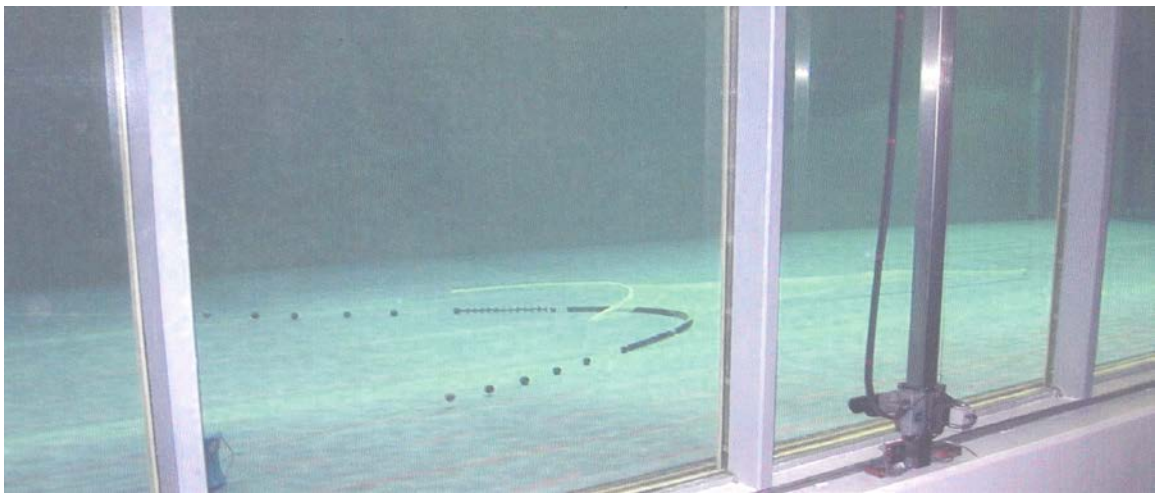


Figure 3.Trawl gear used by client vessels for targeting cod and haddock in the Barents Sea.

Both Client vessels operate with a bottom trawl - Selstad 520[2] (Fig. 3) designed for targeting bottom species like cod, haddock and saithe. Selstad 520 is a part of the trawl equipment which consists of trawl boards, towing warps, trawl, selective grid and a cone shaped cod-end. Vertical opening of the trawl is 5-6 m and horizontal approx.120 m (between the wings).

3.2.4 Overview of the fishery

3.2.4.1 Barents Sea Cod (North East Arctic Cod) Fishery

The North East Arctic cod fishery is conducted both with an international trawler fleet and with coastal vessels using traditional fishing gears. Cod is a target species in a mixed fishery taking haddock and saithe as major by-catch species. Two species of redfish, *Sebastes marinus* and *S. mentella*, are also taken as by-catch. Quotas were introduced in 1978 for the trawler fleets and in 1989 for the coastal fleets. In addition to quotas, the fishery is regulated by a minimum catch size, a minimum mesh size in trawls and Danish seines, a maximum by-catch of undersized fish, a maximum by-catch of non-target species, closure of areas having high densities of juveniles and by seasonal and area restrictions (ICES, 2012a). Since 1997 sorting grids have been mandatory for all trawl fisheries in most of the Barents Sea and Svalbard area. From 2011 the minimum mesh size for bottom trawl fisheries for cod and haddock for the whole of the Barents Sea, changed to 130mm. Prior to that it was 135mm in the Norwegian EEZ and 125mm in the Russian EEZ. From 1 January 2011, the minimum landing size was also changed to 44cm in all areas. Previously the minimum size was 42cm in the Russian EEZ and 47cm in the Norwegian EEZ. These changes were part of a harmonisation of the regulations in each EEZ and included changes to the percentage of undersized fish permitted in the catch.

In the past there has been a major issue of unreported and unregulated catches in this fishery. The ICES Arctic Fisheries Working Group (AFWG) had only limited information on the extent of the problem before 2002. From 2002 to 2008 the AFWG estimate of landings exceeded the official landings figures by an average of 19% (87.000t) each year and was as high as 35% (166.000t) in 2005. More rigorous enforcement measures, including inspections

[2]http://selstad.no/english/

at sea and designated catch control and landing points and VMS tracking of some vessels, have seen the problem virtually eliminated since 2009 (ICES, 2012b).

Figure 4 shows the fluctuating pattern of annual landings of north east Arctic cod over the period 1946 to 2011 (ICES, 2012b). Through to the early 1960s landings generally fluctuated between 600,000 and 800,000 t with the exception of two years, 1955 and 1956 when landings went over one million t to a high of 1.3 million t in 1956. From a subsequent low of 438,000t in 1964 landings rapidly increased to over a million t in 1968 and 1969. Landings then fluctuated but remained above half a million t after which there was a steady decline to less than 300,000t in 1984. After a small and very short recovery landings fell rapidly to the lowest recorded level of 212,000t in 1990. Landings then increased again, fluctuating between a high of 771,000t in 1994 to 415,000t in 2000 and averaging over 570,000t in that period. Landings have again increased in each year since 2008, reaching 719,830t in 2011 (ICES, 2012b).

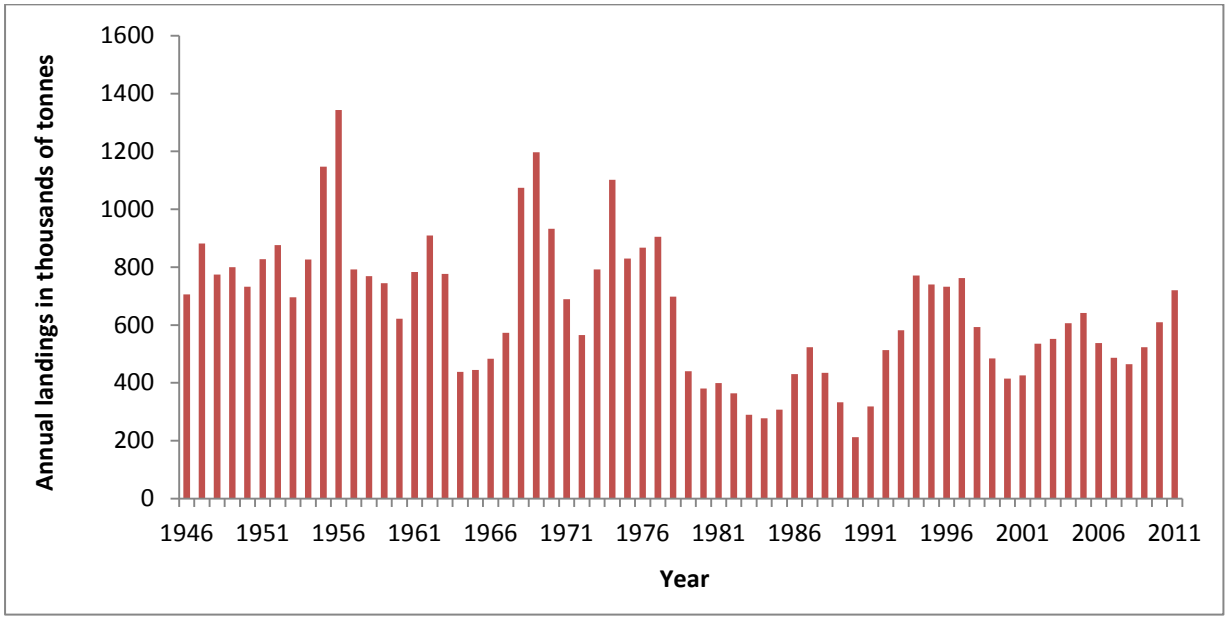


Figure 4Annual landings of the North East Arctic cod, in thousands of tonnes, over the period 1946 to 2011. Data source: (ICES, 2012b)

Fishing mortality, calculated on ages 2-8 years, over the same period (Figure 5) has shown similar fluctuations but has been below the limit level of F0.74, established in 1998, since 2001. The ICES precautionary approach fishing mortality (Fpa) was reduced from F0.42 to F0.4 in 2003. Fishing mortality has been maintained below that level since 2007 and is currently at F0.26 (ICES, 2012b).

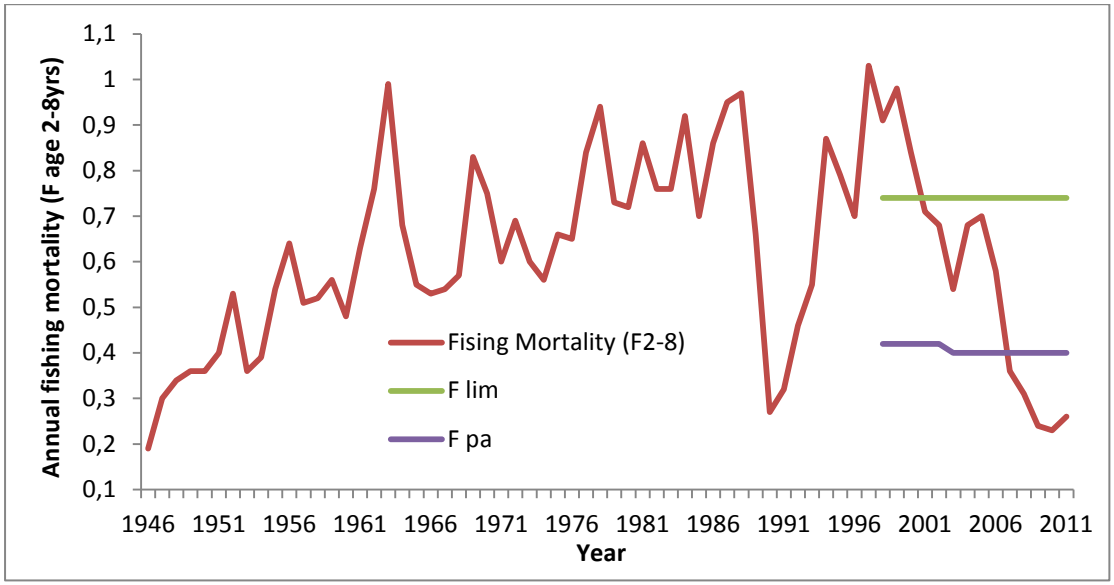


Figure 5. Fishing mortality (F, ages 2-8 years) of the north east Arctic cod over the period 1946 to 2011. The precautionary approach and limit levels of fishing mortality are also shown from when first established in 1998(ICES 2012b).

Historically the cod fishery in the north east Arctic was dominated by Norway, the United Kingdom and Russia through to the late 1970s. Following the establishment of 200 nautical mile exclusive economic zones in the early 1980s, the fishery became dominated by Norway and Russia through to the present time. Over the past fifteen years Norway has taken an average of 45% of the catch, Russia 42% and other countries 13% (**Error! Reference source not found.**).

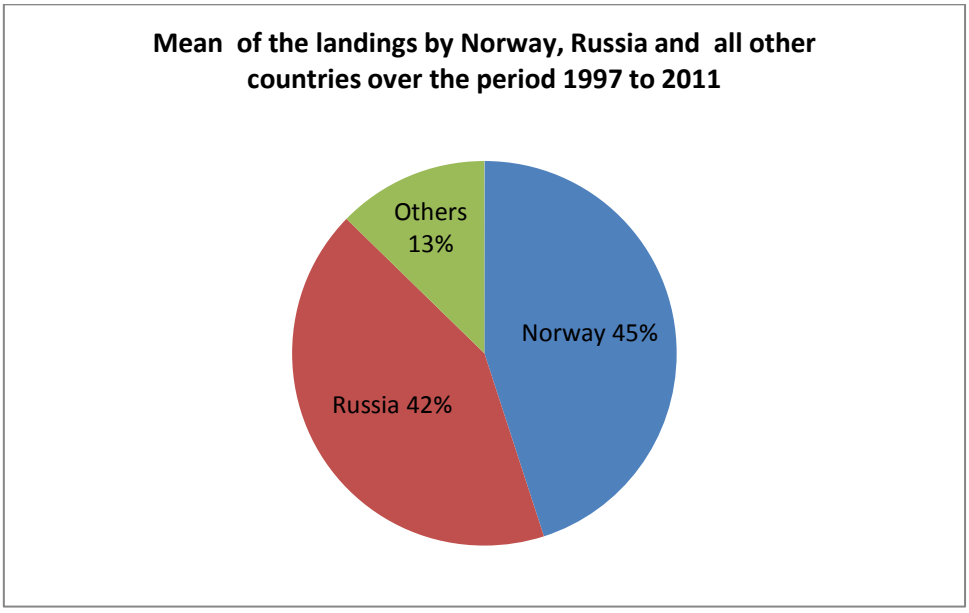


Figure 6.National share of the landingsof cod in the north east Arctic over the period 1997 to 2011(ICES 2012b).

The total landings, by each country, of North East Arctic cod in ICES sub-Areas I and II from 2007 to 2011 are shown in **Error! Not a valid bookmark self-reference.**The total catches include a small quantity of 'others' totalling 17,354t in 2011 which includes unspecified EU catches (ICES, 2012b).

Year	Faroes	France	Greenland	Germany	Norway	Spain	UK	Russia	Iceland	Total
2007	14,788	3,190	5,951	4,619	199,809	9,496	9,298	188,229	7,316	445,796
2008	15,812	3,149	5,617	4,955	196,598	9,658	8,287	190,225	7,535	449,171
2009	16,905	3,908	4,977	8,585	224,298	12,013	8,632	229,291	7,380	523,431
2010	15,977	4,499	6,584	8,442	264,701	12,657	9,091	267,547	11,299	609,983
2011	13,429	1,173	7,165	4,621	331,535	13,291	8,210	310,326	12,734	719,829

Table 3.Landings of North East Arctic cod (tonnes) by country from ICES sub-Areas I and II from 2007to 2011. The 2011 figures are provisional (ICES 2012b).

3.2.4.2 Barents Sea Haddock (North East Arctic Haddock) Fishery

The North East Arctic haddock fishery is mainly a bottom trawl fishery and is generally a by-catch of the much larger cod fishery over the same areas. There are some directed trawl and longline fisheries specifically for haddock particularly in years of high fishable stock abundance.

A raft of enforcement measures exist to protect the stock and to ensure sustainability of the fishery. These include minimum landing size, minimum mesh size for trawls and Danish Seines, maximum by-catch of undersized fish, maximum by-catch of non-target species, flexible area closures when large numbers of juveniles occur and other seasonal and area closures. Technical regulations for demersal fisheries were harmonized from January 2011 so that they are now the same in both the Norwegian and Russian EEZs (ICES, 2012a). Before 2011 the minimum landing size was 39cm from within the Russian EEZ and 44cm from within the Norwegian EEZ. Up to 2010 the minimum mesh size was 135mm in the Norwegian EEZ and 125mm in the Russian EEZ. From 2011 the minimum landing size is 40cm and the minimum mesh size for the whole of the Barents Sea is 130mm.

Annual quotas have been in place for trawl fisheries since 1978 and Norway sets separate quotas for the trawl fishery and for other gears. There is a total ban on discarding over the whole of the area together with a maximum by-catch of undersized fish.

Illegal and unreported landings have been a problem in this fishery, linked strongly to practices within the cod fishery. The ICES AFWG had no information on the extent of the problem before 2002(ICES, 2009; ICES, 2010a).From 2002 to 2007 the AFWG estimate of landings exceeded the official landings figures by an average of 16% each year and was as high as 25% in 2005.This problem was addressed by more rigorous enforcement measures, including inspections at sea and designated landing points. As a result, the problem was gradually reduced and in 2008 the ICES estimated catch exceeded the official landings by just 4%. Since 2008 the AFWG no longer consider that illegal and unreported landings to be a significant issue (ICES, 2012b).

Figure 7 shows the pattern of haddock landings over the period 1950 to 2011 (ICES, 2012b). The historic high catch level of 322,226 t in 1973 divides the time-series into two periods. In the first period, highs were close to 200,000 t around 1956, 1961 and 1968, and lows were between 75,000 and 100,000 t in 1959, 1964 and 1971. The second period showed a steady decline from the peak in 1973 down to the historically low level of 20,945 t in 1984. Afterwards, landings rapidly increased to 155,000 t in 1987 before declining to 27,000 t in

1990. After a steady increase in landings up to 178,000 t in 1996 there was a further decline to 69,000t in 2000 followed by a period of relative stability in the landings with an increase to 310,000t in 2011, the second highest in the time series.

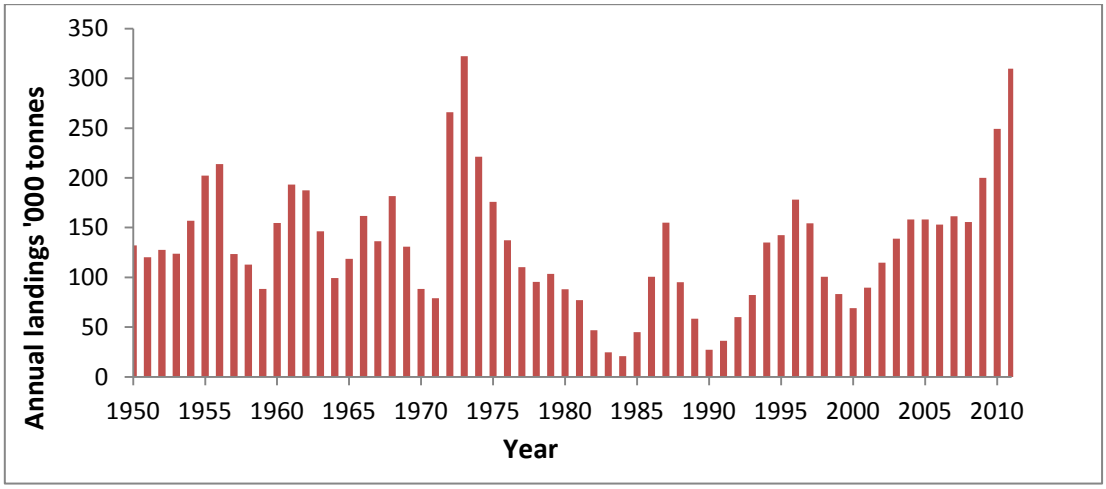


Figure 7.Annual landings of North East Arctic haddock, in thousands of tonnes, over the period 1950 to 2011(ICES 2012b).

Annual fishing mortality over the period 1950 to 2011, based on ages 4 to 7 years in the fishery, is shown in Figure 8. This shows a fluctuating pattern with the level consistently below what is now considered to be a precautionary limit level of Flim = 0.77. Since 1989 fishing mortality has been consistently below the Fpa level of F 0.47 and fluctuating down to and below the maximum sustainable yield (MSY) and management plan target of F0.35. From 2008 to 2010 fishing mortality was below that level but marginally above it in 2011 (F 0.39) (ICES, 2012b).

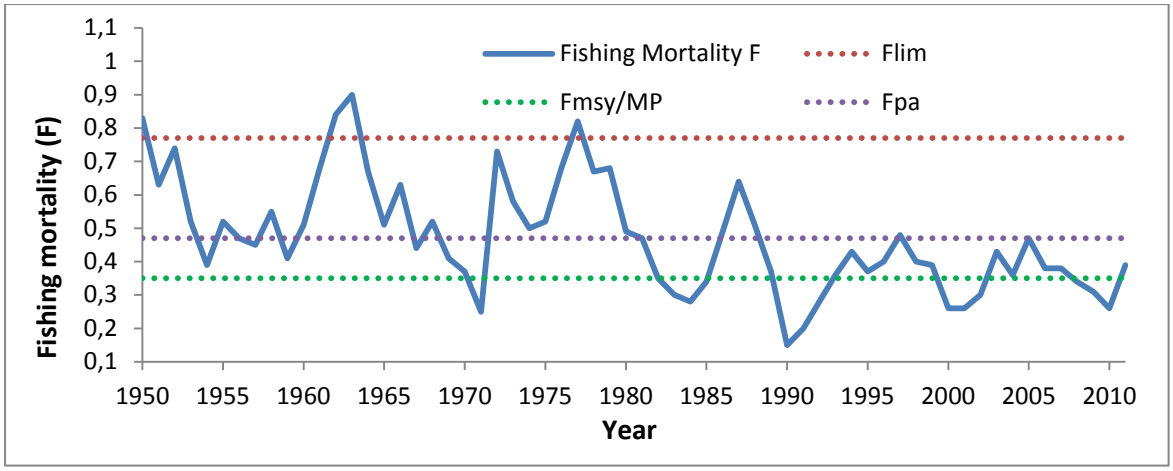


Figure 8.Annual fishing mortality on the North East Arctic haddock stock, based on ages 4-7 years, over the period 1950 to 2011. The current agreed limit level (Flim), MSY and Management plan (Fmsy/MP) and Precautionary approach (Fpa) reference points are also shown (ICES 2012b).

Before the establishment of national exclusive economic zones (EEZs) for fisheries in 1977 the haddock landings were shared mainly between Norway, Russia and the UK. Since then

Norway and Russia have dominated, taking an average 94% of the landings over the period 2002 to 2011(Figure 9).

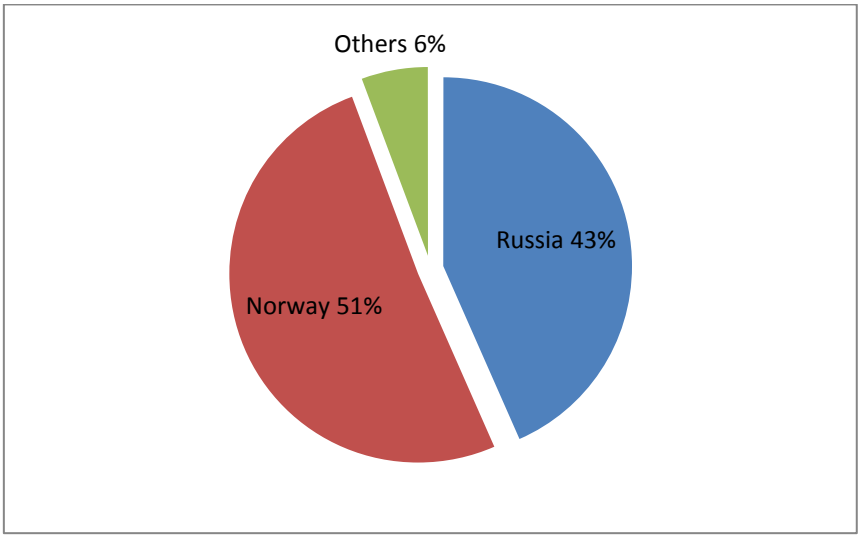


Figure 9.The share of landings of North East Arctic haddock by Norway, Russia and other countries over the period 2002 to 2011(ICES 2012b).

The 6% share to other countries over that period is taken mainly by The Faroe Islands, Germany, Greenland and the UK (**Error! Reference source not found.**)

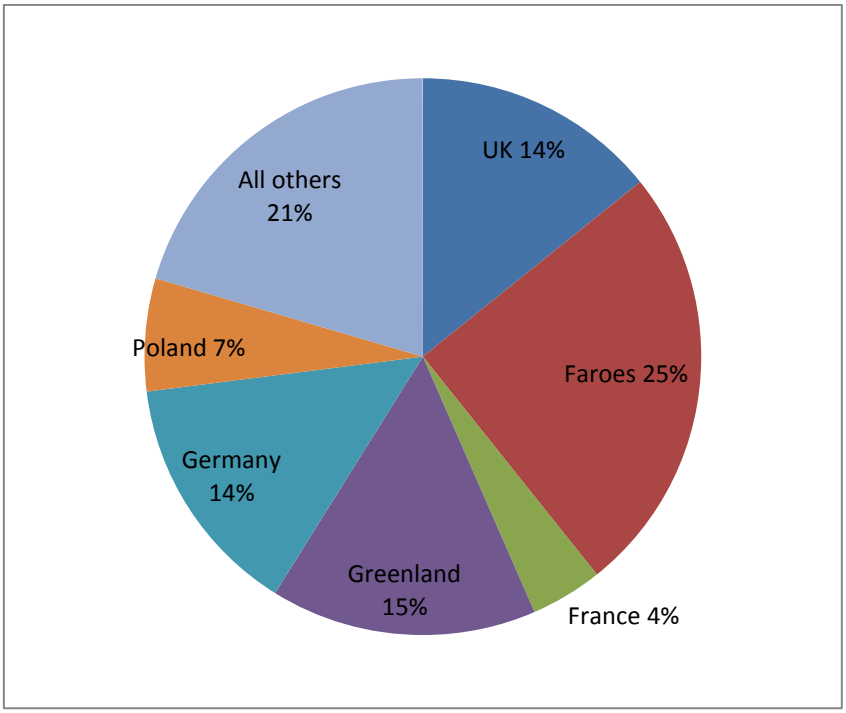


Figure 10.The distribution of the 6% share of landings of North East Arctic haddock to all other countries over the period 2002 to 2011(ICES, 2012b).

MSC FISHERY ASSESSMENT REPORT

The total landings, by each country, of North East Arctic haddock in ICES sub-Areas I and Divisions IIa and IIb from 2007 to 2011 are shown in the **Error! Reference source not found.** below, which includes some catches allocated to other not specified countries.

Year	Faroes	France	Greenland	Germany	Norway	Poland	UK	Russia	Others	Total
2007	2307	277	1464	1123	71244	125	1351	66569	2511	161525
2008	2687	311	1659	535	72779	283	971	68792	1759	155604
2009	22820	529	1410	1957	104354	317	1315	85514	1845	200061
2010	3173	764	1970	3539	123384	379	1758	111372	2862	249200
2011	1759	8*	2110	1724	158293	408	1379	139912	4282	309875

*Provisional and likely to increase.

Table 4.Landings of North East Arctic haddock (tonnes) by countries from ICES Subarea I and Divisions IIa and IIb combined in 2007 to 2011(ICES 2012b).

3.3 Principle One: Target Species Background

3.3.1 Barents Sea cod (*Gadus morhua*)

3.3.1.1 Life History

The North Atlantic cod is a demersal living roundfish of the order Gadidae. It is widespread across the shelf areas of the temperate North Atlantic from Newfoundland north to Greenland, around Iceland and in the Barents Sea, and in the North Sea, English Channel and to the west of the British Isles and in the Irish Sea (Wheeler, 1969). It also occurs in the Skagerrak, Kattegat and in the Baltic Sea. It is found in depths ranging from the shoreline out to 600m. It is a highly migratory fish and there are individual tagging records showing fish that have travelled across the Atlantic Ocean. Population studies have shown that stocks within certain areas have separate and clearly identifiable spawning areas. The population in the Barents Sea and Norwegian Sea, in ICES sub-areas I and II, is sufficiently discreet to be managed as a separate stock, the North East Arctic cod stock. The only potential complication is the presence of a coastal population of fjord cod which mixes with the North East Arctic cod at various stages in its life history. These coastal cod generally only occur within 12nml of the coast and can be identified by morphometric characteristics, in particular in the otolith (Berg et al., 2005). For management and stock assessment purposes all cod caught between latitudes 62^{o}N and 67^{o}N for the whole of the year and between 67^{o}N and 69^{o}N for the second half of the year are considered to be from the Norwegian coastal cod stock.

Cod spawn over much of the continental shelf areas of northern Europe generally in depths of less than 200m. North East Arctic cod become mature at between 5 and 10 years old which is two to three years later than populations further south in the North Sea. There is a suggestion that the mean age at maturity may be reducing which could be a response to environmental change and/or to fishing pressure. However, examination of survey data over the past 25 years provides no strong evidence of this. An average female produces around 500 ripe oocytes per gram of body weight which equates to around 5 million eggs for a 100cm long female. The spawning areas of the North East Arctic cod extend along the northern part of the Norwegian coast from Finmark to Stad, but the most important spawning grounds are off the Lofoten archipelago. Spawning occurs from February through to April. The egg and larval stages are planktonic and subject to the North Atlantic drift which distributes them, via the Spitsbergen and North Cape currents, northwards over the whole of the north-east Arctic basin. The juveniles become demersal at around 7cm in length when they are about 6 months old. From an early demersal stage cod are generally opportunistic feeders and will take crustaceans, molluscs, other invertebrates and fish of any kind. In the north-east Arctic capelin and herring are important sources of food for cod and year to year fluctuations in their abundance can have a significant effect on the growth rates and age-at-maturity of cod. In some years the mean weight of fish at the same age may vary by a factor of 2 or 3 times (ICES 2010a, Annexe 3).

3.3.1.2 Stock status and stock assessment

Total landings of cod from sub-Areas I and II in 2011 were 726,502t, which includes 6,732t of Norwegian coastal cod. This was an increase of 100,000t over the final adjusted landings figure of 626,252t for 2010 (ICES, 2012b). Reported landings in 2011 were marginally above the agreed TAC (724,000t), which includes a proportion of Norwegian coastal cod. Figure 4shows the total annual landings, minus the coastal cod allocation, over the period

1946 to 2011. The quantities used in this assessment are based on the historical practice of allocating all catches taken between latitude 62°N and 67°N for the whole of the year and between 67°N and 69°N for the second half of the year to Coastal cod. The Coastal cod catches in 2010 and 2011 were thus 16,269t and 6,733t respectively (ICES, 2012b).

In the separate assessment of the stock status of Coastal cod (based on allocation of catches using differences in the otolith structure the catches of Coastal cod in 2010 and 2011 were 22,952t and 28,594t respectively. The differences generated by the use of those two methods are shown in Figure 11. Annual catches, in thousands of tonnes, allocated to the Norwegian Coastal cod by the otolith analysis method (AWFG) and by area and season caught (Area), over the period 1984 to 2011.

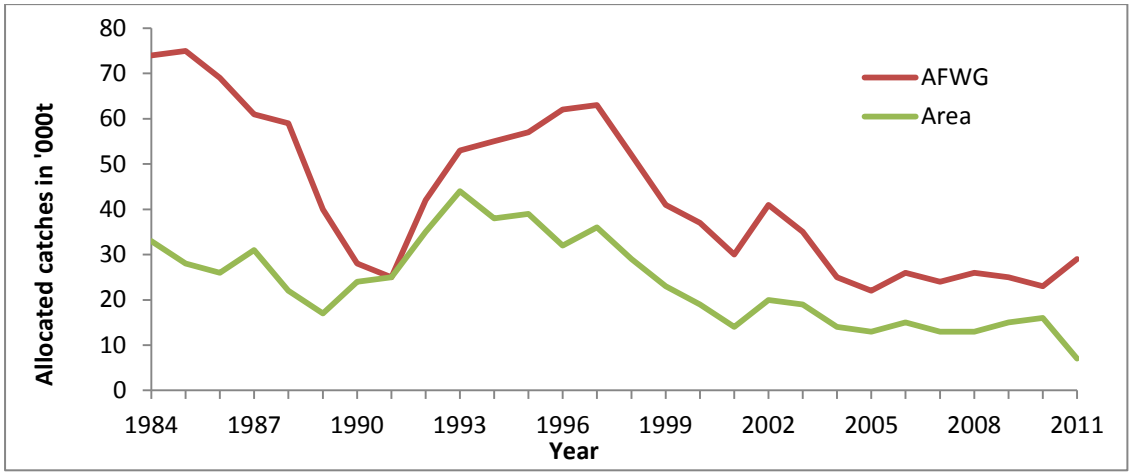


Figure 11. Annual catches, in thousands of tonnes, allocated to the Norwegian Coastal cod by the otolith analysis method (AWFG) and by area and season caught (Area), over the period 1984 to 2011[3].

Until 2001 the total reported landings of North east Arctic cod were either slightly above or marginally below the agreed TAC. Between 2001 and 2008 landings were consistently above the TAC, but have been in line with the annual TAC since 2009 (ICES, 2012a). Over the period 2002 -2008 there was a serious problem of unreported and unregulated (IUU) catches in the fishery. More rigorous enforcement has seen the magnitude of the IUU catches decrease from a high of 166,000t, 35% of the official landings in 2005, to negligible amounts since 2009. The uncertainty surrounding the actual catches over the period 2002 to 2008 could still have some influence on the assessment of the current stock (ICES, 2012b).

[3] *Data source: (ICES 2012b)*

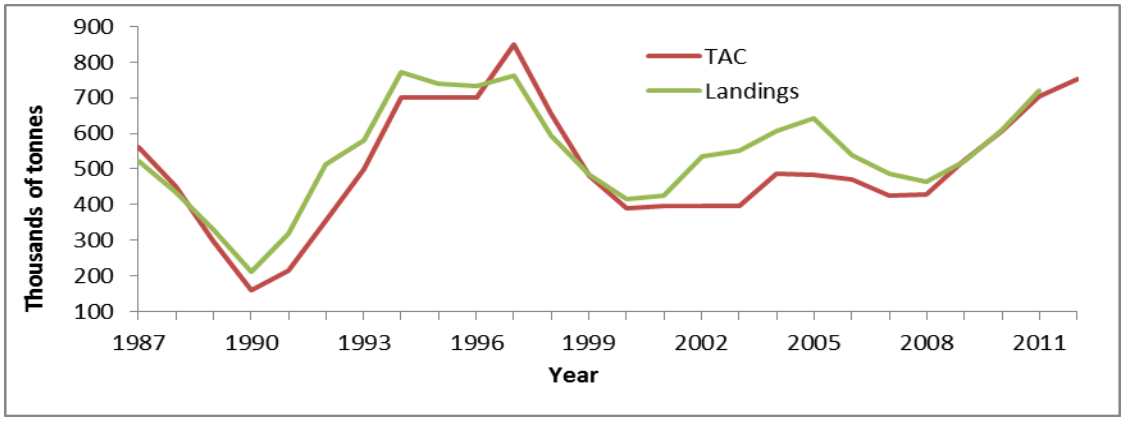


Figure 12. Total landings of North East Arctic cod from ICES sub-Areas I and II and the agreed TAC, for the period 1987 to 2011 including the TAC for 2012.

The assessment is carried out annually by the ICES AFWG with members attending from most of the countries participating in the fishery. The assessment in 2012 of the status of the stock at spawning time in 2012 was an update assessment. The last benchmark assessment, with full data exploration, was in 2010 (ICES, 2010a) following an ICES Benchmark Workshop, WKROUND (ICES, 2010b). The main assessment model in use is the extended survivor's analysis (XSA). This is an analytical assessment model based on catch at age data from the whole fishery. Catch at age and weight at age data are provided by Germany, Norway, Spain and Russia. The assessment uses one commercial catch per unit of effort data series and three fishery-independent surveys as tuning indices in the assessment (text Table below). After further evaluation by AFWG of the Russian trawl survey only the cpue data for ages 9-11 years were used in the assessment (ICES 2012b Annex 3).

Survey name	Place	Season	Ages	Years
Russian trawl cpue	Total area	Whole year	9-11	1985-2011
Joint Bottom trawl	Barents Sea	Feb-Mar	3-8	1981-2012
Joint Acoustic	Barents Sea + Lofoten	Feb-Mar	3-9	!985-2012
Russian Bottom trawl	Total area	Oct-Dec	3-9	1994-2011

There are differences in the percentage mature at age calculated from the Russian and Norwegian surveys (Figure 13). These differences are consistent with generally higher growth rates observed in cod sampled on the Norwegian surveys. As a consequence, the maturity ogive used in the assessment is an arithmetic average of the time series of Norwegian and Russian survey data with the exception of two years when only Norwegian data were available and one year when only Russian data were available (ICES, 2012b) The maturity ogive used in the 2012 assessment is shown in the text Table below.

Age in years	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13+**
% Mature	0	0.1	3.7	34	64	82	94	96	99	99	100

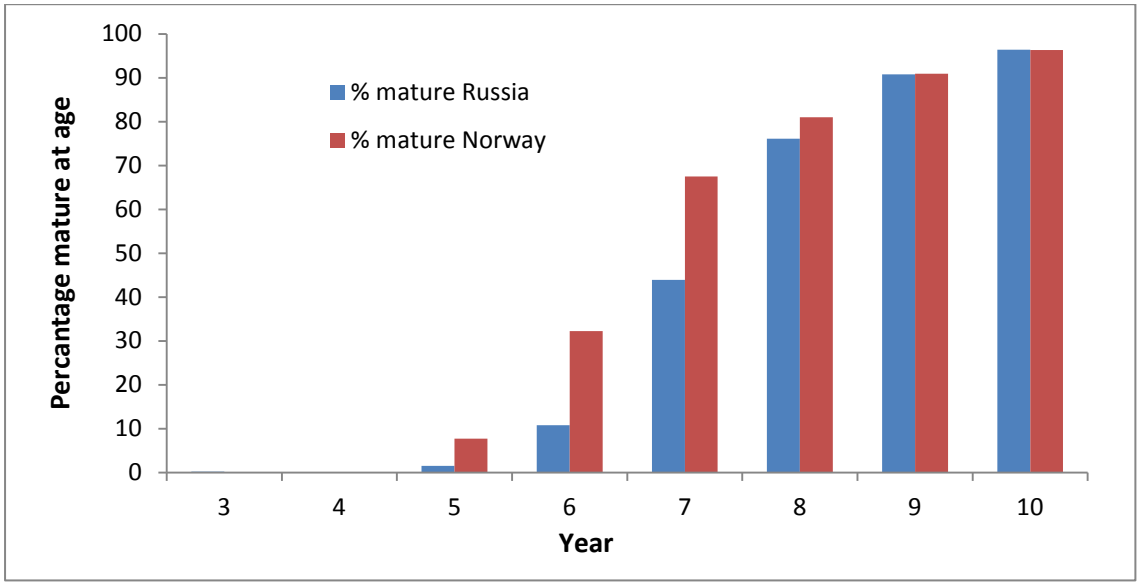


Figure 13. The proportion mature at age of North East Arctic cod in the surveys by Norway and Russia in 2012(ICES 2012)

The final assessment in 2012 resulted in an estimated SSB at spawning time in 2012 of 2,063,000t, an increase of 205,000t on the SSB in 2011 and by far the highest recorded in the time series dating back to since 1946 (ICES,2012b). SSB has been maintained above the precautionary level, Bpa, since 2002 (Figure 14). This level, of 460,000t, is also the current Management plan level, the MSY level and the Biomass trigger point in the Harvest Control Rule.

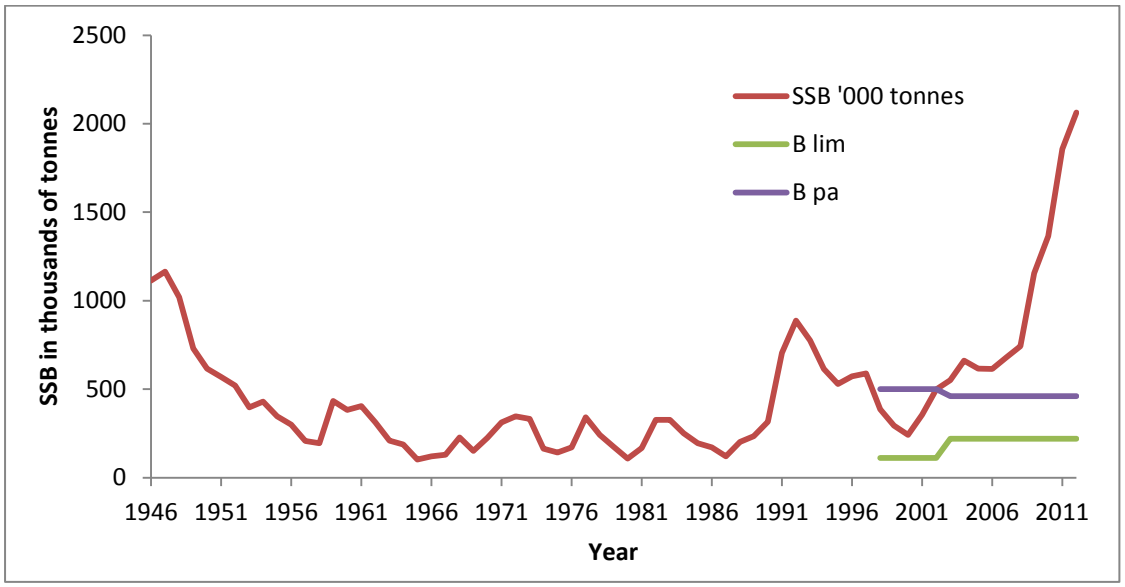


Figure 14.The spawning stock biomass (thousands of t) of North East Arctic cod in ICES sub-Areas I and II over the period 1946 to 2011. The most recent biomass reference points first agreed in 1998 and modified in 2003 are also shown (ICES 2012a).

Fishing mortality (Figure 5) is estimated to have been steadily declining in recent years from a time series high of F1.03 in 1997. It fell to the current Flim level of F0.74 in 2000 and

reached the current Fpa, Management plan and MSY level of F0.4 in 2006. Estimated fishing mortality in 2011was F0.26, marginally higher than the F in 2010 (ICES, 2012b).

Recruitment is not estimated within the XSA modelling procedure because the youngest ages in the survey data are not used. Instead, annual recruitment is calculated from a hybrid model which comprises an arithmetic mean of the different recruitment models used (ICES, 2012b). Annual recruitment as thousands of 3 year-old fish over the period 1946 to 2012 is shown in Figure 15, which shows large fluctuations in recruitment over the whole time series. Recruitment over recent years has been less volatile although the 2001 and 2007 year classes were poor and the 2004 and 2005 year classes were high. The relationship between spawning stock size and recruitment is poor and cannot be used as a reliable predictor of future recruitment (Figure 16). However, the change point in the regression of SSB versus recruitment is used to determine the biomass limit point at 220,000t (ICES, 2012a).

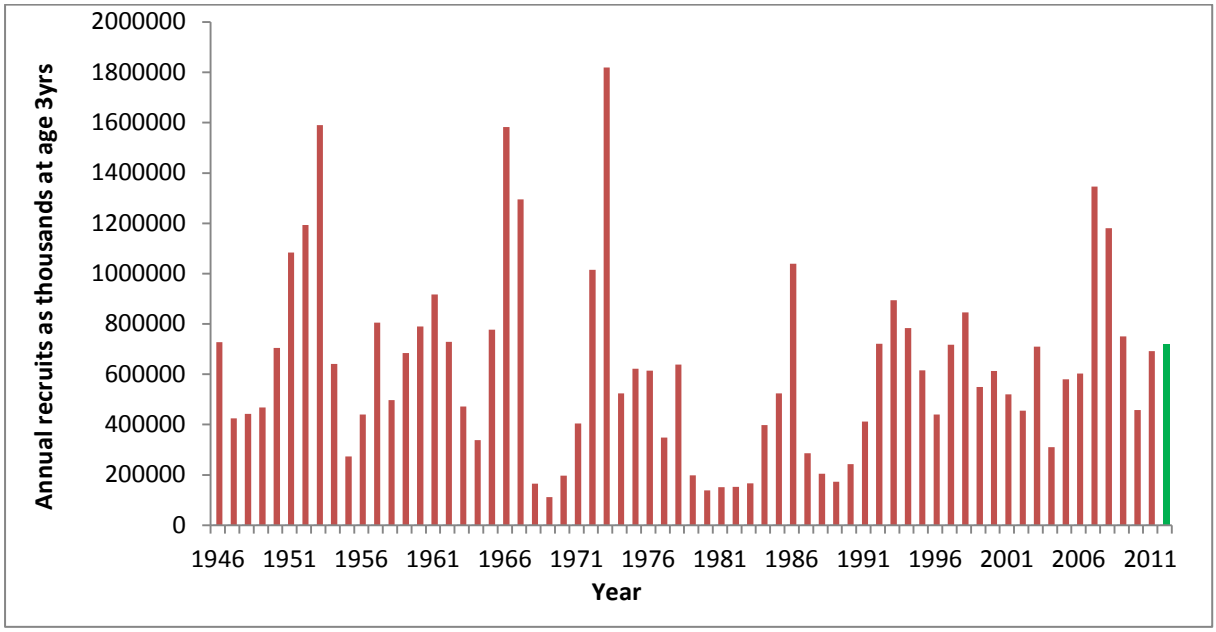


Figure 15, Recruitment of North East Arctic cod as thousands of 3 year old fish over the period 1946 to 2011. The 2012 predicted level is included in green (ICES 2012b).

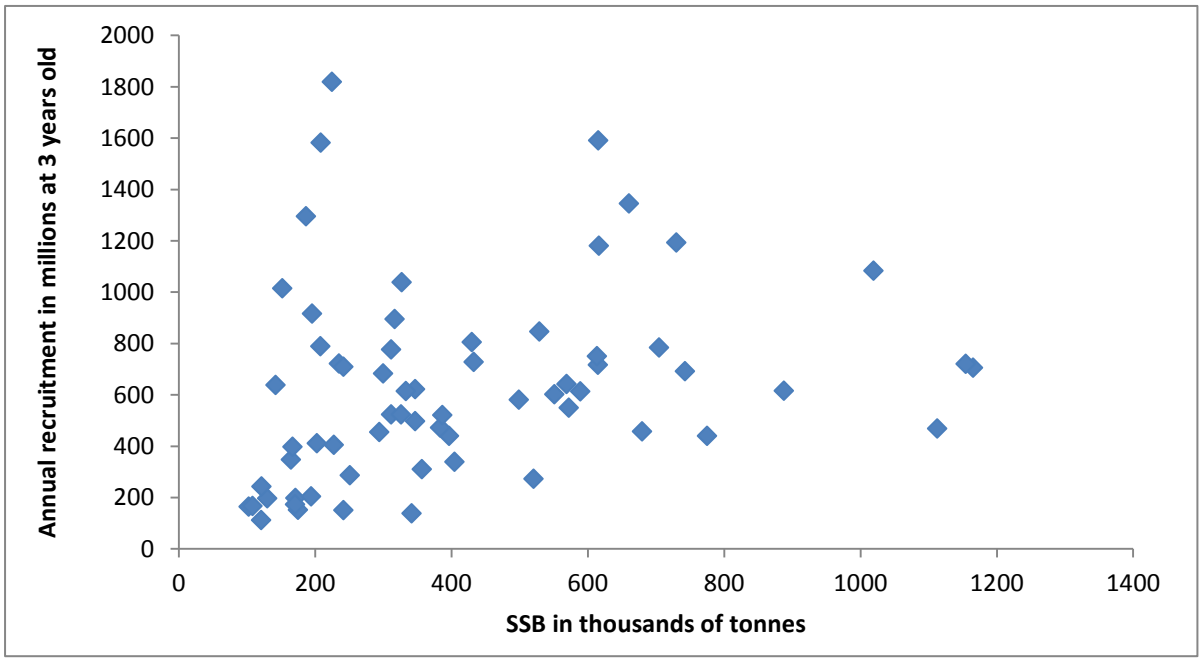


Figure 16. Annual recruitment as 3 years old fish plotted against the SSB in the year that they were spawned.

Uncertainty in the assessment is related to elements of both the catch and the fishery-independent survey data (ICES, 2012a,b):

- The problem of illegal, unregulated and unreported (IUU) catches has been a major problem in the past, but since 2008 the practice appears to have ceased. Nevertheless the unreliability of past estimates of the catch could still be affecting the current assessment.
- Technical problems with the survey vessel affected the spatial coverage of the Norwegian joint winter bottom trawl survey in 2012.
- Scientific sampling of some Norwegian commercial landings has been affected by the termination of a port sampling programme during 2009.Attempts are being made to address the problem with the start of a small port-sampling scheme from 2011 and increased sampling levels at sea on the Norwegian high seas reference fleet.
- Commercial catch sampling levels have also been reducing in Russia.
- The very strong 2004 and 2005 year classes have generated some problems in the assessment. These are related to the choice of age ranges for the stock-dependent catchability-at-age parameter.
- The two methods used for apportioning the proportions of Norwegian coastal cod in the landings give different values.
- The proportions mature at age are different from the Norwegian and Russian sampling. Whilst there is an explanation for this the differences inevitably generate some uncertainty which, together with any uncertainty in the mean weight at age, has a direct effect on the estimation of SSB.

3.3.1.3 Fisheries management plan and annual advice

A management plan linked to a harvest control rule (HCR) has been implemented since 2004 with the objectives of maintaining a high long-term yield, year-to-year stability in landings and full utilization of all available information on stock dynamics (ICES, 2005). A review and discussion of the HCR was made by the ICES in 2007 (ICES, 2007a). They discovered that the HCR could give unexpected and possibly unwanted results if the assessment changes much from year to year in a situation when SSB is close to Bpa. Though this problem has so far not been encountered in the application of the HCR, the Joint Russian–Norwegian Fisheries Commission (JRNFC) amended the previous management plan at its 38th meeting in November 2009.

The amended plan (shown in italics) in the current management plan below) was evaluated by ICES in 2010 (ICES, 2010b) and considered to be in accordance with the precautionary approach. ICES noted that if conditions change to outside the range assumed in the management plan evaluation (with respect to biological conditions, assessment quality, and implementation error), then the management plan may have to be revised. At the 2010 meeting of the Joint Russian–Norwegian Fisheries Commission it was agreed that the plan should remain in force until 2015.

The Plan now states:
"The Parties agreed that the management strategies for cod and haddock should take into account the following:

- *conditions for high long-term yield from the stocks*
- *achievement of year-to-year stability in TACs*
- *full utilization of all available information on stock development*

On this basis, the Parties determined the following decision rules for setting the annual fishing quota (TAC) for Northeast Arctic cod (NEA cod):

- estimate the average TAC level for the coming 3 years based on Fpa. TAC for the next year will be set to this level as a starting value for the 3-year period.
- the year after, the TAC calculation for the next 3 years is repeated based on the updated information about the stock development, however the TAC should not be changed by more than +/- 10% compared with the previous year's TAC. If the TAC, by following such a rule, corresponds to a fishing mortality (F) lower than 0.30 the TAC should be increased to a level corresponding to a fishing mortality of 0.30.

- if the spawning stock falls below Bpa, the procedure for establishing TAC should be based on a fishing mortality that is linearly reduced from Fpa at Bpa, to F= 0 at SSB equal to zero. At SSB-levels below Bpa in any of the operational years (current year, a year before and 3 years of prediction) there should be no limitations on the year-to-year variations in TAC"[4].

[4] *This quotation is taken from Annex 14 in the Protocol of the 38th Session of the Joint Russian–Norwegian Fisheries Commission and translated from Norwegian to English. For an accurate interpretation you should consult the text in the official languages of the Commission (Norwegian and Russian).*

MSC FISHERY ASSESSMENT REPORT

At the 39th Session of the Joint Russian–Norwegian Fisheries Commission in October 2010 it was agreed that the current management plan should be used 'for five more years' before it is evaluated.

Reference points

The current reference points for Northeast Arctic cod were estimated by an ICES Study Group on biological reference points for North East Arctic cod (ICES, 2003) and adopted by ACFM at the May 2003 meeting. At the 38th session of JRNFC the new version of the management rule (above) was adopted. As part of their evaluation of the new rule, the Arctic Fisheries Working Group (AFWG) investigated Fpa, using long-term simulations. They concluded that the Fpa of 0.4 in the HCR provides a long-term yield corresponding to the maximum (Fmsy). Similarly the Bpa, 460Kt, which was the trigger point and management plan target in the HCR, could also serve as the MSY biomass trigger point.MSY reference points were also endorsed in 2010 following the ICES Workshop, WKFRAME, on the implementation of Fmsy (ICES, 2010c).

	Type	**Value**	**Technical basis**
	Blim	220Kt	SSB/R change-point regression
Precautionary	Bpa	460Kt	Lowest SSB estimate having > 90% probability of remaining above Blim
Approach	Flim	0.74	F corresponding to an equilibrium stock at Blim
	Fpa	0.40	The highest F estimate with >90% probability of remaining below Flim.
Management	SSB mp	460Kt	Bpa. TAC linearly reduced corresponding to F= Fpa at SSB=Bpa to F=0 at SSB = Zero
plan	Fmp	0.40	Fpa. average TAC for next 3yrs based on Fpa
MSY	MSY B trigger	460Kt	Bpa and the trigger point in the HCR
Approach	Fmsy	0.40	Long-term simulations

ICES Advice

The advice for the 2012 fishery given by ACOM in 2011 (ICES, 2011a) was based on the assessment made by AFWG in 2011(ICES, 2011b). The JNRFC used the agreed rule, applying the three years (2012-2014) average catch with F=0.40 when the SSB is above Bpa. This rule gave a NEA cod TAC for 2012 of 751,000 t, which was the quota set by JNRFC for 2012. In addition, the TAC for Norwegian Coastal cod was set to the same value for 2012 as for 2011: 21,000t.

For the 2013 fishery advice was based on a fishing mortality in 2012 equal to the fishing mortality in 2011 (F0.26) which would generate landings of 857,000t in 2012 which would be in excess of the agreed TAC of 751,000t (ICES, 2012a). This would lead to an SSB at spawning time in 2013 of 2.225 million t.

Following the MSY Approach with a fishing mortality of F0.40 would generate landings of 1191Kt in 2013 leading to an SSB of 1.8 million t at spawning time in 2014.

Following the Management plan the catch in 2013 would be based on F0.30, which would generate landings of 940,000t and leave the SSB at 2.03million t in 2014, which is well above the historical high. The agreed TAC for the 2013 fishery was 940,000t and in line with the long term management plan.

Addendum (September 2013)
The ICES 2013 Arctic Fisheries Working Group (AFWG) met from 18 – 24 April 2013. The report of that working group was not available in the public domain until after the assessment site visit and scoring meeting in Murmansk from 13 – 17 May 2013 (ICES, 2013a). The resultant ICES advisory committee (ACOM) advice for arctic cod, based on the AFWG report, was published in June 2013 (ICES, 2013b).

Stock Status update to 2013.
Landings in 2012 were 754kt against an agreed TAC of 751kt. 70% of the landings were from the demersal trawlers and the remainder from other fishing methods.
Surveys indicate that recruitment of the year classes from 2010 to 2012 are slightly above average.
The SSB at spawning time in 2013 was estimated at 1986kt which is the highest in the time series dating back to 1946.
Fishing mortality has been steadily declining since the turn of the century and at F 0.23 in 2012 is at its lowest point in the time series.
The retrospective estimate of SSB in 2012 was 8% lower and the retrospective estimate of F in the 2011 fishery was 16% higher.
ICES continues to estimate the current stock status as being harvested sustainably with full reproductive capacity. The management of the fishery is in line with the long term management plan and with MSY and precautionary approach targets.

ICES advice for the fishery in 2014
For the 2014 fishery the advice was based on a fishing mortality in 2013 equal to the fishing mortality in 2012 (F0.23) which would generate landings of 735Kt in 2013 which would be below the agreed TAC of 1000Kt (including 21Kt for coastal cod) (ICES, 2013b). This would lead to an SSB at spawning time in 2014 of 2106Kt.
Following the Management plan the catch in 2014 would be based on F0.34 which would generate catches of 993Kt and an SSB of 1796Kt in 2015.
Following the MSY Approach, with a fishing mortality of F0.40, would generate catches of 1131Kt in 2014 leading to an SSB of 1676Kt at spawning time in 2015.

Conclusion
The evidence presented in the 2013 AFWG report (ICES, 2013a) and the subsequent ACOM advice (ICES, 2013b) would not have significantly affected the scoring comments or the scores in Principle 1 had it been available to the assessment team at the time of the site visit and scoring meeting.

3.3.2 North East Arctic haddock (*Melanogrammus aeglefinus*)

3.3.2.1 Life history

In the north East Atlantic haddock are widely distributed from the Celtic Sea, Irish Sea, central and northern North Sea northwards through the Norwegian Sea, Faroe Islands, Iceland and the Barents Sea. It only rarely occurs as far south as the English Channel and northern Biscay (Wheeler, 1969).

Haddock is a bottom living fish, inhabiting depths between 40m and 150m. It is not continuously distributed throughout its geographic range, but forms local populations which

are sufficiently isolated at spawning times to be considered and managed as separate stocks. In that context, the North East Arctic haddock population can be considered as a separate stock. They are found in the Norwegian Sea, Barents Sea and adjacent waters mainly at temperatures above 2^{o}C. The main spawning grounds of this stock are along the continental slope off the Norwegian coast from latitude 70^{o} 30'N to 73^{o}N in depths between 50m and 150m. They spawn in this area between March and June in areas of high salinity and at temperatures between 5^{o}C and 7^{o}C. Fecundity is high ranging from 100,000 to 1 million eggs per female depending on size and age. The eggs are planktonic and, because they are of similar size, are difficult to distinguish from cod eggs until late embryonic development (Russell, 1976). The larvae and early juvenile stages are also planktonic and are subjected to residual drift which takes them to their nursery areas in the southern Barents Sea. Maturing and mature fish tend to migrate back from the nursery areas to the Norwegian Sea.

The population dynamics of haddock throughout its distribution range are characterised by large fluctuations in recruitment. Year class strength, measured at age three, may vary by up to two orders of magnitude between good and poor year classes. The mechanisms which generate such volatility in juvenile haddock survival rates are not understood. Though there is no obvious relationship between spawning stock size and subsequent recruitment of North East Arctic haddock, water temperature during the first and second years of its life cycle is a fairly reliable indicator of year-class strength. If mean annual water temperature in the bottom layer during the first two years of haddock life does not exceed 3.75 °C (Kola - section), then the probability that strong year-classes will appear is very low even if other factors, such as food availability, are favourable. Steep rises or falls in water temperature also have a marked effect on the abundance of year classes (ICES 2010a, Annex 4).

Once they become demersal, during the first year of their life, haddock are predominantly benthic feeders taking echinoderms, polychaetes, ophiuroids and gastropods, although they can at times feed opportunistically on capelin, capelin eggs, herring and even euphausids.

Haddock growth rates vary over its distribution range and generally depend on the population abundance, the availability of the main prey species and water temperature. They will generally grow to <20 cm during their first year, up to 30cm in their second year and attain their maximum length of around 80cm (3kg) at ten years old(ICES 2010a, Annexe 4).Figure 17 shows the fishable biomass of North East Arctic haddock, in 2011, over the age range 3-11+ years. This shows that haddock over ten years old are present in the stock but are not common.

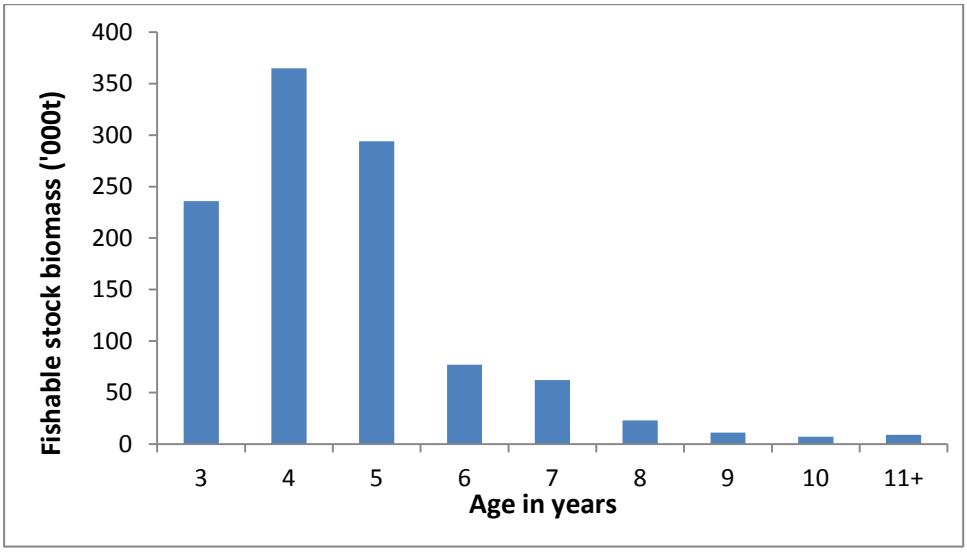


Figure 17.The fishable stock biomass of North East Arctic haddock, in thousands of tonnes, in 2011(ICES 2012b).

North East Arctic haddock mainly begin to mature during their fifth year at a size of around 41cm for males and 46cm for females. A small percentage may be mature at 3 and 4 years old. Over 95% of the population are mature at eight years old (Figure 18).

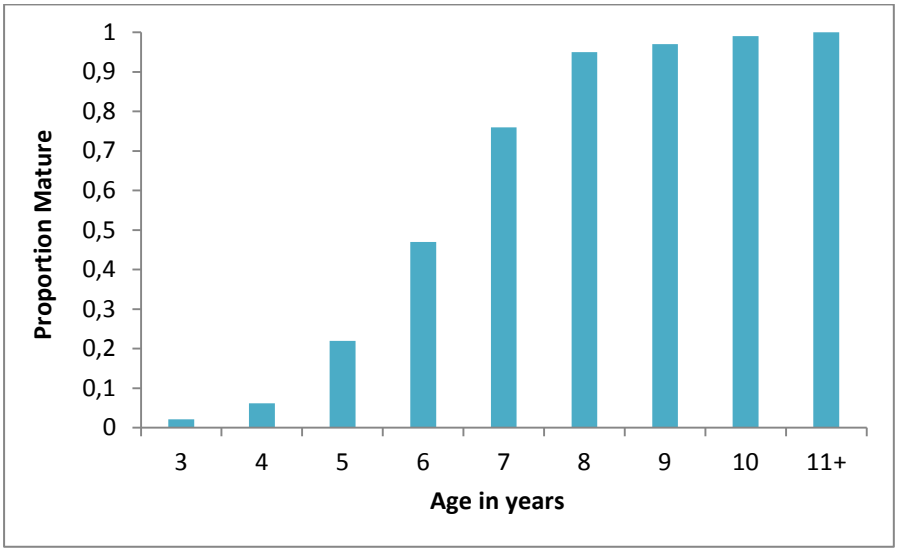


Figure 18. The proportion of North East Arctic haddock mature, over the age range 3 – 11+ years, in 2011(ICES 2012b).

3.3.2.2 Stock status and stock assessment

Since 1999 the total reported annual landings have been close to the agreed TAC (Figure 19). In 2002, however, the ICES AFWG included an estimate of unreported landings for the first time (ICES, 2002), which showed that actual landings exceeded the agreed TAC by as much as 40,000t (in 2005). The extent of this problem gradually reduced after 2005 as a result of increased monitoring and surveillance and, by 2008, the problem had effectively been eliminated. The total official landings of haddock from sub-Areas I and II in 2011 were

309,875 t which was an increase of 161,000t on the 2010 landings and 7,000t above the agreed TAC(ICES 2012a).

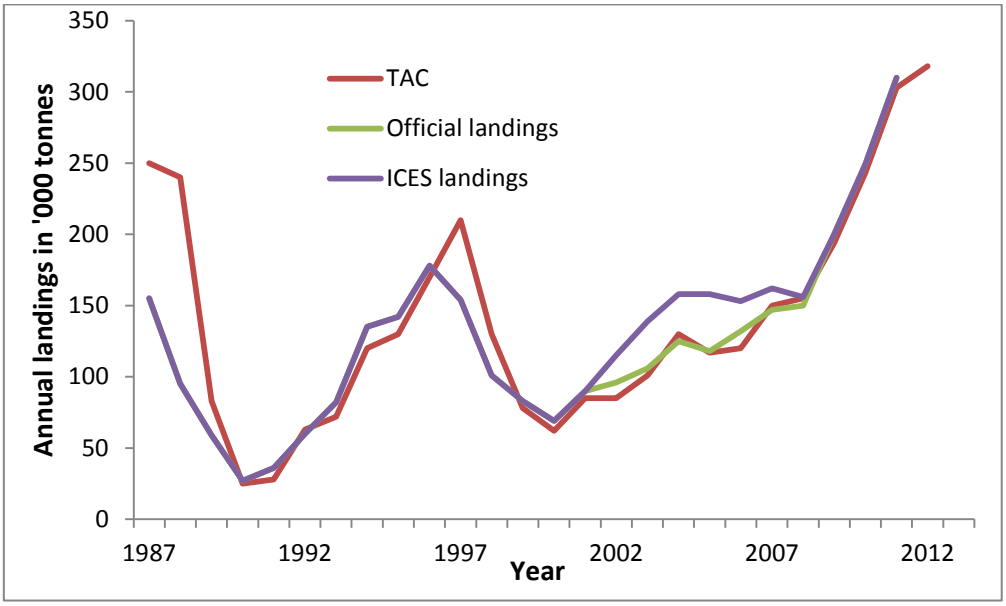


Figure 19. Official annual landings and the ICES AFWG's estimate of annual landings of North East Arctic haddock, in thousands of t, over the period 1987 to 2011. The agreed TAC is also shown(ICES 2012a).

Since2006, the ICES AFWG has included landings of haddock by Norway from the area between 62°N and the Lofoten Islands in their assessment (ICES, 2006a).

The assessment in 2012 was an update assessment using catch and tuning series data from the most recent surveys. The last 'benchmark' assessment, with full data exploration, was in January 2011 on the status of the stock in 2010. Extended Survivors analysis (XSA) was used to tune the model to the various tuning indices. The tuning indices used in the assessment all cover the Barents Sea area and are all accorded the same weighting in the assessment. There are three surveys which produce four tuning indices.

- Russian bottom-trawl survey in the autumn: time series from 1983 to 2011for ages 3-7yrs.
- Joint Norwegian / Russian bottom-trawl survey in the winter: time series from 1982 to 2011for ages 3-8yrs.
- Joint Norwegian / Russian acoustic survey in the winter: time series from 1980 to 2011for ages 3-7yrs.
- Joint Norwegian / Russian '0' group / ecosystem and bottom trawl survey in the autumn: time series 2004 to 2011.

Since the meeting in 2004, the AFWG have not used any of the survey series data prior to 1990, chiefly due to uncertainties related to changes in survey methodology since 1990. The joint '0' group / ecosystem and bottom trawl survey in August / September was first used in the 2011 assessment after selection by the ICES benchmark assessment workshop (ICES, 2011c). This index correlates well with the other indices and shows good internal

consistency. However ages 1 and 2yrs are not used in the assessment because of their influence on retrospective patterns (ICES, 2011b).

The assessment in 2012 of the state of the stock in 2011 indicated that the SSB had increased to an historic high for the stock of 444,837t at spawning time in 2011 (Figure 20).This increase of 95,000t over 2010continued the general upward trend since 2000, though the estimated SSB at spawning time in 2012 had fallen by 71,000t to 373,646t. The SSB has now been above the management plan, precautionary approach and MSY trigger level of 80,000t since 1989 (ICES 2012a).

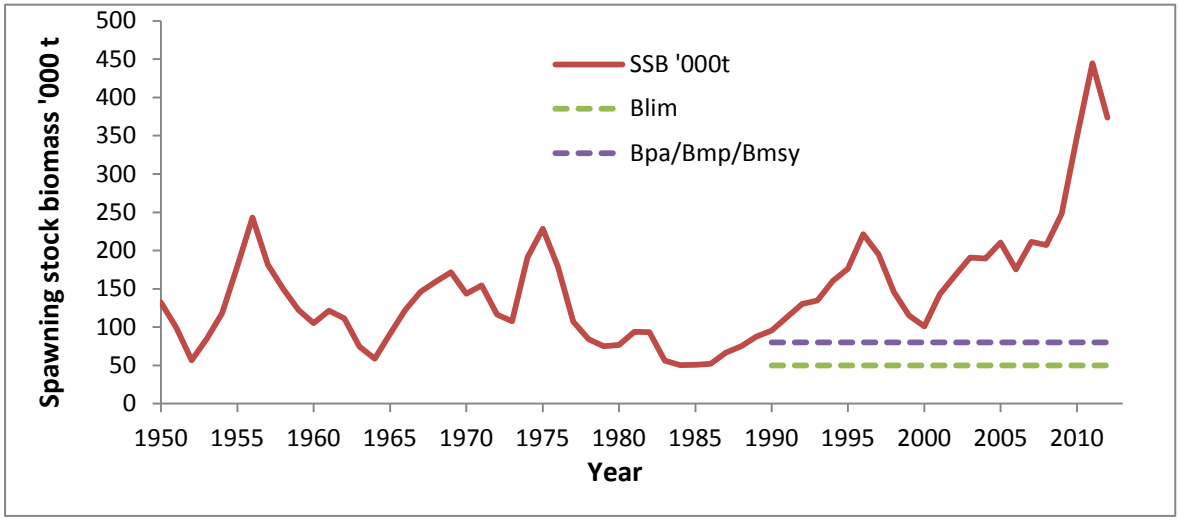


Figure 20.The annual estimate of SSB of North East Arctic haddock, in thousands of tonnes, over the period 1950 to 2012. The reference points for the biomass limit level (Blim) and the precautionary approach (Bpa), management plan (Bmp) and MSY trigger (Bmsy) levels are also shown(ICES 2012a).

Fishing mortality has been below the management plan and MSY target levels since 2008 and consistently below the precautionary approach level of F0.47. since 1988. In the 2012 assessment, however, F was estimated at F0.39 in 2011, and had thus crept above the management plan and MSY target level of F0.35.

Annual recruitment at age 3 (Figure 21) shows large fluctuations in year-class strength. In recent years there have been three consecutive strong year classes, in 2004, 2005 and 2006 with the 2005 year class the largest in the time series dating back to the 1947 year class (3yrs old in 1950). The 2007 year class is above average but the 2008 year class appears to be poor. Preliminary survey estimates of the subsequent year classes indicate that they are around the long-term average. With such volatility in annual recruitment it is not surprising to find that there is not a strong relationship between spawning stock size and subsequent recruitment (Figure 22). It can, however, be seen that above-average recruitment can occur at around the lowest observed levels of SSB in the time series. This then provides a basis for setting the biomass limit level at Bloss, the lowest observed SSB in the time series.

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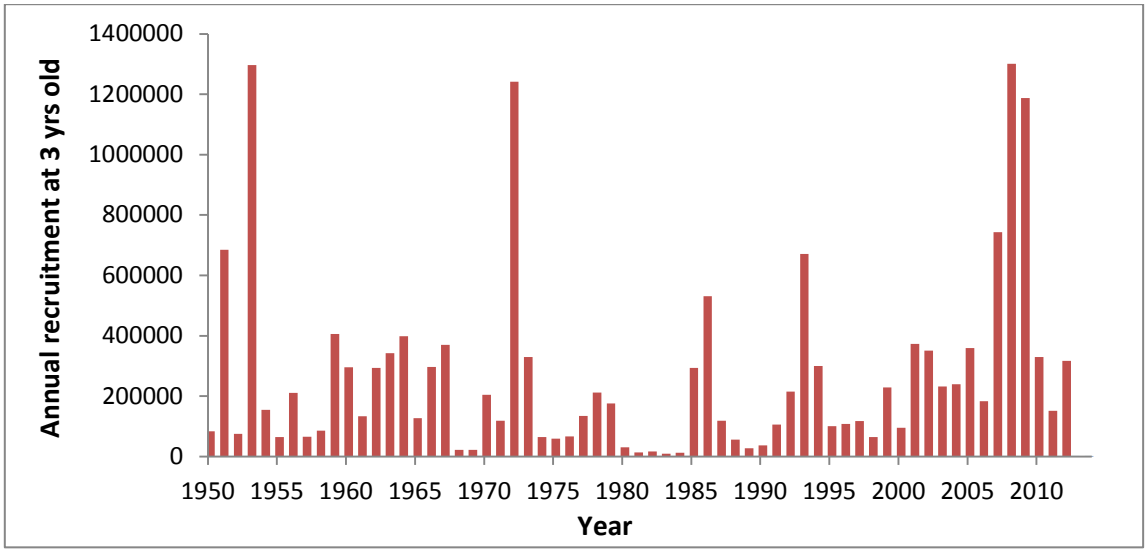


Figure 21.Annual recruitment to the North East Arctic haddock stock as thousands of three years old fish over the time series 1950 to 2012 (year classes 1947 to 2009)(ICES 2012a).

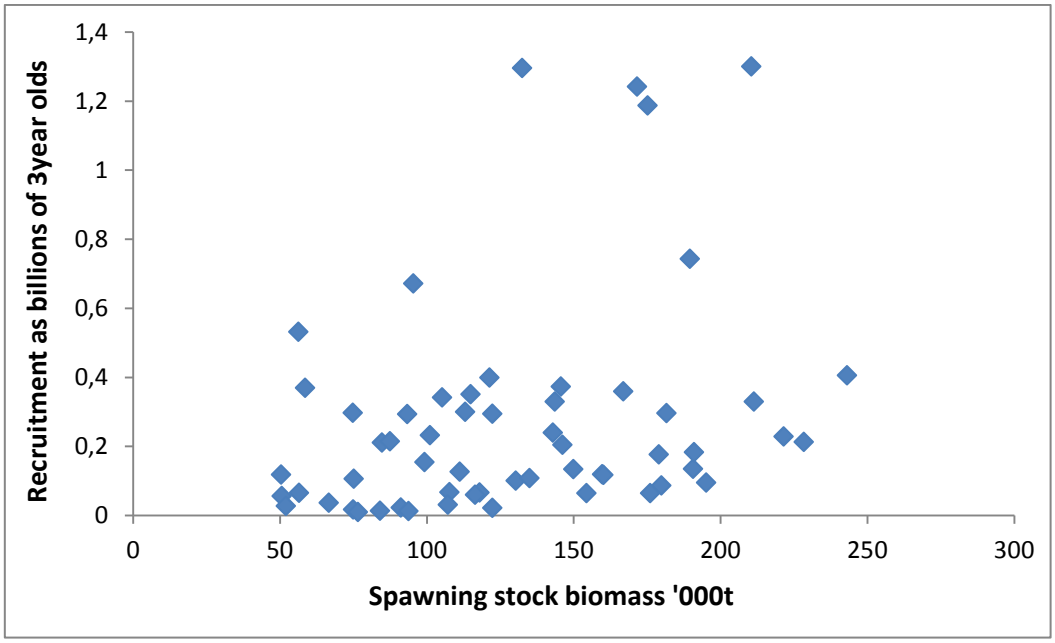


Figure 22.The relationship between the numbers of three years old North East Arctic haddock and the SSB from which they were produced over the time series 1950 to 2009(ICES 2012a).

Uncertainty in the assessment is generated by the following factors:

- Non-compliance in the past with TAC regulations have resulted in a significant amount of illegal and unreported catches. The problem has decreased in recent years and is now considered to be almost negligible and does not affect the data collected in 2009 to 2011. However, the unreliability of past records does continue to affect the assessment in relation to current stock status.

- Incomplete survey coverage in recent years has generated some uncertainty in relation to the resultant tuning indices. In 2012 the spatial coverage in the joint winter survey was incomplete beacuse of technical problems with a Norwegian survey vessel.
- Although biological sampling of the catch is generally considered to be good, the termination of a Norwegian port-sampling programme of commercial catches in 2009 has affected the estimates of the catches of the oldest ages in 2010. The situation improved in 2011 with the start of a small Norewegian port-sampling programme and an increase in sampling on the high seas reference fleet. The Russian sampling of commercial catches has also shown a declining trend.
- Discarding is illegal although it is recognised that some discarding may occur at a level which is not recorded and therefore unknown.

3.3.2.3 Fisheries Management plan and annual advice

A management plan was agreed by the JNRFC and has been in force since 2004 (ICES, 2010a). The Commission reviews the advice from ICES, based on the management plan and as a result sets an annual TAC. The plan was modified in 2007 from a three-year rule to a one-year rule on the basis of the HCR evaluation conducted by ICES. The HCR and resultant modified management plan was evaluated by ICES in 2007 (ICES, 2007b) and found to be in agreement with the precautionary approach. As a consequence ICES provides advice annually based on the revised management plan.

The agreed HCR for haddock with the latest modifications is as follows (Protocol of the 40th Session of The JNRFC, 14 October 2011):

− *TAC for the next year will be set at level corresponding to Fmsy.*
− *The TAC should not be changed by more than +/- 25% compared with the previous year's TAC.*
− *If SSB falls below Bpa, the procedure for establishing the TAC should be based on a fishing mortality that is linearly reduced from Fmsy at Bpa to F= 0 at SSB equal to zero. At SSB levels below Bpa in any of the operational years (current year and a year ahead) there should be no limitations on the year to-year variations in TAC.*

Management advice

For the 2010 fishery the ICES advice was for catches < 243,000t and the agreed TAC was 243,000t and the official landings figure was 249,000t (ICES, 2011a). For 2011 the ICES advice was for catches <303,000t, the agreed TAC was 303,000t, and official landings were 310,000t (ICES, 2012a). Based on the management plan the advice for the 2012 fishery showed a further increase to allowable catches to <318,000t (ICES, 2012a).

Based on the management plan and HCR, ICES advice for the catch in 2013 shows a further decrease to <238,000t which is expected to keep SSB well above Bpa in 2014 (ICES, 2012a). This level of catch implies a fishing mortality of F 0.61 which is well above both the Fmsy and Fmp reference points. Following the Fmsy framework would generate catches of 154,000t in 2013 whilst the precautionary approach F of 0.47 would generate catches of 195,000t. The agreed TAC for 2013 was 200Kt.
It is accepted that under certain circumstances the HCR, and in particular the restriction on changes in the TAC to +/- 25% when the stock is above Bpa, may lead to an advisory TAC which would generate a fishing mortality substantially higher than Fmsy. This has occurred

in 2013 due mainly to the three very large recruitments, as three year olds, in 2007, 2008 followed by average or below average recruitment (ICES, 2012a).

Reference Points

It is accepted that there is no standard method recognised for the estimation of either Fpa or Flim. Reference points were reviewed in 2006 by a special ICES workshop on biological reference points for North East Arctic haddock (ICES, 2006b).The biomass and fishing mortality reference points were reviewed again in 2011by the ICES Benchmark Workshop on Roundfish and Pelagic stocks (ICES 2011c). They concluded that long-term stochastic simulations for Northeast Arctic haddock show that the F = 0.35 currently used in the management plan corresponds to Fmsy and provides high long-term yield. MSY B trigger is chosen as Bpa, which is a biomass that is encountered with low probability if FMSY is implemented (ICES, 2011c).

Based on an analysis of the stock and recruitment plot the AFWG in 2011 (ICES, 2011b) proposed that Blim and Bpa remained unchanged at 50Kt and 80Kt respectively. The Bpa of 80Kt ensures a 95% probability of maintaining SSB above Blim taking into account uncertainty in the assessment and the stock dynamics.

The ICES advisory committee, ACOM endorsed the rationale of the working group in revisiting F reference points and accepted the revised and new values as listed in the Table below.

	Type	Value	Technical basis
Management	SSB mp	80Kt	Bpa. TAC linearly reduced from Fpa at SSB=Bpa to 0 at SSB = Zero
plan	Fmp	0.35	Fpa estimated prior to revision of the historical time series for the stock
MSY	MSY B trigger	80Kt	Bpa
Approach	Fmsy	0.35	Stochastic long term simulations
	Blim	50Kt	B loss
Precautionary	Bpa	80Kt	Blim *exp(1.645*0.3)
Approach	Flim	0.77	Corresponds to SPR value of the slope of the line from the origin at SSB =0 to geometric mean recruitment at SSB = Blim
	Fpa	0.47	Flim*exp(-1.6450.3

Addendum 2013 (September 2013)

The ICES 2013 Arctic Fisheries Working Group (AFWG) met from 18 – 24 April 2013. The report of that working group was not available in the public domain until after the assessment site visit and scoring meeting in Murmansk from 13 – 17 May 2013 (ICES, 2013a). The resultant ICES advisory committee (ACOM) advice for north-east arctic haddock, based on the AFWG report, was published in June 2013 (ICES, 2013c).

Stock Status update 2013

Landings in 2012 were 315Kt against an agreed TAC of 318Kt. 70% of the landings were from the demersal trawlers, 19% from long-liners and the remaining 11% from other methods.

Recruitment at age 3 yrs has been above average since 2000 and year classes 2004 – 2006 are estimated to be very strong and now dominating the spawning biomass. Surveys

indicate that year classes 2008, 2010 and 2012 may be below average but the 2009 and 2011 year classes appear to be above average.
The SSB at spawning time in 2013 was estimated at 255Kt which is a 34% reduction on the 2012 estimate but still the fourth highest in the time series, dating back to 1950, and well above the management plan, MSY and precautionary approach target level of 80,000t.
Fishing mortality, based on ages 4-7yrs, increased from F 0.44 in 2011 to F 0.56 in 2012 and remains above the management plan and MSY target level of F 0.35. ICES recognise that this is a function of the harvest control rule 25% limit on TAC change when the stock is above Bpa. The situation is expected to continue in 2013 and 2014 because of the three very large year classes in the stock.
The retrospective estimate of the total stock in 2012 was 5% higher and the SSB was 1% higher. The retrospective estimate of F in the 2011 fishery was 11% higher than the previous estimate..
On the basis of the estimates of SSB ICES continues to consider that the stock is at full reproductive capacity and well above both the MSY and precautionary approach target level. For reasons noted above the fishing mortality is currently above both the MSY and Management plan target levels. In that context it should be noted that, since 2009, the annual landings have been in line with the agreed TAC which has been based on the ICES advice and the Management plan.

ICES advice for the fishery in 2014
For the 2014 fishery the advice was based on a fishing mortality in 2013 equal to the fishing mortality in 2012 (F0.56) which would generate landings of 213Kt in 2013 (Agreed TAC 200Kt) (ICES, 2013c). This would lead to an SSB at spawning time in 2014 of 178Kt.
Following the Management plan the catch in 2014 would be based on F0.58 which would generate catches of 150Kt and an SSB of 130Kt in 2015.
Following the MSY approach, with a fishing mortality of F0.35, would generate catches of 100Kt in 2014 leading to an SSB of 162Kt at spawning time in 2015
Following the Precautionary approach, with a fishing mortality of F0.47, would generate catches of 127Kt in 2014 and an SSB of 144Kt in 2015.

Conclusion
The evidence presented in the 2013 AFWG report (ICES, 2013a) and the subsequent ACOM advice (ICES, 2013c) would not have significantly affected the scoring comments or the scores in Principle 1 had it been available to the assessment team at the time of the site visit and scoring meeting.

3.4 Principle Two: Ecosystem Background

Principle 2 of the Marine Stewardship Council standard states that: *Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent ecologically related species) on which the fishery depends.*
The following section of the report highlights some of the key characteristics of the fishery under assessment with regard to its wider impact on the ecosystem.

3.4.1 The status of the Barents Sea ecosystem

The Barents Sea Ecosystem comprises the Northeast Atlantic, the Arctic shelf seas north of the Arctic Circle, the White Sea and the waters surrounding the archipelagos of Svalbard, Franz Josef Land and Novaya Zemlya. It encompasses the boundary between warm Atlantic and cold polar water, the relatively flat and shallow shelf area of the Barents Sea and the slopes and underwater canyons of the shelf edge, and both ice covered and open water. These boundaries and the mixing zones associated with them strongly influence the high productivity of the area in terms of plankton, fisheries, seabirds and sea mammals.

Knowledge and understanding of the fisheries, seabirds and sea mammals is relatively well advanced (see, for example, Larson *et al*. 2003) and, though information on the distribution and functioning of benthic habitats is more limited (Hoel *et al*. 2009), this is improving as results emerge from the Mareano Project (Norwegian Waters) and Barents Portal (The Joint Norwegian-Russian Environmental Status Report for the Barents Sea).

The key features of the Barents Sea ecosystem are:

- High productivity and biodiversity associated with polar front, sea ice edge, and continental slope;
- Relatively pollution free;
- Large inter-annual variations in productivity related to variations in the inflow of Atlantic water and/or other oceanographic changes;
- More than 2,500 benthic invertebrate species recorded, with decreasing biodiversity from west to east;
- Benthos composition highly variable dependent on overlying (Arctic or Atlantic) water;
- Sea bottom dominated by sponges in certain areas;
- Deep-water coral reefs along the Norwegian coast;
- Relatively short and simple food chains, but complex relationships between the major fish species (cod, haddock, herring, capelin and polar cod) with predator-prey relationships shifting according to opportunity and life cycle stage;
- Capelin is a key species serving as major predator of zooplankton and major prey species of other fish, birds and mammals. It has suffered three major collapses in the last 25 years, though the causes are poorly understood (NB cooling favours capelin; warming favours cod and herring);

- Presence of several alien species, including the introduced red king crab (*Paralithodes camchaticus*);
- Highly concentrated fishing pressure based on known movement and aggregation of cod and haddock;
- Summer population of around 20-25 million seabirds (more than 40 species) that breed predominantly on the Norwegian mainland, Novaya Zemlya and Svalbard and consume approximately 1.2 million t of biomass annually and which play a significant role in transferring nutrients from sea to land and from north to south
- Significant marine mammal populations (minke, humpback and fin whale - which breed further south and forage in the Barents Sea) beluga and narwhal (which breed in the area), harp, common, grey, bearded, hooded and ringed seals, some of which are hunted;
- Gas and oil activities are increasing.

3.4.2 Retained species in the UoCs.

Based on information obtained through similar assessments of other Barents Sea cod and haddock fisheries, it is highly unlikely that there are any main by-catch species (comprising <5% of the total catch) taken in the UoCs (other than haddock in the cod UoC, and cod in the haddock UoC). Retained species were likely to include saithe, Greenland halibut, wolffish (Anarhichas **spp) and redfish (Sebastes** spp). According to information provided by the client for this assessment, the following species were caught in 2010-2012 by the two trawlers operating in the proportions and quantities indicated in Table 5 below. The assessment team considered **that** the client data are representative of the rest of the Russian fleet using demersal trawls to catch cod and haddock due to the nature of fishing operations. Fishing operators in the UoC operate with the similar bottom gear, fish in the same area and under the same rules and legislation, including discard ban. Therefore, they retain the same species.

Species	***Latin name***	**Mean annual catch 2010-2012**	**Mean annual proportion of total catch (%)**
COD	*Gadus morhua*	23128	69.1
HADDOCK	*Melanogrammus aeglefinus*	8916	26.7
SAITHE	*Pollachius virens*	889	2.7
GREENLAND HALIBUT	*Reinhardtius platessoides*	199	0.6
REDFISH	*Sebastes spp*	146	0.4
SPOTTED WOLFFISH	*Anarhichas minor*	66	0.2
NORTHERN WOLFFISH	*Anarhichas denticulatus*	28	0.1
ATLANTIC WOLFFISH	*Anarhichas lupus*	44	0.1
PLAICE	*Pleuronectes platessa*	36	0.1

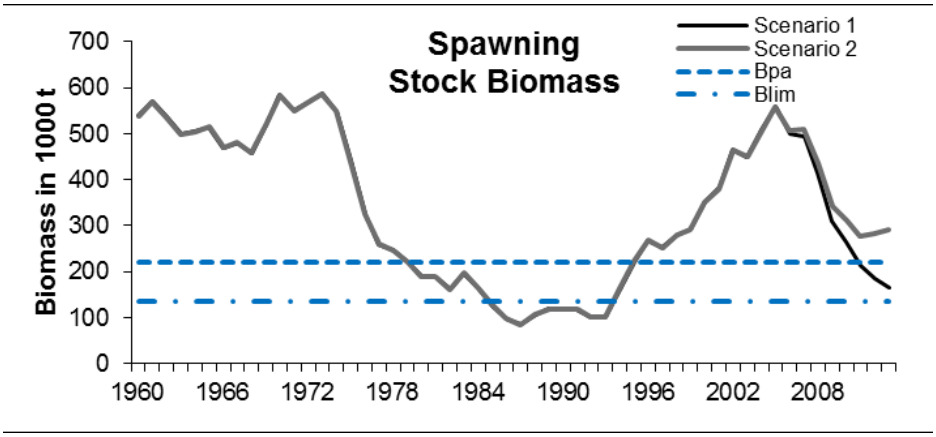
Table 5 Catch composition of the Russian Barents Sea Trawl Fleet, 2010-2012.

These figures are accurate and verifiable and present a good picture of landings, as the proportions of each species in the total landings were consistent from year to year. The next most important retained after cod and haddock is saithe, though this might not be considered a "main retained species" (<5%). Other retained species included Greenland halibut, redfish (*S. mentella and S. marinus*), three species of wolffish (*A. minor, A. denticulatus and A. lupus*), and plaice, all in relatively small proportions (<1%). The stock status and management measures of these retained species are presented below.

In the scoring tables, the team has scored the outcome status for the retained species individually and then an overall score was assigned by applying the scoring rule described in p18 from FAM v2 (Table C2).

3.4.2.1 Saithe (*Pollachius virens*)

ICES advice in June 2013 is that the SSB of saithe in Sub-areas I &II (Northeast Arctic) has declined since 2005 and is likely to be close to Bpa in 2013. Fishing mortality was below Fpa from 1996 to 2009, but started to increase in 2005 and is likely to be close to the level (Fpa = 0.35) required by the management plan. Though ICES did not accept an assessment for this stock in 2013, the two exploratory scenarios presented (Figure 23) are considered to capture the main aspects of the stock's dynamics. ICES advice is that catches (all assumed to be landed) in 2014 should be no more than 140,000 t (= TAC in 2013). Landings of saithe have been consistently high over the last decade, when recruitment has fluctuated around the long-term mean. The mean annual total international catch 2010-12 is 170,000 t, of which the catch taken by the client fleet, 889 t, represents 0.5%.



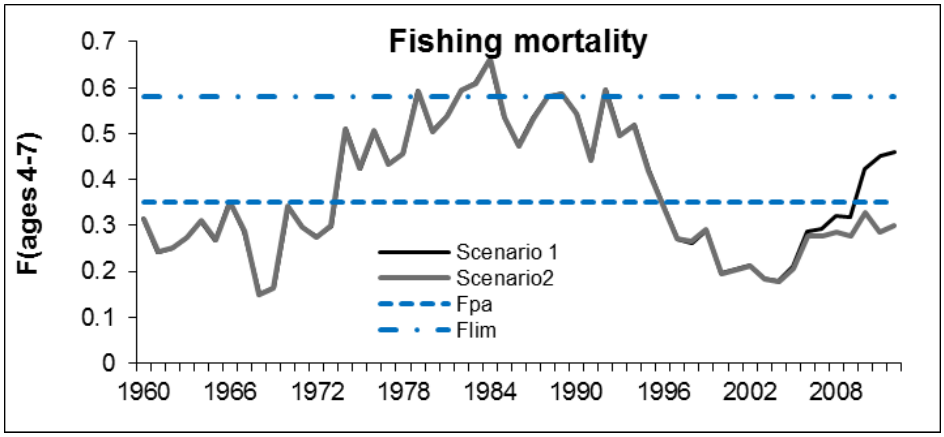


Figure 23. Summary of the two exploratory stock assessments for SSB and F of saithe in Subareas I and II used by ICES to give advice in June 2013.

The Norwegian Ministry of Fisheries and Coastal Affairs implemented a harvest control rule (HCR) for saithe in autumn 2007, which ICES evaluated and concluded is consistent with the precautionary approach.

3.4.2.2 Greenland halibut *(Reinhardtius hippoglossoides)*

Only landings and survey trends of biomass and abundance are available for the Greenland halibut stock in Sub-areas I & II. The Norwegian survey has indicated a constant stock size over the last decade, whereas abundance indices in the Russian survey have increased considerably (Figure 24). Despite these indications that the stock is stable or increasing, there are no reference points, and ICES' advice for 2014 is that catches (all assumed to be landed) should be no more than 15 000 t (as for 2013). The TAC set by the Joint Russian–Norwegian Fisheries Commission for 2013 was 19,000 t. There are no explicit management objectives for this stock. Norwegian and Russian vessels take most of the catch of this species, but the client fleet's annual catch of 199 t is a negligible (1%) of the total catch of around 17,000 t in Subareas I & II in 2010-12. The next benchmark for the Northeast Arctic (NEA) Greenland halibut stock is scheduled for November 2013.

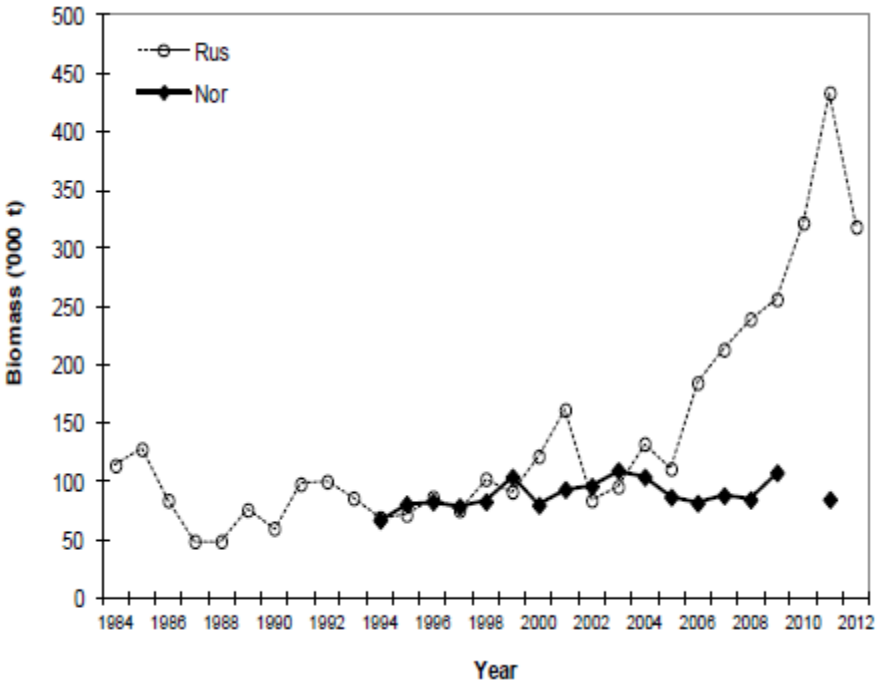


Figure 24.Swept area estimate of total biomass of Greenland halibut in Subareas I and II in the Russian (Slope and central Barents Sea) and Norwegian autumn surveys.

3.4.2.3 Redfish *(Sebastes spp.)*

Two species of redfish are taken in the UoC: the **beaked redfish** *S. mentella* and the **Golden redfish** *S. marinus*, which tends to be more coastal than deep sea. These species are not always distinguished in the catch (a proportion is classified simply as redfish), which makes assessment and management more difficult. Allocation of redfish catch to species by ICES working groups is done *a posteriori* with unquantified uncertainty. Discards are believed to be low, so catch is assumed to equate to landings.

Beaked Redfish are long-lived (maximum age 75 years) and widely distributed on the shelf and slope and in the open ocean from 300 to 1400 m in the North Atlantic. The juveniles are predominantly distributed in the Barents Sea and Svalbard areas.

There is uncertainty about the absolute levels in the assessment model used by ICES, and reference points are not available for this stock. However, total stock biomass is estimated to have been relatively stable over the last ten years, with a higher proportion of mature fish than in the 1990s.SSB increased steadily from 1992 to 2009, followed by a decline due to poor recruitment of the year classes 1996 to 2003 (the average age at first maturity is 11 years) (Figure 25). Although subsequent recruitment appears to have returned to high levels, this will have little impact on the SSB or fishery for several years, and ICES considers that catch forecasts based on the long-term average Fmsy may be inappropriate in the short term, and that a more detailed evaluation is required on the appropriate Fmsy level (expected in early 2014).

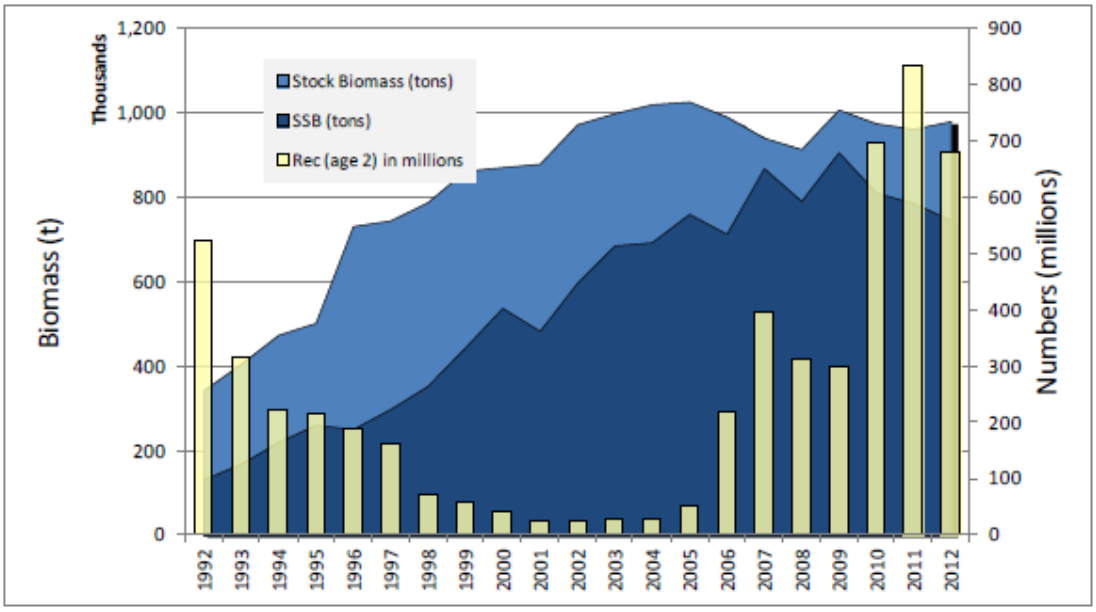


Figure 25. ICES' estimates of recruitment (age 2), SSB, and total stock biomass of beaked redfish S. mentella in Subareas I and II, 1992–2012.

Given the perception of a currently declining SSB and a period of poor recruitment over the next few years, and uncertainties in the assessment model, ICES advises a *status quo* catch of beaked redfish (*S. mentella*) in Subareas I and II of 24,000 t in 2014 and that the measures currently in place to protect juveniles should be maintained. The client fleet's annual catch of this species of <146 t is a negligible (1%) proportion of the total catch of around 12,000 t in Subareas I and II in 2010-12.

The status of **golden redfish** *S. marinus* is substantially worse than that of the beaked redfish. ICES' assessment shows that SSB has been decreasing since the 1990s and is currently at the lowest level in the time-series. Fishing mortality has been increasing since 2005, and is considered to be well above a sustainable level for a redfish stock. Recruitment has been very low since the late 1990s, though there may be signs of recent better recruitment. As a consequence, ICES' advice for golden redfish in Subareas I and II in 2013–2016 is that there should continue to be no fishing on this stock (advice for 2008 – 2012 no directed fishery and low bycatch limits), and that any bycatch of *S. marinus* in fisheries targeting saithe (for example) in subareas I and II should be kept as low as possible. The current annual catch of the client fleet is < 149 t, is 2% of the international total landings of 6,000t estimated by ICES.

All directed fisheries for redfish except by handline are closed between 20 December-31 July and in September, and directed trawl fishing is not allowed at any time. At present up to 15% redfish (both species combined) is allowable as by-catch when fishing for other species. A minimum legal catch size of 32 cm has been set for all fisheries, with the allowance to have up to 10% undersized (i.e. < 32 cm) specimens of *S. marinus* (in numbers) per haul. The move-on rule means that vessels are required to move to new grounds if these limits are exceeded. All eligible vessels in the Russian fleet are bound by these rules, but it is nevertheless clear that stronger regulation is required at an international level if *S. marinus* is to recover.

3.4.2.4 Wolffish *(Anarhichas spp.)*

Three wolffish species are caught in the UoC, spotted wolffish *Anarhichas minor*, northern wolfish *A. denticulatus* and Atlantic wolffish *A. lupus*, all at relatively low levels. All three species are slow growing and long-lived fish that spawn late in life (5-8 yrs), the male guards large clusters of eggs deposited on the bottom until they hatch, which makes them vulnerable to bottom trawling. ICES do not provide an assessment for these species. Data from the 2012 Ecosystem Survey of the Barents Seas suggest that Atlantic and spotted wolffish are most abundant in shallower waters (50-150m) while Northern wolffish is found between 200 and 400m. The data on these species is limited, although spotted wolfish appears to be the most abundant of the three species. Given their similar life-history characteristics, and that catchability is likely to be highest for *A. minor* because of its association with cod, spotted wolffish is used as the reference species for this group.

Because spotted wolffish has limited commercial importance - it makes up only a small proportion of the trawl catch - there has been no assessment of its stock dynamics. While the data are uncertain, catch rates in the longline fishery appear high and there have been no reports of a decline either in catch or mean size. Anecdotal information from stakeholders suggests that it is most likely not overfished.

3.4.2.5 Plaice (*Pleuronectes platessa*)

There is no ICES assessment of plaice caught in Sub-areas I or II, and this species' main distribution is further south, where stock status is very high.

3.4.2.6 Management measures for retained species

The low levels of retained species in the client fishery are due to a number of factors, including:

- the use of large mesh sizes (140+ mm, above the minimum of 135 mm in Norway & 125 mm in Russia –harmonised to 130mm in all areas from 2011);
- discard bans in place for all key species in Norwegian, Svalbard and Russian sectors;
- use of separator grids (compulsory since 1997);
- move on rule / real time closures - to protect juveniles, or in event of high by catch (in Norwegian waters);
- permanently closed area to protect spawning / nursery grounds;
- the high concentrations of cod and haddock on the fishing grounds;
- experienced and knowledgeable skippers and crews, knowing where best to catch target species;
- the good recent availability of target stock quotas (reflecting good stock status), combined with increased trade in quotas reduces the incentive to 'high grade' catches.

Additional Russian fishing regulations for Northern Basin (RUS EEZ/ Barents Sea) include area closures; seasonal closures; a list of species which it is prohibited to target; catch-weighing equipment on board (must be certified, with an accepted "error margin" for

declared weight of +/-5%); reporting systems and requirements; by-catch levels for wolffish: max. 45% of total catch in 1 haul/ and max. 45% of landed catch, saithe: max. 49% of total catch in 1 haul/ and max. 49% of landed catch, Greenland halibut: max. 12% of total catch in 1 haul/ and max. 7% of landed catch, and redfish: max. 15% of total catch in 1 haul/ and max. 15% of landed catch. If by-catch is over any of these maximum levels, the vessel shall: release the catch into the sea, despite the condition of the catch, but with minimum damage possible, change position by a minimum of 5 nm, record this action in the relevant documents and inform relevant authorities. All allowable by-catch must be registered in log-books.

In conclusion, it appears that stocks of saithe and Greenland halibut are considered to be in reasonable condition, or with good management in place. Though the status of the beaked redfish *S. mentella* is also probably good, management of redfish species to protect the severely depleted golden redfish (*S. marinus*) is difficult, and knowledge of the status of the three wolffish species is poor. Though catch rates of any of these species in UoC are the probably insignificant in management terms, from a vulnerability point-of-view the main concerns for the client fishery relate to golden redfish and wolffish.

3.4.3 Discarding

The majority of fishing activity for the assessed fleet takes place in waters under Norwegian jurisdiction. In these waters, under section 15 of the 2009 Norwegian Marine Resources Act, there is a duty to land all catches of commercial species. Section 48 of the regulations includes a listing all species that must be landed. This covers cod and haddock as well as most species either reported for, or potentially relevant to the fishery under assessment, such as saithe, Greenland halibut, redfish and wolffish. When fishing in waters covered by Russian jurisdiction, discarding of by catch is also banned. These strong discard bans covering all waters of the assessed fishery, combined with the initiatives and management measures listed above, should mean that there is no discarding of fish in the fishery under certification.

The main shortcoming of this approach is that there is little or no market for many of the fish which must be landed, but which would otherwise be discarded at sea. It is also very difficult to enforce, except when inspectors or observers are on board. Various studies indicate that a small amount of discarding does take place undetected across all trawl fisheries in Norwegian and Russian waters. For example, Dolgov *et al* (2005) indicate that skate species (e.g. starry ray *Amblyraja radiata*) that are not generally used for food and for which there is little Russian market demand are discarded in trawl fisheries in the Barents Sea.

There is also likely to be a by catch of macrobenthos. According to Denisenko and Denisenko (1991), the annual removal of bottom invertebrates by trawls in the Barents Sea amounted to some one million t in the period 1955-1986, which often exceeded Russia's total catch of main commercial fish species. Data provided by PINRO show that in the mainly eastern and southern areas where the cod and haddock trawl fishery takes place there is likely to be a by catch of macrobenthos- amounting to several kg per haul. The main species present appear to be relatively abundant and productive species, such as starfish (*Cteno-discus crispatus*), brittlestars (*Ophiura sarsi*) and shrimp (*Sabinea septemcarinata*), which are not listed in the Norwegian regulations governing discarding and are, therefore, permitted to be returned to the sea. It is noted that macrobenthic biomass is lowest in areas which are more heavily trawled – in particular with fewer sessile community-forming organisms, such as sponges (which are addressed in this assessment under 'habitat' at PI

2.4). The difference in distribution is not solely caused by fishing; indeed it is concluded that 63% of the regional variation in by catch biomass was caused by factors such as biological productivity, depth, temperature, salinity etc. For the fishery under consideration, however, the area of operation and the use of sorting grids (an 80mm grill, which also helps to eliminate small fish) and large (140+mm) meshes in the cod end results in very little macro-benthos by catch, other than sponges.

The combination of the discard ban and the low level of enforceability presents a problem for obtaining reliable information of what, if anything is actually discarded. Clearly, honest reporting of discarding of commercial species for analytical purposes is an admission of law breaking. This is ironic, given that one of the great advantages of the discard ban is that reliable data collection benefits if all catches are landed. The recently initiated observer programme by PINRO scientists on board the client vessels, along with the MSC on-board log books in which skippers are encouraged to record discarded species, enables quantitative estimates of discard levels, and can be used to inform future refinement of the management strategy. An indication of the animals released alive to the sea, and the variability between vessels, is provided by the records from the client fleet for the first 4 months of 2013, Table 6.

Species	***Latin name***	**"Strelets"**	**"Korund"**
Common ling	*Molva molva*	48	-
Anglerfish	*Lophius piscatorius*	12	-
Skate	Not identified to species	63	116
Atlantic halibut	*Hippoglossus hippoglossus*	13	-
Lumpfish	*Cyclopterus lumpus*	-	29
Grenadier	*Macrouridae spp*	2	-
Chimera	*Chimaera monstrosa*	-	8
Squid	Not identified to species	2	43
Molluscs	Not identified to species	12 kg	-
Starfish	Not identified to species	110 kg	-
Sponge	Not identified to species	780 kg	46
Coral	Not identified to species	30 kg	-

Table 6. Catch by species (numbers, unless denoted kg) returned alive to the sea from the Russian Barents Sea Trawl Fleet during the 4 months January – April 2013 (Data source: client vessels' MSC logbooks).

It is clear from the above that levels of by catch species in the client fishery are low, if variable, reflecting both the communities on different fishing grounds and a number of factors that serve to minimise by catch. The most important are discussed above in relation to management measures for retained species.

The most numerous fish species taken as by catch and released to the sea alive are members of the skate family (*Rajidae*), which may include the critically endangered common or blue skate *Dipturus batis*. However, skate and ray species are not identified in the MSC logbook records, and this may need to be rectified in future.

It is likely that a large proportion of the “skate” by catch is of starry ray. In trawl surveys undertaken by Dolgov *et al*. (2005) starry ray was caught at a rate of around 10 kg / hour, but the authors conclude that the total catch of skates in the Barents Sea is relatively small compared to the stock size. More recent work has indicated that skates and rays have relatively high post capture survival (55%), although this will depend critically on the weight of fish in the cod end – which tends to be high at present.

Although most elasmobranch species are regarded as vulnerable, starry ray matures relatively quickly and demographic modelling suggests it is less susceptible to fishing mortality than other larger-bodied skate species. For these reasons starry ray is assessed by IUCN as Least Concern in the Northeast Atlantic region.

In the scoring tables, where necessary, the team has scored the outcome status for the by catch species individually and then an overall score was assigned by applying the scoring rule described in p18 from FAM v2 (Table C2).

3.4.4 Endangered, Threatened and Protected Species (ETP)

Russia is a signatory to a number of conventions on species protection and management, notably the Convention on Biological Diversity (CBD), which sets out a general framework and national strategy. More specific proposals on species protection are made under the regional and global nature conservation conventions, primarily the Convention on International Trade in Endangered Species (CITES), to which Russia is also a signatory.

Russia is not a member of the North Atlantic Marine Mammal Commission (NAMMCO), which provides a mechanism for cooperation on conservation and management for all species of cetaceans (whales and dolphins) and pinnipeds (seals and walruses) in the region. Russia does, however, cooperate as a partner on projects. For example, PINRO are actively involved in the Trans-north Atlantic Sightings Survey to estimate the summer distribution and abundance of cetacean populations in the North Atlantic, in particular in Arctic regions.

The Barents Sea is an important area for marine mammals. The PINRO/IMR Joint Ecosystem work concludes that the most common marine mammal in the Barents Sea is the white-beaked dolphin (*Lagenorhynchus albirostris* – IUCN Least Concern). Of the baleen whales, minke (*Balaenoptera acutorostrata* – IUCN Least concern), humpback *Megaptera novaeangliae* – IUCN least concern) and fin (*Balaenoptera physalus* – IUCN endangered) were the most numerous. Only the latter is protected by CITES, whilst two other species that are also protected by CITES: sei whale (*Balaenoptera borealis* – IUCN endangered) and blue whale (*Balaenoptera musculus* - IUCN endangered) are rarer and occasionally observed in the Barents Sea (Joint PINRO / IMR ecosystem report). Harp Seals (*Pagophilus groenladicus* - IUCN least concern) are also present in the Barents Sea, but are not protected by CITES.

The only marine mammal species relevant to this assessment (with the *potential* to interact with the gear), which are also protected by CITES, are whales and dolphins. A review of the impact of Norwegian offshore demersal trawl fisheries on marine mammals is available through the ICES Study Group for Bycatch of Protected Species (SGBYC: ICES 2009), which concludes that larger offshore demersal trawl vessels “are regarded as having a

relatively low risk for bycatches of marine mammals". None were reported for the client fishery, or raised as an issue by stakeholders during the site visit.

No elasmobranches species occurring in the Barents Sea are protected by CITES, although some species such as common or blue skate (*Dipturus batis*), angel shark (*Squatina squatina)* and porbeagle (*Lamna nasus*) which do occur in the Barents Sea are listed by IUCN as critically endangered. The relatively few skates/rays taken as a by catch are dealt with under PI2.2 in the assessment.

Norway is also subject to agreements under OSPAR Annex V "on the protection and conservation of the ecosystems and Biological Diversity in the maritime area". The Norwegian Government has established a set of objectives for species management in the Barents Sea – Lofoten area (Report No. 8 (2005-2006) to the Storting). These relate to population viability, genetic diversity, safe biological limits (for harvested species), management of key species in the ecosystem, and endangered species for which Norway has special responsibility.

Norway and Russia have their own "red-lists" based on IUCN criteria, with 5 status levels ranging from regionally extinct to near threatened, plus a "data deficient" category, Table 7.

European eel	*Anguilla anguilla*	Critically endangered
Blue skate	*Dipturus batis*	Critically endangered
Spiny dogfish	*Squalus acanthus*	Critically endangered,
Basking shark	*Cetorhinus maximus*	Endangered
Blue ling	*Molva dypterygia*	Endangered
Golden redfish	*Sebastes marinus*	Endangered
Porbeagle	*Lamna nasus*	Vulnerable
Beaked redfish	*Sebastes mentella*	Vulnerable
Atlantic salmon	*Salmo salar*	
Arctic cisco	*Coregonus autumnalis*	
Common guillemot	*Uria aalge*	Critically endangered
Black-legged kittiwake	*Rissa tridactyla*	Endangered
Razorbill (Svalbard)	*Alca torda*	Endangered
Sabine's gull (Svalbard)	*Xema sabini*	Endangered
Black guillemot	*Cepphus grylle*	Vulnerable
Atlantic puffin	*Fratercula arctica*	Vulnerable
Steller's eider	*Plysticta stelleri*	Vulnerable
Common tern	*Sterna hirundo*	Vulnerable
Brünnich's guillemot	*Uria iomvia*	Vulnerable
Ivory gull (Svalbard)	*Pagophila eburnea*	Vulnerable
Great cormorant	*Phalacrocorax carbo*	
Common eider	*Somateria mollissima*	
Spectacled eider	*Somateria fischeri*	
North Atlantic Right whale	*Eubalaena glacialis*	Regionally extinct

Bowhead whale	*Balaena mysticetus*	Critically endangered
Hooded seal	*Cystophora cristata*	Endangered
Narwhal	*Monodon monoceros*	Endangered
Common seal	*Phoca vitulina*	Vulnerable
Walrus (Svalbard)	*Odobenus rosmarus*	Vulnerable
Fin whale	*Balaenoptera physalus*	Endangered
White beaked dolphin	*Lagenorhynchus albirostris*	
Blue whale	*Balaenoptera usculus*	
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	
Whelk	*Pyrulofosus pyrulofosus*	

Table 7 Species on Norwegian and Russian Red lists that may be encountered by the client vessels.

Of the fish species listed above that could be taken by the client fishery, only golden and beaked redfish have been recorded in catches taken by the client fishery, and only golden redfish could reasonably be treated as an ETP species (see 3.4.2.3 for stock status).

3.4.4.1 Seabirds

The Barents Sea is an important breeding ground for seabirds, and is home to one of the world's largest puffin colonies. There is a good level of understanding of the bird communities of the Barents Sea, including regional and seasonal distribution patterns (see, for example, Anker-Nilssen *et al.,* 2000). Although seabird by catch and mortality has been recorded from all types of commercial fisheries, this is less the case with trawls compared to longline, set gillnets and driftnet fisheries (ICES 2009) for example, though interactions may take place where there are aggregations of seabirds feeding on fish waste. There may also be indirect impacts through reduction of food resources, but any effects are arguably beneficial to these sea bird species, since trawl fisheries target larger predators.

Seabird species such as the common guillemot and black-legged kittiwake in the Southern Parts of the Barents Sea and Brünnich's guillemot and kittiwake in the north are currently in decline, though the trawl fishery is not implicated in this decline. Of greatest concern with regard to the trawl fleet are the deep-diving common guillemot (critically endangered and dives to >200 m), black guillemot (vulnerable, dives to 130 m), thick-billed guillemot (vulnerable), puffin (vulnerable, typically dives to <30 m, but occasionally to 60 m), and razorbill (vulnerable, dives to 120 m). All these species could become entrapped in trawls, especially during recovery, though such encounters seem to be relatively rare, especially for the relatively deeper water trawling undertaken by client vessels.

Gulls, kittiwakes, fulmars, petrels and terns could interact with trawls during recovery at the water surface, but are more likely to benefit from spilled or waste fish than be adversely affected. Generally, fishermen have reported limited negative interaction.

There are a number of mapping and monitoring initiatives related to seabird populations. For example, the SEAPOP programme in Norwegian waters and along the coasts of Svalbard

and Jan Mayen focuses particularly on the collection of data that make it possible to model the effects of human activity and distinguish between these and natural variations. No seabird interactions were reported from the client fishery.

3.4.5 Habitat

3.4.5.1 Relevant habitats and ecosystem features

The main habitat affected by bottom trawling is benthic. According to the Murmansk Marine Biological Institute (Russian Academy of Science), most of the Barents Sea is dominated by echinoderms, bivalves, polychaetes and crustaceans. The total biomass of the zoobenthos is highly variable – ranging from a few g up to 500g per m^2. Echinoderms, sponges, corals, soft corals and large clams are the most common benthic organisms found in trawl catches.

The information that is available on habitat types in the Barents Sea clearly shows that there are aggregations of large, non-mobile, long-living habitat-forming species, in particular large deep sea sponges (*Geodia* spp, *Stelletta* spp, *Tethya citrina, Thenea muricata*) mussel beds (*Modiolus modiolus*) and some reef species such as Zooanthidae and *Drifa glomerata*.

Bivalves are more abundant in the east (especially around Novaya Zemlya), whilst echinoderms are more abundant in the western and central parts. Concentrations of epifauna (e.g. sponges, bryozoans, barnacles, brachiopods and mussels) are more commonly associated with hard substrates and complex hydrodynamic regimes. These animals usually create structural habitat diversity and are often species-rich and associated with high biomass. They are found in particular along the coast of South Spitsbergen, Bear Island and North Cape – areas fished by the client fleet.

Mapping of major benthic habitats in the Barents Sea has been undertaken and is on-going under several national and international programmes (e.g. Mareano) and areas of high biodiversity value/vulnerability have been identified. Particular attention has been paid to deepwater corals such as Lophelia which occur especially on the NW continental slope of Norway. The richest communities of benthic animals are found along the Norwegian coast and the coast of Svalbard, where the hard-bottom communities display unusually high species richness. Reefs of *Lophelia petusa* are found closer inshore in Norwegian territorial waters and are not in areas fished by the fishery under assessment.

3.4.5.2 History of impacts

Trawling has taken place the Barents Sea since the late 19th century and there is some historic evidence of damage to sea bed communities. Fishery statistics for 1955-1985 showed that the areas of the Murmansk Banks, Western and Eastern Murman and coastal waters of northern Norway underwent intensive trawling and biodiversity was reduced as a result. Thirteen taxa were affected, including filter feeders, echinoderms, worms, and shellfish. After fishing effort decreased in late 1960, the state of many of the disturbed taxa returned to normal (PINRO 2012).

The impact on the most vulnerable communities – deep water coral reefs/sponge gardens – may be limited by the higher risk of gear loss in these areas and their avoidance by trawler skippers. Impacts on sediment bottoms are likely to be more limited and recovery more rapid. Intensive trawling (10 repetitive passages) can cause significant changes to sediment

density and other properties. The main impacted species are echinoderms – shellfish appear to recover rapidly, often after 1 year (PINRO 2012).

The gear used in the fishery for cod and haddock in the Barents Sea is a heavy demersal trawl, which is recognised as one of the more harmful fishing gears in terms of impact on bottom benthos and habitat-forming communities and structures. Apart from destroying, damaging and removing benthic organisms from the fishing area, changes in the stratification of the upper layer of the seabed sediments can disturb natural development and structure of benthic communities. This deleterious effect may be exacerbated by the fact that trawling is typically focused on small areas of highly productive areas of the shelf, well within the range of many species of bottom fauna – although it is this same feature that can prove valuable for management options and enable appropriate mitigation. There are several features of the current trawl fishery that are relevant here.

When deep-sea trawling in the Northeast Arctic began in the 1920s, skippers were effectively fishing blind. Position fixing was limited to sun and star-sighting with a sextant – if there was enough clear sky – and swinging the lead to measure depth and substrate type. Tows were positioned by trawling between two marker dahns (buoys) and would continue providing the trawl was undamaged and the catches were acceptable. If the trawl was damaged by coral, or a bagful of sponges crushed his catch or burst the trawl, he would recover his dahns, move a few miles and try again. This practice continued throughout the 1930s and, on many boats, into the 1950s. Post 1945, position fixing has gradually improved through the use of Loran (position c. ± 5 miles), offshore Decca (± 1 mile)and from around 1990 satellite navigation became publicly available with reliability better than±10 m. Development of echo sounder technology has increasingly allowed hard or soft seabed to be discriminated and coral reefs or sponge beds to be detected.

Skippers fishing blind had to protect his trawl to retain his catch, often by using heavy doors, chain wing-end sweeps and a footrope mounted on spherical steel bobbins 40–90 cm in diameter. These went across the trawl mouth wing to wing and were designed to climb over or smash through obstructions. The introduction of the rock-hopper trawl in the 1970s enabled vessels to continue fishing on rough ground that had already been fished over for many decades, but with significantly reduced total weight saved fuel and, serendipitously, exerted a lighter environmental footprint than previous gear. This is not to say, however, that rock-hopper gears have any less potential to cause significant environmental change through, e.g. boulder turning or breaking upright fragile species. Trawls up to the mid-1960s were all made with non-buoyant natural fibres that dragged along the seabed helping to grind down any of the larger rubble left by the bobbins, at the same time wearing away the net material. Modern trawl fibres are buoyant and trawl nets aft of the footrope tend to swim clear of the seabed unless they pick up significant deadweight, e.g. boulders or sponges. Skippers are innately driven to maximise catch value and minimise costs, and will avoid such impacts if at all possible because they crush the fish and diminish its market value, as well as increasing wear of the net on the seabed.

With this historic background, it can be seen that from the 1920s through to the 1970s some areas of deep-sea seabed were razed by trawling blind with gear designed to clear a path that would make subsequent tows easier. This is no longer the case. Not only do skippers not wish to fish in a manner that puts their gear at risk or diminishes the value of the catch, but with the position-fixing and ground-discrimination electronics at their disposal, there is no need for them to do so. They can identify and avoid significant coral features or dense and

extensive sponge beds, for example. Their fishing is most concentrated in areas that they know are “clean ground” or have already been cleared of obstructions. Hence vessels of all nations tend to fish the same ground repeatedly rather than stray into new areas. This approach and the environmental safeguards it represents (along with advisory and statutory protection measures) have been recognised, described and referred to both implicitly and explicitly in the MSC assessment reports on NE Arctic trawl fisheries.

The main contribution to scientific studies on the impact of bottom trawling on benthic communities in the Barents Sea was made by Denisenko and Denisenko (1991), who summarised the data of former soviet state company Sevrybpromrazvedka and Sevryba on fisheries in the Barents Sea in 1955 – 1985 and undertook a quantitative estimation of the intensity and impact of bottom trawl operations on benthos in different parts of the Barents Sea. The results showed that the degree of a negative effect of bottom trawling on benthos depends on two main factors: the predominance of organisms with a specific life strategy (defined by sizes and life-span) and the degree of overlap of trawling tracks during the fishing season. Populations of long-living species and communities formed by those organisms (such as large sponges, sea urchins, sea-cucumbers, gastropods and mussels) are considered to be the most vulnerable to bottom trawling. Analysis of post-capture mortality shows that these large long-living representatives of epifauna die even after a short stay on the deck during handling of catches.

Several studies (PINRO 2012) suggest that overlapping of trawl tracks, continued over several years, leads to further decreases in the abundance of these organisms, and in biodiversity. Small bottom organisms with a short life cycle showed recovery rates typically in the range of 2.5 to 6 years, with the fastest recovery being observed in mud habitats. Although the majority of the habitats in the Barents Sea may fall within the more dynamic and sedimentary range (hence quicker recovery), it is notable that some of the species communities and the substrate types on the shelf edge may show far slower recovery. Reef-forming, cold-water coral species on hard substrates have the slowest recovery rate.

A more recent study has been conducted as part of the “Mareano” project to survey the seabed’s physical, biological and chemical environment, which has resulted in an interactive database that provides precise details of the location of ecologically important benthic communities such as coral reefs and sponges with Norwegian waters. This showed that density and diversity of megafauna was significantly lower in areas with high fishing intensity; and even a low frequency of trawling appeared to have a negative effect. Of 134 taxa, 100 showed a negative trend with increased fishing intensity. Nine of these, including five sponge species, revealed a significant ($p < 0.05$) response. A few taxa such as large scavenging gastropods responded positively to increase fishing intensity. The wider effects of these changes on other species is hard to gauge, but it is notable that redfish (*Sebastes* spp), which are often found amongst boulders and sponges, showed a strong negative relation to fishing intensity, while the opposite was observed for cod. A useful overview of a range of trawl benthic impact studies is presented in the FAO fisheries technical paper 472 (Løkkeborg 2005).

With respect to the extent of present day trawling impacts in the Barents Sea, there is no high resolution mapping over the entire area, although the situation is improving and will assist more effective protection of vulnerable habitats from fishing activities, though it is arguable that current knowledge is adequate to inform precautionary management. With the advent of VMS for all large trawl vessels – including the vessels covered by this assessment

– it is now possible to make a detailed and reliable assessment of fishing intensity at relatively fine spatial scales.

In relation to scoring in this assessment, it should be noted that there are no material difference between the client vessels' operations or any other Russian operators using demersal trawl to catch cod and haddock in the Barents Sea. They all retain the same species and are all subject to the same discard ban, and they all fish under the same rules and legislation. Since any eligible vessels are already operating in this way, their impacts on habitats and on the ecosystem are taken into account in the assessment and can be assumed to be the same as for the client fleet.

3.4.5.3 Areas of high biodiversity value

From a management perspective, Hiddink *et al* (2006) suggest that it is important to understand the state of the benthic ecosystem and habitat and the rate of recovery, and also the pressure that it is under. As this assessment points out in **Appendix 3**(the assessment tree), management of trawl activity in the Barents Sea is not yet at the point where the frequency of fishing activity is linked to the rate of recovery of ecosystems– but lack of information is not an impediment to effective management.

Under the biodiversity assessment of the Barents Sea (Larson *et al.* 2003), experts nominated areas of high conservation value for plankton, benthos, fish, seabirds and marine mammals. In the Norwegian sector this work was taken forward under the Barents Sea Integrated Management Plan, using criteria including productivity, number of species, endangered or vulnerable habitats, and important or ETP species. As a consequence, several areas have been selected as designated closed areas, mainly to protect coldwater corals and fish nursery areas.

3.4.5.4 International guidance and vulnerable marine ecosystems (VMES)

Following guidance produced by FAO, there has been increasing activity on the parts of governments to define and manage "vulnerable marine ecosystems". These are interpreted as significant aggregations of organisms that create benthic habitats of importance in their own right and as habitat for other organisms. These areas typically have high structural diversity, biodiversity and productivity, and may in turn be important for the long-term health of commercial fish and shellfish stocks.

In the Annex to its guidance, FAO lists several VMEs which may need protection or management. Those of relevance to the Barents Sea include:

- coldwater corals and hydroids, e.g. reef builders and coral
- stony corals (Scleractinia), alcyonaceans and gorgonians (Octocorallia), black corals (Antipatharia) and hydrocorals (Stylasteridae);
- some types of sponge-dominated communities;
- communities composed of dense emergent fauna where large sessile protozoans (xenophyophores) and invertebrates (e.g. hydroids and bryozoans) form an important structural component of habitat; and

Drawing on this guidance, NEAFC (in collaboration with NAFO and ICES) has begun to prepare lists of species that meet the criteria for a VME indicator based on traits related to functional significance, fragility, and the life-history traits of component species that show slow recovery to disturbance. For each group it is the dense aggregations (beds/fields) that are considered to be VME in order to establish functional significance. Indicators include, for example, various species of crinoids, erect bryozoans, large sea squirts, sponges and corals.

OSPAR (to which Norway is party, but not - as yet - Russia) also lists threatened and/or declining species and habitats (OSPAR agreement 2008-6) in ICES sub-areas I and II and of relevance to this fishery, including coral gardens, deep sea sponge aggregations, *Lophelia pertusa* reefs, *Modiolus modiolus* beds, seapen and burrowing megafauna communities.

While some protection is now in place for the less common and more delicate VMEs such as corals (and biogenic reefs more generally), there is limited protection for more widespread but ecologically important habitats. ICES (2009b) has developed a list of 25 sponge species which are habitat-forming and can be considered indicators of sponge VMEs in the North Atlantic. These are species that form the sponge grounds, and host a variety of associated smaller sponge species that contribute to the biodiversity of the habitat.

Trawlers in the client fleet do fish in areas where many of these habitats are likely to occur. However, all vessels are equipped with the MaxSea Navigation Software, allowing the crew to detect and record all habitats interactions including interactions with sponges and corals and incidents of hitting the sea bottom, damages of trawl gear, trawling routes and etc. This modern software allows the client to have a full control over their fishing activities and minimise habitat impacts, by avoiding the VMEs areas where corals and sponges are observed to occur. Figure 26 illustrates the MaxSea Navigation system on board of the client vessels.

Guidance on encounters with VMEs is being developed by NEAFC, and it is arguable that the Barents Sea trawl fisheries should also adopt some form of avoidance rule. Under NEAFC, an encounter with primary VME indicator species is defined as a catch per trawl tow of more than 60 kg of live coral and/or 800 kg of live sponge. Data from the client vessels' MSC log-books for the first 4 months of 2013 reveal that one vessel took a total of 780 kg of sponges whilst the other vessel took 43 individual sponges (the only by catch recorded). This level of sponge by catch appears to be well below the NEAFC encounter rate for VMEs.

3.4.5.5 Protected areas

At present, in Norwegian waters, the management of habitat impacts includes the closure to bottom fishing of marine protected areas established under the fisheries legislation to specifically protect coral reefs (Sula Reef, Sularevet, in 1999; Iverryggen Reef, in 2000; Røst Reef, Røstrevet, in 2003 and Tisler and Fjellknausene Reefs, in 2003). The Norwegian Government has set a target for at least 10 % of coastal and marine areas to be protected by 2020, and four more areas are likely to be designated in coming years. Furthermore, the Norwegian government is committed to cooperate with Russia on "the establishment of an integrated Norwegian-Russian monitoring programme for the Barents Sea, particularly with the aim of assisting in the development of a Russian management plan for the Russian part of the Barents Sea".

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Although closed areas - both seasonal and permanent - are a regularly applied fisheries management tool in Russian waters, and are applied equally to the client fleet and other vessels targeting cod and haddock in the Russian EEZ, the focus for the majority of these closures is to protect spawning and nursery areas or certain species (e.g. red king crab) of importance to fisheries. However, the 12-mile zone from the Varanger Fjord to 37 deg. is closed to bottom trawling and purse seining in order to protect benthic biocenosis in its original state. Entire area 5 (Figure 27) is formed as a Natural Reserve, a model of the Barents Sea ecosystem representing untouched habitats and bottom communities.

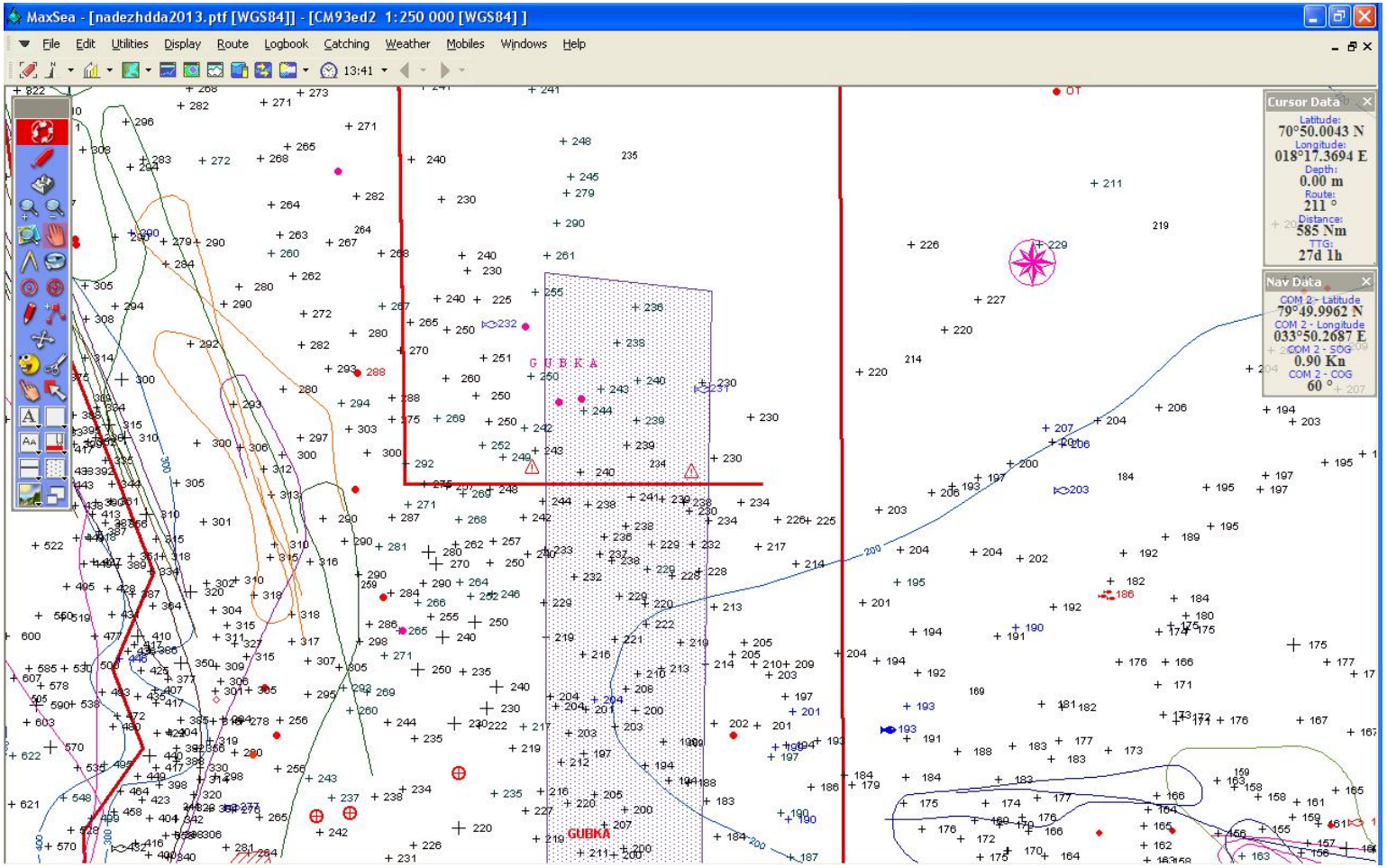

Figure 26 MaxSea Marine Navigation Software used on board of the client fleet. Areas marked with "GUBKA" indicates areas with sponge which skippers avoid.

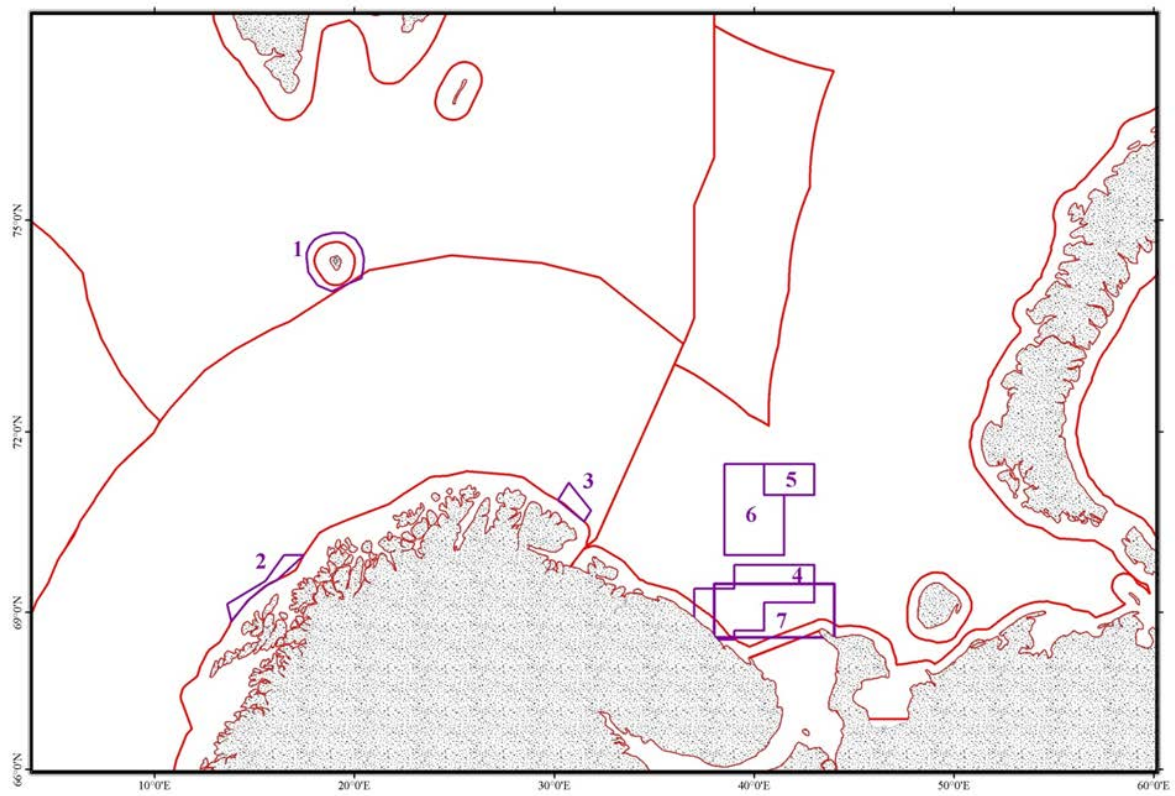

Figure 27: Map of the Barents Sea identifying areas closed for fishing. The area1 – Fisheries protection zone around the Svalbard, The areas marked 2 and 3 are temporary closed areas in Norwegian EEZ (area 2: during the period 20 October – 20 March: area 3: during the period 1 October – 1 March). Areas 4 -7 represent closures in Russian EEZ. Source: PINRO.

3.4.5.6 Possible mitigation

Temporary or real-time closure of areas coupled with a move-on rule is currently implemented under Norwegian law where excessive by catch is caught. These measures could be extended to encompass encounters with VMEs, though these have not been implemented to date.

3.4.5.7 Ecosystem Impacts

This section of the report focuses on those areas of the Barents Sea ecosystem that are most relevant to the fishery under assessment. A useful source of further information and overview is available at: http://www.barentsportal.com/barentsportal09/. A report produced each year by scientists of IMR (Norway) and PINRO (Russia) provides an overview of the ecosystem, and seeks to provide scientific-based advice in order to allow the authorities to make management decisions regarding the long-term utilization of the resources in the Barents Sea area. The most recent of these is the Joint IMR / PINRO State of the Barents Sea Ecosystem Report (Stiansen *et al.* 2009)[5]. In addition, the ICES AFWG and the Working

[5]Last year, was published an updated short version of the joint Russian -Norwegian ecosystem report for the Barents Sea , which included an update on oceanography, plankton , fish species and fisheries. These data are available from Barentsportal.com and also included in the final report of the ICES WG on Arctic Fisheries. It is planned that this year, the report will be updated again. Funding for this work will be obtained through the Norwegian Ministry of the Environment.

Group on Regional Ecosystem Description provide a detailed overview of the Barents Sea Ecosystem. Although the Barents Sea ecosystem is one of the most productive and commercially important ecosystems in the world, it is relatively simple with few fish species of potentially high abundance. These are cod, haddock, capelin, polar cod and herring.

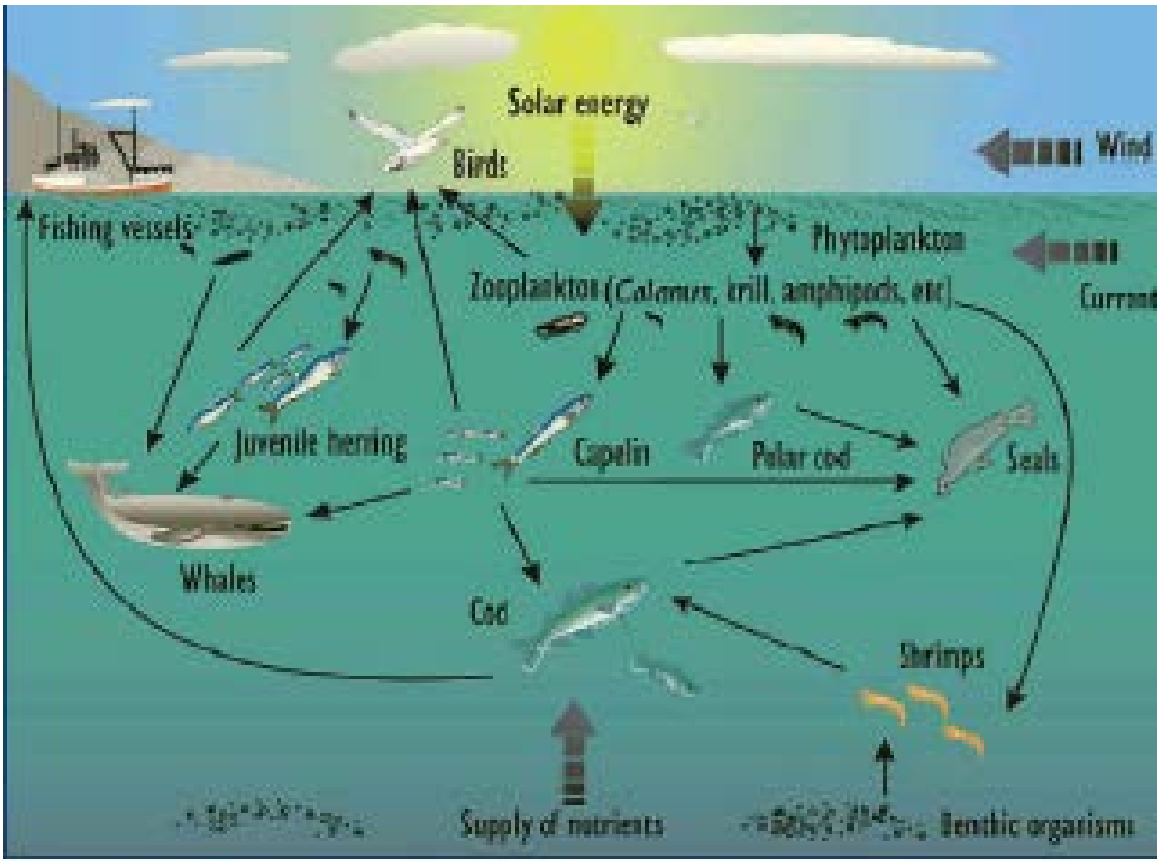

Figure 28: Simplified food web of the Barents Sea[6]

Cod is the dominant predator in the Barents Sea and may have a stabilising effect on the ecosystem, being opportunistic and choosing the most abundant and favourable prey items and thus contributing to dampen outbreaks in prey populations. In addition, at times when prey is scarce, cannibalism on younger cod age classes regulates the cod population to the availability prey. Cod remains abundant in the Barents Sea and there has been no shift from predator dominated (cod) state to a prey (capelin or herring) dominated state. This is despite the low SSB levels of cod during the 1970s and cod and haddock in the 1980s, and recent high levels of both species.

The Barents Sea ecosystem seems quite resistant to current levels of anthropogenic impact, though high fishing pressure has had some effect, resulting in smaller average size of cod. Modelling studies support the conclusion of cod's key role in the ecosystem and show that changes in cod mortality from either fishing or cannibalism have the largest potential effect

[6]Datasource: NorwegianInstituteofMarineResearch

on the overall equilibrium of the ecosystem (Lindstrøm *et al* 2009). It is noted that recent increases in Norwegian spring-spawning herring may have an unbalancing effect and even threaten the role of cod as a dominating species in the system. As long as harvesting of cod is kept below the long-term sustainable limit, and a large herring stock does not impair cod recruitment (by eating cod larvae), the Northeast Arctic cod stock might continue to be relatively strong.

In managing potential habitat and ecosystem impacts, industry and management authorities are guided by relevant conventions and agreements, such as the UN Convention on Biological Diversity. The waters of the Barents Sea (and a sizeable portion of the Russian EEZ) are covered by OSPAR Region 1 – Arctic waters. However, the Russian Federation is not party to the OSPAR or any of its work areas such as the Biological Diversity and Ecosystems Strategy. The latter is concerned with all human activities that can have an adverse effect on the ecosystems and the biological diversity of the North East Atlantic. It sets ecological quality objectives, requires assessments of threatened species and habitats and the development of an ecologically coherent network of marine protected areas, and assessment of human activities that may adversely affect ecosystems. Russia has attended various meetings with observer status and it is understood that many of the key issues covered by OSPAR are addressed with Russia, via bilateral agreements for the region with Norway. Nonetheless, Russia is not bound by all aspects of the agreement.

The Norwegian Government have also developed an ecosystem management plan for the Barents Sea/Lofoten area. As such a large proportion of the certified fisheries takes place in Norwegian jurisdiction this is relevant. The plan highlights the need for and potential focus for future ecosystem management in cooperation with the Russian Federation. . The fleet covered by this assessment has robust and comprehensive systems in place to minimise any wider ecosystem impacts and all vessels are fully compliant with (and regularly inspected against) international MARPOL standards of pollution prevention. More sophisticated assessments of impact such as carbon foot printing or waste from fish processing are not required as part of the MSC assessment.

3.5 Principle Three: Management System Background

3.5.1 Area of operation of the fishery and under which jurisdiction it falls

The fishery operates in the Barents Sea, where jurisdiction is split between Norway and Russia. The vessels operate only in the Norwegian Economic Zone (NEZ) and in the Protection Zone around Svalbard, where Norwegian fishery legislation is applied and the Norwegian Coast Guard performs inspections. Norway and Russia agreed on a delimitation line in 2010, and the previous Grey Zone, where the parties inspected their own vessels and third-country vessels licensed by them, ceased to exist on 7 July 2011.

3.5.2 Particulars of the recognised groups with interests in the fishery

Groups with interest in the fishery include Russian fisheries management authorities (the Federal Fisheries Agency – the FFA – and its regional branch in Murmansk – the BBTA – as well as the Border Service, which performs control in the REZ), research institutes (mainly PINRO, based in Murmansk) and environmental NGOs in the region, among which only WWF-Murmansk has engaged in fishery-related issues.

3.5.3 Details of consultations leading to the formulation of the management plan

The fishery does not have a specific management plan, but instead has a set of internationally, nationally and regionally agreed fishery rules. The JNRFC sets TAC and overarching principles for fishing activities, such as rules concerning mesh size, selection grids and closing of fishing grounds. The two countries' bodies for fisheries management and fishers' associations, as well as fishing companies, are represented on the JNRFC. At national level in Russia, the Federal Fisheries Act was adopted by the Federal Assembly (the Russian Parliament) in 2004 and has subsequently been revised several times, first and foremost through a substantial revision in 2007. Interested parties, such as the public fisheries councils (see next section) that have been set up at both federal and regional levels, but also the larger fishing companies, are consulted when the fisheries act is revised. The same is true for the more specific rules set up by the FFA and the BBTA. National quotas are distributed by an inter-ministerial commission under the leadership of the FFA. Regional authorities (the governors) are consulted on issues related to coastal fisheries.

3.5.4 Arrangements for on-going consultations with interest groups

There is continuous informal dialogue between Russian fisheries management bodies and the fishing industry, including individual ship owners, associations of ship owners and the processing industry. In the northern basin, the large 'traditional' ship owners such as Murmansk Trawl Fleet have direct access to federal authorities. A formal arena for interaction between the Russian fishing industry and the government are the advisory bodies – the so-called fishery councils – found at both federal level, basin level (here: the northern basin) and regional level (here: Murmansk county). At the federal level, the Public Fisheries Council was established in 2008 on the basis of the requirements in the Federal Public Chamber Act to have a public council for most federal bodies of governance. Although basin and regional level fishery councils have existed since Soviet times, the 2004 Federal Fisheries Act made them mandatory. These councils advise on a range of fishery-related issues, including fleet operations; control and surveillance; conservation, recovery and harvesting of aquatic biological resources; distribution of quotas and other issues of

importance to ensure sustainable management of fisheries. The councils consist of representatives of the fishing industry, federal executive authorities, executive bodies of the Russian federal subjects (the regions), research institutes and non-governmental organizations (NGOs), among them WWF-Russia, the Russian Union of Workers in the Fishing Industry and the Association of Indigenous Peoples in the North, Siberia and the Far East. The current regulations of the Northern Basin Scientific and Fishery Council were given in 2002. Corresponding regulations for the Murmansk Territorial Fishery Council were issued 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.

3.5.5 Details of non-fishery users or activities, which could affect the fishery, and arrangements for liaison and co-ordination

See description of the public chamber and councils in previous section.

3.5.6 Details of the decision-making process or processes, including the recognised participants

See description in previous sections.

3.5.7 Objectives for the fishery

The Federal Fisheries Act defines the concept of 'protection and rational use' of aquatic biological resources as the main goal of Russian fisheries management. This concept was widespread in Soviet legislation for the protection of the environment and exploitation of natural resources, and has remained so in the Russian Federation. 'Rational use' might often be given the upper hand over 'protection', but the concept bears some 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 2009 strategy for the development of the Russian fisheries complex until 2020 defines as its major objectives to ensure social and economic development of the Russian Federation and turn the country into one of the world's leading fishery nations. A main goal is to reduce export of raw fish and re-build an economically sustainable fish-processing industry in Russia. Since the break-up of the Soviet Union, different governmental structures have emphasized different goals and objectives for the country's fisheries management. The FFA tends to stress employment and food independence, with deliveries to Russian ports as its main practical objective, whilst, on the other hand, The Ministry of Economic Development and Trade typically advocates an objective of increased revenues to the federal budget. In recent years, the FFA has had the upper hand. The first indication that a new wave of legislative reform was underway came when the President made his annual speech to the Federal Council (the upper house of the Federal Assembly) in April 2007. For the first time, fisheries-related issues were given more than a passing mention in the President's address on the state of the nation, calling on the Government to prioritize objectives which improve customs control, prevent overfishing, restore the shipbuilding industry and ensure quota is taken by Russian companies. Simultaneously the FFA used their increased policy-influencing role to advocate objectives of social welfare, food security and national independence, including more minor branch objectives such as increasing fish consumption by making fish products more affordable by redirecting Russian catches to Russian ports and reducing the country's dependence on imported seafood.

3.5.8 Outline the fleet types or fishing categories participating in the fishery

The northern Russian basin currently consists of some 336 vessels – out of which 283 are fishing vessels, down from approximately 800 in Soviet times. There has been a steady reduction in recent years, from 456 in 2006 to 415 in 2008, and further from 394 in 2009 and 366 in 2010. The majority of these are trawlers, fishing with bottom trawl in the Barents and the Norwegian Seas. Most vessels are registered in Murmansk, while a few are registered in Arkhangelsk County, Nenets autonomous region and the Republic of Karelia.

3.5.9 Details of those individuals or groups granted rights of access to the fishery, an particulars of the nature of those rights

Fishing rights are given to the ship owners of the vessels outlined in the previous section. From 2000 to 2003 quota auctions were trailed as a method of allocating catches. In 2003, the government introduced a fee on quota shares, with quotas allotted for five years ahead, based on the individual ship owner's proven catch capacity (track record) over the last three (now: five) years. A minimum threshold level was also established for different categories of vessels, aimed at reducing the number of marginal actors in the Russian fishing industry. If a company received an annual quota lower than the threshold level, it would have to merge with another company with a quota in order to achieve the threshold level and so retain the right to participate in fisheries. An alternative would be for the company to quit the fishing business and auction off its fishing rights to other fishing companies. The effect was reduced fleet capacity and the removal of older vessels. An inter-ministerial commission under the leadership of the FFA carries out quota distribution of fish stocks that are shared with other states (where TAC is set at the international level, such as in the Barents Sea). For exclusive Russian fish stocks, the FFA distributes the TAC. The amendments to the Federal Fisheries Act in 2007 extended the allocation of quota shares to ten years in order to ensure stability for the fishing fleet and spur investments in the renewal of the ageing fleet. In the northern basin, the Saami are given a fixed quota of 300 t of cod and 75 t of haddock, distributed by the Fisheries Committee of Murmansk Oblast.

3.5.10 Description of the measures agreed upon for the regulation of fishing in order to meet the objectives within a specified period

The measures aimed at sustaining 'protection and rational use' of aquatic biological resources (see section 3.5.7 above) include TACs and quotas (with the accompanying harvest control rule; see section 3.5.9 above) and technical regulations agreed upon in the JNRFC. These include a minimum mesh size of 130 mm, harmonized between Norway and Russia in 2009, and minimum fish sizes of 44 cm for cod and 40 cm for haddock, harmonized between the two countries in 2010. Conversion factors were harmonized in 1997 and the procedures for closing and opening of fishing grounds in 1999. Mandatory use of selection grids was jointly introduced by the parties in 1997 and satellite tracking of all fishing vessels in 2001.

3.5.11 Particulars of arrangements and responsibilities for monitoring, control and surveillance and enforcement

Traditionally, 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 REZ to the Federal Border Service, which was incorporated into the Federal Security Service (FSB) in 2003. The

Border Service of the FSB – in the following referred to as the Border Service – inspects fishing vessels at sea during fishery operations (based on spot checks) or trans-shipment, 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. It also continues to administer the system for closing and opening of fishing grounds in cases where excessive numbers of undersized fish are detected in the catches. Inspectors from the local enforcement branch of the Agency can close a 'rectangle' (a square nautical mile) on site for a period of three days. After three days, the 'rectangle' is re-opened if scientists from PINRO make no objections (in practice, if the proportion of undersized fish in catches does not continue to exceed legal limits). 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 REZ, the BBTA carries out inspections in Russian territorial waters and outside the REZ (e.g. in NEAFC convention areas and in the Fishery Protection Zone around Svalbard; see section 3.5.1). The VMS data are also collected and analysed by the BBTA.

When Russian vessels fish in the NEZ or the Protection Zone around Svalbard, they are inspected by the Norwegian Coast Guard. When they land fish in Norwegian ports, they are inspected by the Norwegian Directorate of Fisheries. When they land in other European ports, they are subject to the NEAFC port state control scheme. Also of relevance here is the EU IUU regulation, whereby all imports of fish products in to the EU (even in the processed form via import from China) must have documentation from the designated national authority (here: the BBTA), to state it is legally landed. The vessels undergoing assessment take all their catch in waters subject to Norwegian enforcement and deliver it either directly to Norwegian ports or through other NEAFC states via trans-shipment to transport vessels at sea. (Fish caught in the Russian EEZ since summer 2009 is taken to Murmansk for customs clearance, but is then trans-shipped for export.)

3.5.12 Details of any planned education and training for interest groups

The education level of captains and those holding other higher positions on board Russian fishing vessels is generally very high compared to other countries, with most holding university degrees in navigation and/or fish biology. The client group further trains its staff internally – it does not recruit captains from outside the company, but uses people who have climbed step-by-step inside the company. As follows from the above, mechanisms exist for formal and informal consultation between fishery authorities and user groups on current changes in fisheries regulations.

3.5.13 Date of next review and audit of the management plan

Whilst the fishery does not have a management plan, it has a detailed set of fisheries regulations, developed over decades at the bilateral level with Norway and at national and regional level in Russia. Internal review of the management system is performed by the fishery councils at different levels and by the FFA, which in turn reports to the 1st Deputy Prime Minister, who bears the overall responsibility for fisheries management in the Russian Government. The FFA can also report to the President about its activities. In the FFA, 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. Regular external review is performed by the Russian Auditor General. The

latter in 2005 invited its Norwegian counterpart to conduct a parallel audit of the Barents Sea fisheries. After this work was finished in 2007, the two parties continue to monitor developments in regular follow-up meeting.

4 EVALUATION PROCEDURE

4.1 Harmonised Fishery Assessment

There are several fisheries targeting Barents Sea Cod and Haddock that are already MSC Fisheries certified or undergoing the certification process, and information from the assessment reports on the fisheries which directly overlap with the unit of assessment (presented in Table 8) has been used to validate the evidence presented here.
In order to ensure consistency of outcomes in assessments of overlapping fisheries, the following activities were undertaken:

- Coordinated certification process
- Use of common assessment trees
- Sharing of fishery information
- Harmonisation of conclusions, scoring and conditions

Fishery	Assessment status	FAO area	ICES area	Catch method	Decision on harmonisation
Russian Federation Barents Sea Cod and Haddock	In assessment	27	I & II	Bottom trawl	-
AGARBA Spain Barents Sea cod (in assessment)	In assessment	27	I & II	Bottom trawling	Applicable
Barents Sea cod and Barents Sea haddock (Ocean Trawlers)	Certified 2010	27	I & II	Demersal trawl	Applicable
Comapêche and Euronor cod and haddock	Certified 2012	27	I & II	Demersal otter trawl	Applicable
Faroe Islands North East Arctic cod and haddock	Certified 2012	27	I & II	Demersal trawl	Applicable
Greenland cod, haddock and saithe trawl	In assessment	27	I & II	Demersal trawl	Applicable.
Norway North East Arctic cod	Certified 2010 (offshore component) and 2011 (inshore component)	27	I & II	Trawl, longline, gill-net, Danish seine and hook and line gears	Offshore component applicable. Inshore component is not applicable
UK Fisheries/DFFU/Doggerbank Northeast Arctic cod, haddock and saithe	Certified 2012	27	I & II	Demersal otter trawl	Applicable
FIUN Barents & Norwegian Seas cod and haddock	Certified 2013	27	Ia, Ib, IIa and IIb	Demersal trawl and longline	Applicable
Norway North East Arctic haddock	Certified 2010	27	I & II	Trawl, longline, gill-net, Danish seine and hook and line gears	Applicable

Table 8 List of relevant overlapping fisheries and current status with the MSC programme

Given the considerable number of MSC assessments that have been carried out on demersal trawl fisheries in the Barents Sea, it is not feasible to compare individual scores between the Russian fishery and every other UoC, but to identify those PIs where the current fishery scored outside the main range of all UoCs and where there is a material difference to the outcome between fisheries. This is particularly important where other fisheries have scored below 80 and a condition has been set.

Taking the range of scores for the various assessments that are applicable to the Russian Barents Sea **cod** and haddock fishery, only one PI (**2.4.1)** has been consistently scored at a lower level in the other assessments (often with a condition). However, the assessment team considers that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm (SG80), based on VMS data, reports of only sporadic encounters with sponges or corals (in much smaller quantities than those that would require the fishing activity to be relocated - which implies that skippers avoid such areas), and other information about the vessels' fishing operations.

Three of the 9 scores for PI **2.4.2** are <80, but the assessment team considers that there is good evidence of at least a partial strategy for managing impacts on habitats that justifies the score of 80. In light of the evidence presented in the current assessment for the two client vessels, which is more vessel-specific and up-to-date, and is assessed against rather different criteria (CR v1.2) than the 2010 Certificate for Barents Sea cod and haddock Ocean trawlers (of which they were 2 of 16 vessels), the assessment team considers that the conditions against PIs 2.4.1 and 2.4.2 set for Ocean trawlers are no longer justified.

There are two PIs (**2.1.3** and **3.2.2**) where the Russian fishery scores at the lower end of the range for other assessments (though still at 80): 2.1.3 because of a relative lack of data and biological information on some retained species, and 3.2.2 due to a lack of evidence that P2 issues are sufficiently taken into consideration within the Russian management system. The assessment team considers that these small differences are justified by the available evidence.

Specifically, the main range of scores for **PI 1.2.1** is 85 – 100, though Ocean trawlers score 75. A 100 score is achieved based on the harvest strategy being responsive to the state of the stock and shown to be working well. The strategy has been fully evaluated and accepted by ICES as precautionary, and is clearly achieving its objectives in relation to current SSB and F. The strategy is regularly reviewed by the JNRFC.

The main range of scores for PI **1.2.3** is 85 – 95 (Ocean trawlers 70). The assessment team considers the range of relevant information to be comprehensive and fully supportive of the analytical assessment of the stock. In particular there are three supporting fishery-independent surveys used to tune the assessment. The range of information collected also provides valuable insights into relevant environmental changes as well as the role of cod as a top predator in the Arctic ecosystem. This justifies the score of 90.

The main range of scores for PI **2.1.1** is 75-90, and the client fishery achieves a score of 80 because data on the species retained by client vessels provided by PINRO covering the period 2010-2012 show that 96% of the catch comprises cod and haddock (haddock being a main retained species when cod is the MSC target species, and *vice versa*), both of which

are assessed by ICES as being within biologically-based limits. There are no other main retained species.

The main range of scores for PI **2.1.2** is 75-90, and the client fishery achieves a score of 90 because there is a strategy in place for managing retained species (140 mm mesh size and sorting grids designed to protect juveniles of all species; closed areas in both Norwegian and Russian sectors; Catch limits (TAC) and discard ban coupled with a move-on rule; skipper and crew knowledge and experience, effective communication systems between vessels and with the authorities, and advice from PINRO. This is clearly working for all retained species in the catch (generally<1.0%, and no discards), none of which appear to be outside biological safe limits.
Seven of the 9 scores for PI **2.3.3** are 80, though two UoCs score lower (Norway North East Arctic cod (offshore) at 70). The assessment team considers that sufficient data are available to allow fishery-related mortality and the impact of fishing to be quantitatively estimated for ETP species: PINRO / IMR Report on the State of the Barents Sea ecosystem; marine mammal surveys; discard ban and species recording requirements (MSC Logbooks) generate high quality catch data. The Barents Sea trawl fleet as a whole has not been identified as representing a particular threat to ETP species, and the lack of ETP species recorded for the client fleet emphasises this. This justifies the score of 80.

The ranges of scores for PIs **2.3.1**, **2.3.2** and **2.4.3** each include only one score that is < 80 and below that awarded to the client fishery. We are confident that the current assessment satisfies at least the SG80 scoring criteria for these PIs, and does not require remedial action in line with the conditions set for some other UoCs.

PI **3.1.1** and PI **3.2.2** DFFU/Dogger fishery is under different management regime, which explains the differences in scores.

While PIs **3.1.2** and **3.1.3** were scored 90 and 100, respectively, these PIs were scored 75 for the Ocean Trawlers fishery. The assessment team considers that the involvement of all relevant stakeholders is sufficient to warrant a 90 score on PI 3.1.2 and that the precautionary approach is sufficiently reflected in the JNRFC strategy documents and Russian fishery legislation. Furthermore, the Ocean Trawlers fishery was rescored for these PIs in the 3rd Surveillance Audit. PI 3.1.2 was rescored to 85 and PI 3.1.3 to 100, bringing scores for this fishery in line with those of the fishery currently undergoing certification assessment.

Harmonisation Barents Sea Cod

Fishery/ PI	PI 1.2.1	PI 1.2.3	PI 2.1.1	PI 2.1.2	PI 2.1.3	PI 2.3.2	PI 2.3.3	PI 2.4.1	PI 2.4.2	PI 2.4.3	PI 3.1.1	PI 3.1.2	PI 3.1.3	PI 3.2.2	PI 3.2.5
AGARBA Spain Barents Sea cod	85	90	80	85	**70**	**75**	**75**	**70**	**75**	**75**	95	85	100	90	90
Barents Sea cod (Ocean Trawlers)	**75**	**70**	**75**	**75**	90	80	80	**60**	**75**	80	95	**75**	**75**	80	80
Comapêche and Euronor cod and haddock	90	95	80	90	90	85	80	**70**	80	80	90	80	100	90	90
Faroe Islands North East Arctic cod and haddock	100	90	90	95	85	85	80	80	95	95	95	95	100	95	80
Greenland cod, haddock and saithe trawl*[7]	100	90	80	100	90	85	80	80	85	85	95	85	90	80	90
Norway North East Arctic cod (offshore)	90	85	**75**	90	90	85	**70**	**75**	95	95	95	95	95	95	95
UK Fisheries/DFFU/Dogger Bank Northeast Arctic cod, haddock	90	95	80	90	90	80	80	**70**	80	80	NEZ: 90; SFPZ **70**	NEZ: 80, SFPZ **70**	100	NEZ: 90; SFPZ **70**	NEZ: 90; SFPZ **70**
FIUN Barents & Norwegian Seas cod (trawl)	85	90	**70**	**75**	80	80	80	**60**	**65**	90	95	**75**	80	80	80
Russian Federation Barents Sea Cod and Haddock	100	90	80	90	80	80	80	80	80	90	95	90	100	80	80
Justification for difference	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above

Table 9 Harmonized PIs for Barents Sea Cod and haddock fisheries.

[7] *In assessment. Only CDR of Greenland cod, haddock and saithe trawl fishery was available during harmonisation activities for Russian Federation Barents Sea cod and haddock fishery.*

Harmonisation Barents Sea Haddock

Fishery	PI 1.2.3	PI 2.1.1	PI 2.1.2	PI 2.3.1	PI 2.3.3	PI 2.4.1	PI 2.4.2	PI 3.1.1	PI 3.1.2	PI 3.1.3	PI 3.2.2	PI 3.2.5
Barents Sea haddock (Ocean Trawlers)	70	75	75	80	80	60	75	95	75	75	80	80
Comapêche and Euronor cod and haddock	95	80	90	90	80	70	80	90	80	100	90	90
Faroe Islands North East Arctic cod and haddock (2012)	90	90	95	80	80	80	95	95	95	100	95	80
Greenland cod, haddock and saithe trawl	90	80	100	85	80	80	85	95	85	90	80	90
UK Fisheries/DFFU/Doggerbank Northeast Arctic cod, haddock (saithe not included in scoring table extract)	95	80	90	90	80	70	80	NEZ: 90; SFPZ 70	NEZ: 80, SFPZ 70	100	NEZ: 90; SFPZ 70	NEZ: 90; SFPZ 70
FIUN Barents & Norwegian Seas haddock (trawl)	80	70	75	85	80	60	65	95	75	80	80	80
FIUN Barents & Norwegian Seas haddock (longliner)	80	65	75	85	80	100	90	95	75	80	80	80
Norway North East Arctic haddock (offshore)	85	75	90	80	70	75	95	95	95	95	95	95
Norway North East Arctic haddock (inshore)	85	70	85	75	80	75	95	95	95	95	95	95
Russian Federation Barents Sea Cod and Haddock	90	80	90	90	80	80	80	95	90	100	80	80
Justification for difference	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above	See section 4.1. above

4.2 Previous assessments

There have been no previous assessments or pre-assessments conducted for the client group. However client vessels (M-0269 “Strelets” and M-0254 “Korund”) have been previously a part of the vessels included in the Ocean Trawlers certification. The agreement with Ocean Trawlers required the client fishery to supply their cod and haddock products directly and exclusively to Ocean Trawlers. To be able to sell certified products through their own ownership/company the client fishery has decided to go in for a full assessment independent of Ocean Trawlers.

4.3 Assessment Methodologies

The basis for the MSC-certification is the standard denoted as the “MSC Principles and Criteria for Sustainable Fisheries”, organised in three main principles. Principle 1 concentrates on the need to maintain the target stock at a sustainable level; Principle 2 draws attention to maintaining the ecosystem in which the target stock exists, and Principle 3 addresses the requirement for an effective fishery management system in order to fulfil Principles 1 and 2. In addition Principle 3 takes into account national and international regulations. The Principles 1-3, with pertaining criteria, are presented below.

The assessment team used the default assessment tree as defined in the MSC Certification Requirements v1.2 without any modifications. The MSC Full Assessment Reporting Template V1.2 is used for this report.

PRINCIPLE NUMBER 1

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[8]:

Intent:

The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favour of short term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.

Criteria:

1. The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.
2. Where the exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.

[8]The sequence in which the Principles and Criteria appear does not represent a ranking of their significance, but is rather intended to provide a logical guide to certifiers when assessing a fishery. The criteria by which the MSC Principles will be implemented will be reviewed and revised as appropriate in light of relevant new information, technologies and additional consultations.

3. Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.

PRINCIPLE NUMBER 2

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.

Intent:

The intent of this principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.

Criteria:

1. The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.
2. The fishery is conducted in a manner that does not threaten biological diversity at the genetic, species or population levels and avoids or minimises mortality of, or injuries to endangered, threatened or protected species.
3. Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.

PRINCIPLE NUMBER 3:

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.

Intent:

The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2, appropriate to the size and scale of the fishery.

Part A: Management System Criteria

1. The fishery shall not be conducted under a controversial unilateral exemption to an international agreement.

The management system shall:

2. Demonstrate clear long-term objectives consistent with MSC Principles and Criteria and contain a consultative process that is transparent and involves all interested and affected parties so as to consider all relevant information, including local knowledge. The impact of fishery management decisions on all those who depend on the fishery for their livelihoods, including, but not confined to subsistence, artisanal, and fishing-dependent communities shall be addressed as part of this process.

3. Be appropriate to the cultural context, scale and intensity of the fishery – reflecting specific objectives, incorporating operational criteria, containing procedures for implementation and a process for monitoring and evaluating performance and acting on findings.
4. Observe the legal and customary rights and long term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability.
5. Incorporates an appropriate mechanism for the resolution of disputes arising within the system[9].
6. Provide economic and social incentives that contribute to sustainable fishing and shall not operate with subsidies that contribute to unsustainable fishing.
7. Act in a timely and adaptive fashion on the basis of the best available information using a precautionary approach particularly when dealing with scientific uncertainty.
8. Incorporate a research plan – appropriate to the scale and intensity of the fishery – that addresses the information needs of management and provides for the dissemination of research results to all interested parties in a timely fashion.
9. Require that assessments of the biological status of the resource and impacts of the fishery have been and are periodically conducted.
10. Specify measures and strategies that demonstrably control the degree of exploitation of the resource, including, but not limited to:
    - Setting catch levels that will maintain the target population and ecological community's high productivity relative to its potential productivity, and account for the non-target species (or size, age, sex) captured and landed in association with, or as a consequence of, fishing for target species.
    - Identifying appropriate fishing methods that minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas.
    - Providing for the recovery and rebuilding of depleted fish populations to specified levels within specified time frames.
    - Mechanisms in place to limit or close fisheries when designated catch limits are reached.
    - Establishing no-take zones where appropriate.
11. Contains appropriate procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that established limits to exploitation are not exceeded and specifies corrective actions to be taken in the event that they are.

Part B: Operational Criteria

Fishing operation shall:

12. Make use of fishing gear and practices designed to avoid the capture of non-target species (and non-target size, age, and/or sex of the target species); minimise

[9] Outstanding disputes of substantial magnitude involving a significant number of interests will normally disqualify a fishery from certification.

mortality of this catch where it cannot be avoided, and reduce discards of what cannot be released alive.

13. Implement appropriate fishing methods designed to minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas.
14. Not use destructive fishing practices such as fishing with poisons or explosives.
15. Minimise operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.
16. Be conducted in compliance with the fishery management system and all legal and administrative requirements.
17. Assist and co-operate with management authorities in the collection of catch, discard, and other information of importance to effective management of the resources and the fishery.

The MSC Principles and Criteria presented above set the requirements for the fishery that undergoes certification. MSC's certification methodology is based on a structured hierarchy of *Sub-criteria* and *Performance indicators*. The overall performance is decided on the basis of the scoring criteria that the fishery gets during assessment. These sub-criteria and performance indicators have been developed by the MSC in the form of a default assessment tree.

When a fishery is evaluated the performance indicators (normally specific statements or questions) are checked out, and each performance indicator has three different "scoring guideposts" that can be defined. MSC characterises these scoring points as follows:

- Perfect practice, representing the level of performance that would be expected in a theoretically 'perfect' fishery (100 points).
- Exemplary or best practice (80 points).
- Minimum sustainable practice (60 points).

An overview of the assessment methodology is given in Marine Stewardship Council Certification requirements v 1.2 and Guidance to the MSC certification requirements v 1.1. This guidance illustrates how the MSC Principles and Criteria give a basis for sub-criteria and performance indicators defined by DNV, resulting in various scores for the fishery.

4.4 Evaluation Processes and Techniques

Site visits to the fishery were performed by the certification body (here DNV) and the assessment team and consultations were done 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.

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 Criterion in each Principle.
- The fishery must obtain a score of 60 or more for each Performance Indicator under each Criterion in each Principle.

Even though a fishery fulfils the criteria for certification, there may still be some important potential risks to future sustainability that are revealed during assessment. These are performance indicators that score less than 80, but more than 60. In order to be granted a MSC fishery certificate the client must agree to further improvements to raise the score to 80. The certification body (here DNV) sets a timescale for the fishery to improve the relevant areas, so that the certification process can continue.

Default performance indicators and the scorings allocated in the evaluation are enclosed in chapter 6.2.

4.4.1 Site Visits

Relevant stakeholders have been identified and stakeholder meetings were scheduled and carried out as planned in Murmansk (Russia) in May 2013. Persons consulted and key issues discussed during these site-visits are outlined in Table 11. Information gathered was used as a basis for this report and is presented throughout several chapters and in the scoring tables.

Name	Affiliation	Date	Key issues
Aleksey Melentiev (crew member) Andrey Shumeyko (crew member) Sergey Kazimirov (crew member) Viecheslav Maksimovich (crew member) Nikolai Olifirenko (capitan) Yury Smirnov (chief mate) Alexander Sokolovskiy (production director) Parshev Yury (executive director) Gennady Shershov (manager) Alexey Pchelintsev (sales manager)	ZAO Eridan, ZAO Strelets, ZAO Feniks ZAO Taurus	13.05.2013	Basic info about 3 companies: • Ownership • History • Organizational structure • Roles and responsibilities in MSC Fisheries certification process Review of fishing operations: • Fishing season • fishing areas • gear used (specifications) • Historical fishing levels per area (quotas/ catches of cod and haddock) Review of impact on ecosystem: • List of all by-catch fish species: (species and quantities 2010-2012) • By-catch of marine mammals, ETP species, birds: (species and quantities) • List of commercial/non-commercial species which are usually discarded (quantities/if known) • Loss of fishing gear, and recovery • Does the fishery overlap with sensitive habitats? Which

			habitats are protected/ closed in the fishery area? Compliance with rules and regulations: • Control, surveillance and monitoring routines/regulations applied to Russian cod and haddock fisheries in ICES I and II (International waters of NEAFC, Norwegian EFZ, Russian EFZ, Svalbard FPZ) • Disputes with national/ international authorities for the last 5 years. • Records of sanctions and penalties in 2011, 2012, 2013 (if any). Chain of Custody start: • Review of traceability system on board and at landing • Labelling of products • First point of landing • First point of sale • Main products and markets
Eugeny Shamray (deputy director)	PINRO	13.05.2013	• PINRO (function, role and responsibility) • Role in stock assessments • Sampling programmes and level of sampling, surveys • Integration of Russian national data collection programmes and stock assessments with ICES assessments. • Stock status, stock structure and recruitment of cod and haddock • Review of Limit and Target reference points established for the stocks • Harvest strategy and harvest control rules • Short-term and long-term management objectives for

			Russian fisheries, incl. cod and haddock • Monitoring programmes for non-target species • Level of discards (composition of species, quantities) • Level of by-catch (composition of species, quantities) • Monitoring programmes for ETP species. Can extent of interactions with ETP species be quantified? • Strategy for minimising/ eliminating ETP/ by-catch • Impact of cod and haddock fisheries on marine habitats. Does the fishery overlap with sensitive habitats? Which habitats are protected/ closed? • Strategy/ plans for protection of sensitive habitats • Impact of cod and haddock fisheries on ecosystem. • Ecological role of the cod and haddock stocks • Ecosystem surveys in the Barents Sea
Konstantin Drevetnyak (Head of BBTU)	BBTU	14.05.2013	• BBTU/ Federal Agency for Fishery *(function, role and responsibility)*
Andrei Gornichnykh Vasily Sokolov (Deputy Chief)	Federal Agency for Fisheries.	14.05.2013	• Russian Federation Fishery strategy • Harvest strategy for cod and haddock fisheries • Short-term and long-term management objectives for Russian fisheries • Precautionary approach in

			management of marine resources • Consultation and decision-making process for the cod and haddock stocks. Stakeholder involvement in decision-making. • Review of regulations for cod and haddock in ICES division I and II • Control, surveillance and monitoring routines/regulations applied to Russian cod and haddock fisheries in ICES I and II (NEAFC, Norwegian EFZ, Russian EFZ, Svalbard FPZ) • Logbooks: recording of non-commercial species • Fishermen's compliance with laws and regulations. Significant discrepancies found at landing control for cod and haddock fisheries in 2010-2013. • Quota and level of catches (2010-2013) • Observed fishing patterns (gear used, fishing area, fleet composition, fishing season). • Level of discards in cod and haddock fisheries.
Igor Davidkin (head of department)	Fish Industry Committee of Murmansk Region, Department of program oriented management of fishing industry		• role and responsibility) • Role of cod and haddock fisheries in Murmansk Region • System for resolution of legal disputes • Legal rights of people (minority groups) depending on cod and haddock fishing for food and livelihhod • Consultation and decision-

			making process • Incentivies for sustainable fishing
Alexey Golenkevich (Marine coordinator)	WWF Russia	14.05.2013	• WWF Russia (function, role and responsibility) • Role of cod and haddock fisheries in Murmansk Region • Review of stakeholder groups • Legal rights of people (minority groups) depending on cod and haddock fishing for food and livelihhod • Consultation process in cod and haddock fisheries • Incentivies for sustainable fishing • Information on ETP species and sensitive marine habitats • Estimated impact of cod and haddock fisheries on ETP species and sensitive marine habitats • Level of discards (composition of species, quantities) • Level of by-catch (composition of species, quantities) • Fishermen's compliance with rules and regulations.

Table 10 Site visits conducted and key issues discussed

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 11. In addition to that, all relevant stakeholders identified at the beginning of the assessment (36 stakeholders) were reached through direct e-mails and given a possibility to monitor the assessment process and provide a feedback to the assessment team.

As no stakeholder comments were submitted during the stakeholder consultancy period prior to the site visit in Murmansk, information gathered during the site visits formed the main basis of the stakeholder consultancy for this assessment (ref. section 4.4.1 above).

Date	Information	Media
21 March 2013	Notification of Full assessment	Direct E-mail/letter Notification on MSC website
21 March 2013	Notification of Assessment Team	Direct E-mail Notification on MSC website
2 April 2013	Confirmation of Assessment Team	Direct E-mail Notification on MSC website
2 April 2013	Announcement of default assessment tree	Direct E-mail Notification on MSC website
25-31 March2013	Advertisement of certification + Invitation to contribute to assessment process	Advertisement onwww.intrafish.com
28 March-28 April 2013	Advertisement of certification + Invitation to contribute to assessment process	Advertisement inwww.fishnews.ru
2 April 2013	Stakeholder Notification: Site Visit scheduled	Direct E-mail Notification on MSC website
20 August	Notification of Proposed Peer Reviewers	Direct E-mail Notification on MSC website
25 September	Notification of Confirmed Peer Reviewers	Direct E-mail Notification on MSC website
	Notification of Public Comment Draft Report	Direct E-mail Notification on MSC website
	Notification of Final Report	Direct E-mail Notification on MSC website

Table 11 Consultations during assessment process

4.4.3 Evaluation Techniques

The full assessment was publicly announced on 21March 2013 through www.msc.org and supplemented with advertisements on www.intrafish.com (25 – 31 March 2013) and on www.fishnews.ru (28 March – 28 April 2013). Assessment team chose to announce the assessment in English language on www.intrafish.com to secure worldwide coverage of potential stakeholders and in Russian language in Russian leading fish industry newspaper, “Fishnews”, to reach potential interested parties in Russia.

At the beginning of the assessment, the assessment team compiled a stakeholder list based on guidance from the client. The list covers 36 stakeholders and has been used at every

stage of the consultation process undertaken for Russian Barents Sea Cod and Haddock fishery.

Site visits were performed in May 2013 in Murmansk, Russia and conducted by members of the assessment team specified in section 2.1. Stakeholder consultations were performed in the form of direct meetings. Information on meeting's participants and issues discussed could be found in Table 11. The performance indicators and the pertaining scoring systems were evaluated jointly by the assessment team and all scoring was based on unanimous conclusions by the entire team during the scoring meeting which took place in Murmansk during 14-16May 2013.

The RBF was not used for this assessment.
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 Criterion in each Principle.
• The fishery must obtain a score of 60 or more for each Performance Indicator under each Criterion in each Principle.

Even though a fishery fulfils the criteria for certification, there may still be some important potential risks to future sustainability that are revealed during assessment. These are performance indicators that score less than 80, but more than 60. In order to be granted a MSC fishery certificate the client must agree to do some further improvements regarding these points. The certification body (here DNV) sets a timescale for the fishery to improve the relevant areas, so that the certification process can continue.

5 TRACEABILITY

5.1 Target Eligibility Date

Target eligibility date could be set up to a maximum 6 months prior to the publication of the most recent Public Comment Draft Report. In order to allow the client to take an advantage of this opportunity, the TED was originally set to 16th of May 2013, the same week when the site-audit activities were expected to take place. The target Eligibility date was then moved from 16th of May 2013 to **1st of August 2013**, in line with the revised assessment timeline.

5.2 Traceability within the Fishery

Traceability up to the point of first sale has been scrutinised as part of this assessment and the positive results reflect that there is a sufficientsystem of tracking and tracing in place (incl. control, monitoring and recording systems) to ensure that all cod and haddock products originating from the certified fishery, and sold as certified, could be identified prior or at the point of landing. Due to the strict system of control, monitoring and enforcement, there is no opportunity for the client fleet to substitute certified cod and haddock products with non-certified prior to or at the point of landing. All client catches taken in the UoC are properly reported, labeled and recorded. Thus, no specific risk factors related to traceability have been identified by the assessment team.

Client vessels have permissions to fish in the Svalbard FPZ, in international waters of NEAFC, in Norwegian EZZ and in Russian EEZ and require a license to fish in all areas issued by the Russian authorities.

In all areas, client vessels have a Vessel Monitoring System (VMS) on board and must complete log books. Log-books and sales notes are regularly inspected and cross-checked both by Norwegian and Russian authorities. In addition to that, vessels targeting cod and haddock in the Barents Sea are subject to a routine boarding and inspection, spotter planes, reporting to checkpoints when crossing international boundaries, reporting pre and post transhipment and reporting prior to landing.

From 2007, NEAFC port state control requires authorisation to land from the vessel flag state to the port state before foreign fishing vessels will be authorised to land their products in the designated ports.

A catch certification scheme by the European Union (EC no 1224/2009) was implemented in 2010 to ensure full traceability of all marine fishery products traded with the European Community. Fishery products can now only be imported into the European Community when accompanied by a catch certificate, issued by the competent authorities of the flag State certifying that the catches concerned have been made in accordance with applicable laws, regulations and international conservation and management measures. This applies to both directly landed and transhipped product.

5.2.1 Trans-shipping in the fishery

The nature of the client operation involves long fishing trips, which can last up to several months. In order to save on fuel costs, vessels discharge catches directly at sea and upload them on board of the transhipment vessels. Transhipment activities were considered as a high risk-factor in the past, when the level of IUU was high. Today the IUU level is considered to be negligible and transhipment operations are regulated in all areas of the

Barents Sea and enforced accordingly. Transhipment activities are governed by the laws of the country in which waters the discharge at sea is taking place. In Norwegian EEZ, the Norwegian regulations apply. Discharge in the Russian EEZ is governed by the laws of Russian Federation (E.g. Law on state border, law on the exclusive economic zone of the Russian Federation, the Fisheries Act, Government regulation 468). In convention areas of NEAFC, the transhipment activities are now regulated by the NEAFC - Scheme of control and enforcement (www.neafc.org).
In addition to that, in order to avoid any risk connected to the transhipment, the client operates with the trusted suppliers/ transhipment companies. See table Table 12 for list of vessels used by client in 2012 and 2013. It should be also noted that all client's cod and haddock catches which are being transhipped are packed and labelled accordingly in order to ensure that client catches can be easily identified and separated from other fish.

The transhipment vessels used by client are listed below.

	Name		Reg. number	Flag
	Name RUS	Name ENG	IMO	
1	Беломорье	Belomorye	7808334	Russia
2	Выборгский	Vyborgskiy	8723270	Russia
3	Канопус	Canopus	7700087	Russia
4	Петроградский	Petrogradskiy	8723347	Russia
5	Санни Лиза	Sunny Lisa	7359278	St Kitts & Nevis
6	Санни Мария	Sunny Maria	7734545	St Kitts & Nevis
7	Сапфир	Sapphire	8509545	Russia
8	Сильвер Берген	Silver Bergen	9140944	Norway
9	Сириус	Sirius	7700099	Russia
10	Фрио Архангельск	Frio Arkhangelsk	8860444	St Kitts & Nevis
11	Фрио Мурманск	Frio Murmansk	8845717	St Kitts & Nevis
12	Юпитер	Jupiter	7700116	Russia

Table 12List of vessels used by client fishery for trans-shipment of cod and haddock catches in 2012, 2013

5.2.2 At Sea Processing

All client vessels are processing, freezing, packing and labelling at sea. This is permitted within the scope of this certificate and has been considered as part of this assessment.

Client processing activities at sea are conducted in a manner to ensure maximum utilization of the marine resources and minimum waste. Thus, by products from cod and haddock are often landed for further utilization and processing. Main by-products include: liver, milt and roe, heads and tails, cheeks and tongues, stomachs.

All species taken on board are inspected for quality, sorted by specie type and size and stored in separate containers before they are sent to the processing. Heads and tails are also sorted per specie type as heads will for example undergo further processing with cheeks and tongues being removed. There are no by-catch species taken in the fishery that could be mistaken for cod and haddock before or after processing. Saithe fillets for example has different (greyish) colour compare to cod and haddock fillets. In regards to segregation

between cod and haddock, all crew members working with processing are experienced personnel and the chances of a human mistake during sorting activities prior to or during processing are negligible. During processing species are segregated and processed by type. All stages of processing undergo quality checks with more rigorous inspection and weighing taking place before freezing and packing. All customer vessels are equipped with Marel K60 automatic weighing and sorting system and with electronic weights Marel M2200. Fish processing is conducted in accordance with approved Technological Instructions developed in cooperation between the client fishery and PINRO.

All products and by-products are packed in a way that their packaging could not be opened without damaging the packaging. Big-size species (over 2 kg) which are often presented as HG are packed in sealed paper polypropylene bags as shown on the Figure 29 . Smaller size species (under 2 kg) which are often filleted are packed in sealed carton boxes as shown on the Figure 31. All products are clearly labelled as shown in the Figure 32. Unloading and onward transport is typically on pallets, wrapped in transparent film and labelled (Figure 30).

Client vessels M-0269 Strelets and MK-0411 Taurus are currently working on possibility to produce canned cod-liver on-board.

Figure 29: Sealed paper bag package used by client fishery.

Figure 30: Products uploaded on a pallet and wrapped in a transparent film.

MSC FISHERY ASSESSMENT REPORT

Figure 31: Sealed carton boxes used by client fishery.

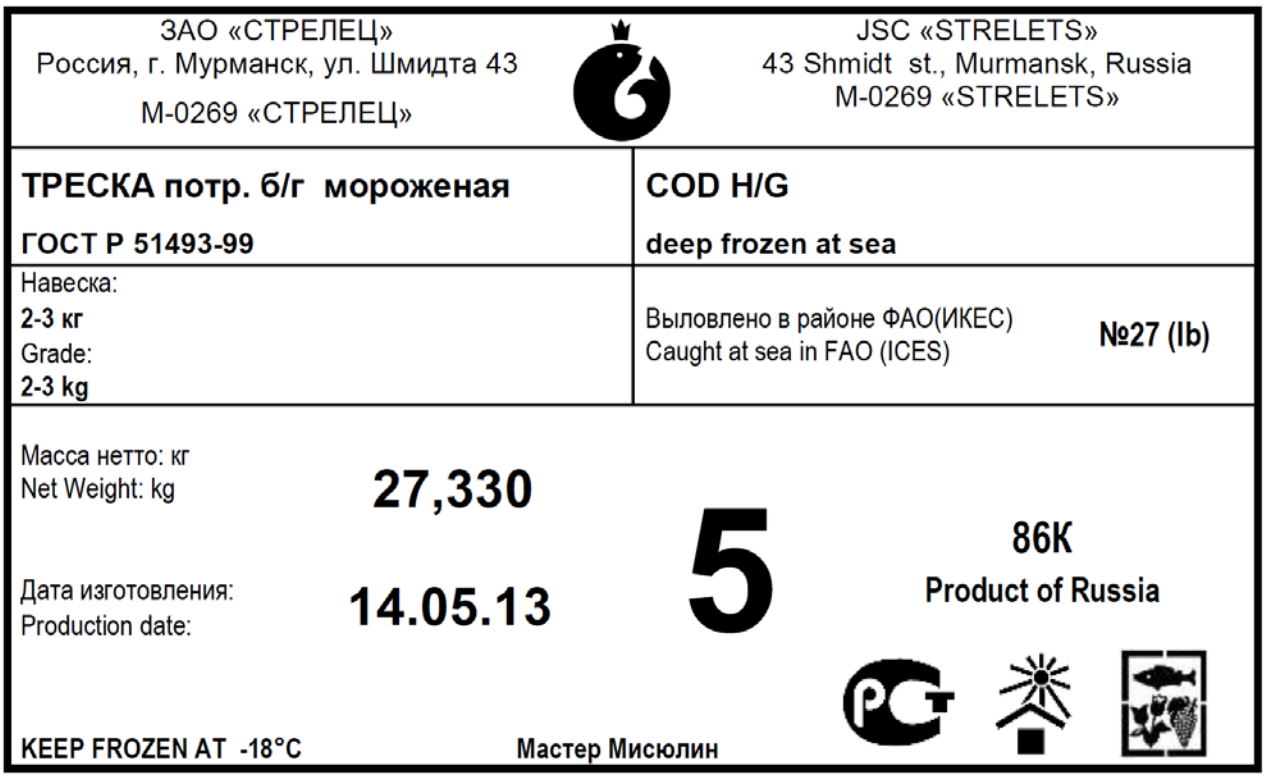

Figure 32: Type of label used by client fishery.

5.2.3 First Point of Landing

Main points of landing for the client fleet are:

- Norway (Tromsø, Hammerfest, Hønninsvåg, Ålesund);
- Russia (Murmansk, Saint-Petersburg, Kaliningrad);
- Holland (Velsen, Ijmuiden, Eemshaven)

All landings are subject to inspection from the authorities of the respective countries. The scope of inspections also covers laboratory testing of the species.

5.2.4 Eligibility to Enter Further Chains of Custody

Frozen at sea cod and haddock products and identifiable by-products originating from Russian Federation Barents Sea Cod and Haddock fishery as defined in Section 3.1 will be eligible to enter Chain of Custody and carry the MSC logo in the case of successful certification.

Frozen at sea cod and haddock products eligible to enter chain of custody are, but not limited to:

- cod h/g frozen at sea
- haddock h/g frozen at sea
- cod fillets frozen
- haddock fillets frozen

Frozen at sea identifiable by-products eligible to enter chain of custody are:

- liver
- milt and roe
- heads
- tails
- cheeks and tongues
- stomachs

Canned at sea by-products:

- cod liver

Fish meal is not covered by this certification. In order to include fish meal into certification, the separate CoC certification of processing operations on board shall be required.

Chain of custody for the client vessels will commence following the sale of cod and haddock products and identifiable by-products, as specified above, at the point of landing (auction, cold/freezer store or processing plant) either directly from the client vessels or via transhipment. Land-based processing plants as well as cold/freezer stores that perform anything more than movement of product must have separate CoC certification.

6 EVALUATION RESULTS

Principle Level Scores

Final Principle Scores Cod

Principle	Score
Principle 1 – Target Species	98,1 PASS
Principle 2 – Ecosystem	87,0 PASS
Principle 3 – Management System	89,9 PASS

Final Principle Scores Haddock

Principle	Score
Principle 1 – Target Species	91,9 PASS
Principle 2 – Ecosystem	87,0 PASS
Principle 3 – Management System	89,9 PASS

Table 13 Final Principle Scores

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6.1 Summary of Scores

6.1.1 Barents Sea Cod scores

Fishery Assessment Scoring Worksheet version 1 - effective November 14, 2011

Russian Federation Barents Sea Cod

Note: Scores are to be entered in the green-shaded cells in column K

Columns G, H and L apply in fisheries where the stock rebuilding PI (1.1.3) is NOT triggered

Columns I, J and M give the Principle 1 Outcome score contributions in fisheries where the stock rebuilding PI (1.1.3) is trigger

Prin-ciple	Wt (L1)	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3)	Weight in			Score	Contribution to Principle Score	
						Either		Or			Either	Or
One	1	Outcome	0,5	1.1.1	Stock status	0,5	0,25	0,333	0,1667	100	25,00	16,67
				1.1.2	Reference points	0,5	0,25	0,333	0,1667	100	25,00	16,67
				1.1.3	Stock rebuilding			0,333	0,1667			0,00
		Management	0,5	1.2.1	Harvest strategy	0,25	0,125			100	12,50	12,50
				1.2.2	Harvest control rules & tools	0,25	0,125			100	12,50	12,50
				1.2.3	Information & monitoring	0,25	0,125			90	11,25	11,25
				1.2.4	Assessment of stock status	0,25	0,125			95	11,88	11,88
Two	1	Retained species	0,2	2.1.1	Outcome	0,333	0,0667			85	5,67	5,67
				2.1.2	Management	0,333	0,0667			90	6,00	6,00
				2.1.3	Information	0,333	0,0667			80	5,33	5,33
		Bycatch species	0,2	2.2.1	Outcome	0,333	0,0667			80	5,33	5,33
				2.2.2	Management	0,333	0,0667			90	6,00	6,00
				2.2.3	Information	0,333	0,0667			90	6,00	6,00
		ETP species	0,2	2.3.1	Outcome	0,333	0,0667			90	6,00	6,00
				2.3.2	Management	0,333	0,0667			80	5,33	5,33
				2.3.3	Information	0,333	0,0667			80	5,33	5,33
		Habitats	0,2	2.4.1	Outcome	0,333	0,0667			80	5,33	5,33
				2.4.2	Management	0,333	0,0667			80	5,33	5,33
				2.4.3	Information	0,333	0,0667			90	6,00	6,00
		Ecosystem	0,2	2.5.1	Outcome	0,333	0,0667			100	6,67	6,67
				2.5.2	Management	0,333	0,0667			95	6,33	6,33
				2.5.3	Information	0,333	0,0667			95	6,33	6,33
Three	1	Governance and policy	0,5	3.1.1	Legal & customary framework	0,25	0,125			95	11,88	11,88
				3.1.2	Consultation, roles &	0,25	0,125			90	11,25	11,25
				3.1.3	Long term objectives	0,25	0,125			100	12,50	12,50
				3.1.4	Incentives for sustainable fishing	0,25	0,125			90	11,25	11,25
		Fishery specific management system	0,5	3.2.1	Fishery specific objectives	0,2	0,1			90	9,00	9,00
				3.2.2	Decision making processes	0,2	0,1			80	8,00	8,00
				3.2.3	Compliance & enforcement	0,2	0,1			100	10,00	10,00
				3.2.4	Research plan	0,2	0,1			80	8,00	8,00
				3.2.5	Management performance	0,2	0,1			80	8,00	8,00

Overall weighted Principle-level scores		Either	Or
Principle 1 - Target species	Stock rebuilding PI not scored	98,1	
	Stock rebuilding PI scored		81,5
Principle 2 - Ecosystem		87,0	
Principle 3 - Management		89,9	

6.1.2 Barents Sea Haddock scores

Fishery Assessment Scoring Worksheet version 1 - effective November 14, 2011

Russian Federation Barents Sea Haddock

Note: Scores are to be entered in the green-shaded cells in column K

Columns G, H and L apply in fisheries where the stock rebuilding PI (1.1.3) is NOT triggered

Columns I, J and M give the Principle 1 Outcome score contributions in fisheries where the stock rebuilding PI (1.1.3) is trigger

Prin-ciple	Wt (L1)	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3) Either	Weight in	Or		Score	Contribution to Principle Score Either	Or
One	1	Outcome	0,5	1.1.1	Stock status	0,5	0,25	0,333	0,1667	90	22,50	15,00
				1.1.2	Reference points	0,5	0,25	0,333	0,1667	90	22,50	15,00
				1.1.3	Stock rebuilding			0,333	0,1667			0,00
		Management	0,5	1.2.1	Harvest strategy	0,25	0,125			95	11,88	11,88
				1.2.2	Harvest control rules & tools	0,25	0,125			100	12,50	12,50
				1.2.3	Information & monitoring	0,25	0,125			90	11,25	11,25
				1.2.4	Assessment of stock status	0,25	0,125			90	11,25	11,25
Two	1	Retained species	0,2	2.1.1	Outcome	0,333	0,0667			85	5,67	5,67
				2.1.2	Management	0,333	0,0667			90	6,00	6,00
				2.1.3	Information	0,333	0,0667			80	5,33	5,33
		Bycatch species	0,2	2.2.1	Outcome	0,333	0,0667			80	5,33	5,33
				2.2.2	Management	0,333	0,0667			90	6,00	6,00
				2.2.3	Information	0,333	0,0667			90	6,00	6,00
		ETP species	0,2	2.3.1	Outcome	0,333	0,0667			90	6,00	6,00
				2.3.2	Management	0,333	0,0667			80	5,33	5,33
				2.3.3	Information	0,333	0,0667			80	5,33	5,33
		Habitats	0,2	2.4.1	Outcome	0,333	0,0667			80	5,33	5,33
				2.4.2	Management	0,333	0,0667			80	5,33	5,33
				2.4.3	Information	0,333	0,0667			90	6,00	6,00
		Ecosystem	0,2	2.5.1	Outcome	0,333	0,0667			100	6,67	6,67
				2.5.2	Management	0,333	0,0667			95	6,33	6,33
				2.5.3	Information	0,333	0,0667			95	6,33	6,33
Three	1	Governance and policy	0,5	3.1.1	Legal & customary framework	0,25	0,125			95	11,88	11,88
				3.1.2	Consultation, roles &	0,25	0,125			90	11,25	11,25
				3.1.3	Long term objectives	0,25	0,125			100	12,50	12,50
				3.1.4	Incentives for sustainable fishing	0,25	0,125			90	11,25	11,25
		Fishery specific management system	0,5	3.2.1	Fishery specific objectives	0,2	0,1			90	9,00	9,00
				3.2.2	Decision making processes	0,2	0,1			80	8,00	8,00
				3.2.3	Compliance & enforcement	0,2	0,1			100	10,00	10,00
				3.2.4	Research plan	0,2	0,1			80	8,00	8,00
				3.2.5	Management performance	0,2	0,1			80	8,00	8,00

Overall weighted Principle-level scores		Either	Or
Principle 1 - Target species	Stock rebuilding PI not scored	91,9	
	Stock rebuilding PI scored		76,9
Principle 2 - Ecosystem		87,0	
Principle 3 - Management		89,9	

6.2 Summary of Conditions

Conditions: The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 80 against any MSC Criteria. Neither a condition nor a client action plan is therefore required prior to certification being granted. .

Recommendations:

Recommendation 1.

Performance Indicator 2.4.2	**There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.**
Score	80
Rationale	Bottom trawl gear has the potential to cause habitat damage. Though the available information suggests that this is 'highly unlikely' in this fishery, due mainly to the way in which the fishery operates, management and mitigation efforts should be tailored accordingly.
Recommendation	There are a number of potential approaches to further reduce the likelihood of serious or irreversible harm to habitats, and the clients are encouraged to actively pursue: » the possibility to switch to lighter / less impacting fishing gears, such as semi-pelagic gears for targeting demersal species or other models of trawls/parts of gear which can reduce the impact on benthos. » collect information on fishing patterns relative to habitat areas to help explore potential for further strategic closed areas – or fishing areas where lighter gears are possible. » continue using the navigation systems in order to completely avoid areas with sponges and corals.

Recommendation 2

Performance Indicator 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**
Score	90
Rationale	The consultation process provides opportunity for all interested and affected parties to be involved; cf. information on the public chambers at different levels in a) and b) of this SG. Meetings are publicly announced and all interested parties can attend, including NGOs and the media. However, this stops short of management authorities encouraging and actively facilitating their effective engagement.
Recommendation	The client shall facilitate the communication between NGOs and organisations involved in the fishery management system.

Recommendation 3

Performance Indicators 2.2.3 2.3.3 2.4.3	**PI 2.2.3** Information on the nature and the amount of by-catch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage by-catch. **PI 2.3.3** Relevant information is collected to support the management of fishery 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. **PI 2.4.3** Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.
Score	2.2.3: 90 2.3.3: 80 2.4.3: 90
Rationale	The vessels currently in the UoC have previously completed MSC logbooks under another Certificate, in which information on catches of ETP species, discarded by catch and other indicators of interactions with benthos and habitat is recorded that is not found in skippers' logbooks or landings declarations. This information is important when environmental and ecosystem impacts are being evaluated.
Recommendation	The client shall continue to use or implement the use of MSC logbooks, specifically to collect information on ETP species, discards and habitat interactions.

6.3 Determination, Formal Conclusion and Agreement

The Russian Federation Barents Sea Cod and Haddock 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. The assessment team therefore recommends the certification of the Russian Federation Barents Sea Cod and Haddock Fishery for the client group ZAO Strelets and ZAO Eridan. Following this decision by the assessment team, and review by peer-reviewers and stakeholders, the determination will be presented to DNV Business Assurance decision making entity that the fishery has passed its assessment and should be certified.

(REQUIRED FOR PCR)

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

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APPENDICES

APPENDIX 1 SCORING AND RATIONALES

Appendix 1.1 Performance Indicator Scores and Rationale

North East Arctic Cod (Barents Sea cod)

Evaluation Table PI 1.1.1

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	It is **likely** that the stock is above the point where recruitment would be impaired. The stock is well above its biomass precautionary reference point which is the lowest SSB with >90% probability that the stock is above its limit reference point.
80	**a**	**Y**	It is **highly likely** that the stock is above the point where recruitment would be impaired. The biomass limit point is set at the change point in the regression of SSB vs recruitment below which recruitment could be impaired. The current SSB is well above both this biomass limit point and the precautionary approach level.
	b	**Y**	The stock is at or fluctuating around its target reference point. The SSB at spawning time in 2012 was estimated to be approximately 4 times the current management plan target, MSY biomass trigger point and the biomass precautionary approach level. It has been well above 1 million t since 2009.
100	**a**	**Y**	There is a **high degree of certainty** that the stock is above the point where recruitment would be impaired. SSB at spawning time in 2012 was estimated to be at the highest level in the historic time series and well above both the biomass limit reference point and management plan and MSY targets. These reference points ensure that the stock is above the point (Blim) where recruitment might be impaired with >90% probability; a high degree of certainty.
	b	**Y**	There is a **high degree of certainty** that the stock has been fluctuating around its target reference point, or has been above its target reference point, **over recent years**. The SSB has been above its management plan and MSY target points (460,000t) since 2002. Since then SSB has gradually increased and since 2009 it has been well over 1 million t. It is currently over 2 million t the highest level recorded in the time series dating back to 1946. There is therefore a high degree of certainty that the stock has been well above its target reference point since 2009. SSB in 2012 increased and is therefore still the highest in the time series
References			ICES, 2012a; ICES, 2012b, ICES 2013

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PI 1.1.1	The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing			
Stock Status relative to Reference Points				
	Type of reference point	**Value of reference point**	**Current stock status relative to reference point**	
Target reference point	MSY B trigger / SSB management plan. Fmsy and F management plan	SSB: 460,000t F0.4	SSB (2013|): 1,986,083t F0.23 (2012)	
Limit reference point	Blim Flim	SSB: 220,000t F0.74	SSB (2013|): 1,986,083t F0.23 (2012)	
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				

Evaluation Table: PI 1.1.2

PI 1.1.2			Limit and target reference points are appropriate for the stock
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category. A raft of appropriate biological reference points, for biomass and fishing mortality have been defined by ICES and agreed by the JNRFC.
80	**a**	**Y**	Reference points are appropriate for the stock and can be estimated. The reference points meet internationally agreed standards and have been endorsed by ICES as consistent with a precautionary approach to managing the stock.
	b	**Y**	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity. The biomass limit point is set at the change point in the regression of SSB vs recruitment a point below which impaired recruitment might be expected but above which there have been no clear signs of impaired recruitment.
	c	**Y**	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome. The management plan target SSB is set at the agreed MSY biomass trigger point in the Harvest control rule.
	d	**N/A**	Key low trophic level species, the target reference point takes into account the ecological role of the stock. Cod is not defined as an LTL species nevertheless it is worthy of note that estimates of cod cannibalism are incorporated into the estimate of natural mortality in the assessment modelling procedures. *(Reference: CR Annex CB2.3.13, CB2.3.18)*
100	**b**	**Y**	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of **precautionary issues**. The biomass limit reference point (Blim) is set at a point above which there has been no evidence of impaired reproductive capacity. A raft of appropriate environmental drivers are used in the calculation of the annual estimates of recruitment and thus do take into account precautionary issues.
	c	**Y**	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a **higher level**, and takes into account relevant precautionary issues such as the ecological role of the stock with a **high degree of certainty.** The current management plan / harvest control rule is clearly consistent with MSY reference points for both biomass and fishing mortality. Environmental factors and cod cannibalism are clearly incorporated into the stock modelling and are considered to be a vital part of the whole management strategy.

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PI 1.1.2		Limit and target reference points are appropriate for the stock	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
References			ICES, 2003 ICES, 2012a: ICES, 2012b
OVERALL PERFORMANCE INDICATOR SCORE:			**100**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 1.1.3

PI 1.1.3		Where the stock is depleted, there is evidence of stock rebuilding	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**		Where stocks are depleted rebuilding strategies which have a reasonable expectation of success are in place.
			[Insert as much text as required into every relevant SG issue]
	b		A rebuilding timeframe is specified for the depleted stock that is the shorter of 30 years or 3 times its generation time. For cases where 3 generations is less than 5 years, the rebuilding timeframe is up to 5 years.
	c		Monitoring is in place to determine whether they are effective in rebuilding the stock within a **specified** timeframe.
80	**a**		Where stocks are depleted rebuilding strategies are in place.
	b		A rebuilding timeframe is specified for the depleted 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.
	c		There is **evidence** that they 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 a **specified** timeframe.
100	**a**		Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete **within the specified timeframe**.
	b		The shortest practicable rebuilding timeframe is specified which does not exceed **one generation** time for the depleted stock.
References			[List any references here]
OVERALL PERFORMANCE INDICATOR SCORE:			**N/A**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 1.2.1

PI 1.2.1		There is a robust and precautionary harvest strategy in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	The harvest strategy is **expected** to achieve stock management objectives reflected in the target and limit reference points.
			The JNRFC management plan was formulated in 2002 and the resultant harvest control rules applied for the first time in setting the quotas for 2004. The plan was reviewed and amended by the JNRFC in 2009 and is clearly achieving its objectives as evidenced by the current levels of SSB and F.
	b	**Y**	The harvest strategy is **likely** to work based on prior experience or plausible argument.
			The harvest strategy is clearly working with fishing mortality below Fmsy since 2007 and SSB above Bmsy since 2002.
	c	**Y**	Monitoring is in place that is expected to determine whether the harvest strategy is working.
			There is a comprehensive stock monitoring and assessment programme in place leading to an annual evaluation of the success of the harvest strategy.
80	**a**	**Y**	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy **work together** towards achieving management objectives reflected in the target and limit reference points.
			The management plan is clearly designed to be responsive to the current status of the stock and to maintain fishing mortality and SSB at levels which underpin the maximum sustainable yield strategy. Safeguards are in place within the strategy to ensure that there is always at least a 90% probability that SSB is not below the biomass limit level.
	b	**Y**	The harvest strategy may not have been fully tested but monitoring is in place and evidence exists that it is achieving its objectives.
			The harvest strategy has been operating since 2004 and has clearly achieved its objectives since then as evidenced by the current levels of SSB and F in relation to their MSY reference points.
100	**a**	**Y**	The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in the target and limit reference points.
			The management plan is clearly designed to be responsive to the current status of the stock and to maintain fishing mortality and SSB at levels which support the maximum sustainable yield. The strategy has resulted in a steady increase in the SSB since the management plan started in 2004 and SSB is currently at an historic high in the 56 year time series. Fishing mortality has been reduced from a high of F0.7 in 2004 to its current level F0.26 which is well below the management plan MSY target (F0.4)
	b	**Y**	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.
			The harvest strategy was subject to a full evaluation within the JNRFC in 2009 and has been accepted by ICES (ACOM) as being consistent with a

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PI 1.2.1		There is a robust and precautionary harvest strategy in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			precautionary approach to managing the stock. The levels of SSB and F, since the management plan was introduced in 2004,clearly show that the strategy is achieving its objectives in terms of maintaining both maximum sustainable yields and full reproductive capacity
	d	**Y**	The harvest strategy is periodically reviewed and improved as necessary.
			The management plan which underpins the harvest strategy was formulated by the JNRFC in 2002 and amended in 2004 before its introduction. It was evaluated by ICES in 2005 and endorsed as being consistent with the precautionary approach. A further evaluation by ICES in 2007 noted a potential problem with the 'three year rule' for TAC setting. As a result the plan was subject to a full evaluation within the JNRFC in 2009 and an amendment was made modifying the three year rule. The amended strategy was confirmed by the JNRFC as the basis for managing the fishery until 2015 when the plan will be evaluated once more. The current management plan was further endorsed by ICES as consistent with the precautionary approach in 2010, and not in contradiction to the MSY framework.
References			ICES, 2005; ICES, 2007a; ICES, 2010b; ICES, 2012a; ICES, 2012b; JNRFC, 2010.
OVERALL PERFORMANCE INDICATOR SCORE:			**100**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 1.2.2

PI 1.2.2		There are well defined and effective harvest control rules in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	**Generally understood** harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.
			The current strategy is to set an annual TAC, based on managing the stock in accordance with the agreed JNRFC management plan. The annual TAC is firmly based on the predicted catch corresponding to the ICES advice which is firmly based on managing the stock according to the agreed target and limit reference points for SSB and F. This is supported by a raft of technical and conservation measures.
	c	**Y**	There is **some evidence** that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.
			Monitoring of the catches and landings has been working effectively in this fishery for many years. The problem of illegal, unreported and unregulated landings was addressed and since 2008 has been virtually eliminated. Evidence of the success of the tools used to monitor and control the TAC can be seen in the close agreement, since 2008, between the agreed TAC and the total landings as estimated by the assessment working group.
80	**a**	**Y**	**Well defined** harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.
			The TAC control rules and other conservation measures have maintained the SSB, of the North East Arctic cod stock, above the JNRFC management plan target of 460,000t since 2002. Fishing mortality has been below the management plan target (F0.4) since 2007. The harvest strategy has clear rules which effectively reduce the annual TAC if target and limit reference points for SSB are approached. The strategy is clearly designed to set the annual TAC at a level consistent with maintaining the SSB above, and the fishing mortality below, the management plan and MSY targets. The strategy is strongly supported by a raft of technical measures including mesh size restrictions, minimum landing size, area closures when juvenile density is high and other area and seasonal restrictions.
	b	**Y**	The **selection** of the harvest control rules takes into account the **main** uncertainties.
			The main uncertainties affecting the harvest control rule are the reliability of the annual stock assessment in estimating current SSB and fishing mortality. The major problem, prior to 2001, of estimating the extent of IUU landings, has been successfully addressed. These have been taken into account when selecting the current harvest rules and in particular the 'three year rule 'in setting the annual TAC provides both stability and an opportunity to correct for any retrospective problems in the estimation of SSB and F.
	c	**Y**	**Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest

PI 1.2.2		There are well defined and effective harvest control rules in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			control rules.
			Monitoring of the catches and landings has been working effectively in this fishery for many years. The problem of illegal, unreported and unregulated landings was addressed through more rigorous monitoring and control. The ICES working group is satisfied that from a high in 2005 the problem has now been virtually eliminated. Illegal, unreported and unregulated landings have been recorded as zero since 2009, Evidence of the success of the tools used to monitor and control the TAC can be seen in the close agreement, since 2008, between the agreed TAC and the total landings as estimated by the assessment working group (which includes IUU landings).
100	**b**	**Y**	The **design** of the harvest control rules takes into account a **wide range** of uncertainties.
			The main uncertainties affecting the harvest control rule are the reliability of the annual stock assessment and in particular the estimation of current SSB and F. The major problem prior to 2001 of estimating the extent of IUU landings has been successfully addressed. There are still some issues relating to scientific sampling of the landings and also discrepancies in the methods for apportioning the catch of Norwegian Coastal cod. Within the assessment modelling procedure the effect of very strong year class on the catchability-at-age parameter can also generate some uncertainty in the final assessment. These uncertainties are satisfactorily addressed when selecting the current harvest rules and in particular the amended 'three year rule 'in the management plan for setting the annual TAC. This clause in the management plan provides both stability and an opportunity to correct for any retrospective problems in the estimation of SSB and F.
	c	**Y**	**Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
			Monitoring of the catches and landings has been working effectively in this fishery for many years. The problem of illegal, unreported and unregulated landings was addressed through more rigorous monitoring and control. The ICES working group is satisfied that from a high in 2005 the problem has now been virtually eliminated. Illegal, unreported and unregulated landings have been recorded as zero since 2009. Evidence of the success of the tools used to monitor and control the TAC can be seen in the close agreement, since 2008, between the agreed TAC and the total landings as estimated by the assessment working group. Further evidence of the effectiveness of the tools used to control exploitation is the increase in SSB from above the management plan, MSY target level of 460,000t in 2002 to its current level of over 2million t. Fishing mortality has also been below the management plan and Fmsy level of F0.4 since 2007.
References			ICES, 2002; ICES, 2009; ICES, 2010a; ICES, 2012a; ICES, 2012b; Pers.com. PINRO; BBTU;
OVERALL PERFORMANCE INDICATOR SCORE:			**100**

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PI 1.2.2		There are well defined and effective harvest control rules in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 1.2.3

PI 1.2.3		Relevant information is collected to support the harvest strategy	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	**Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.
			The North East Arctic cod has been the target of national research programmes in Russia and Norway and other countries that in the past have had a fishery interest in the area. This research effort has provided relevant information on stock structure, stock productivity and fleet composition in support of the harvest strategy.
	b	**Y**	Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.
			Basic biological data from the North East Arctic cod fishery is routinely collected by most countries participating in the fishery, in support of the analytical stock assessment. The stock assessment is supported by three fishery independent surveys and one commercial trawl CPUE index
80	**a**	**Y**	**Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.
			The North East Arctic cod has been the target of national research programmes in Russia and Norway and the UK and other countries that in the past have had a fishery interest in the area. This research effort has built up a significant fund of appropriate knowledge, on stock structure, spawning and spawning migrations, seasonal distributions and stock productivity, which adequately supports the current harvest strategy. There is also comprehensive knowledge on the structure of the fleets exploiting the resource both past and present. This includes knowledge of gear types and gear configurations in use throughout the fishery. These data are regularly reviewed and updated by the ICES working group in the stock annexe to their annual assessment report. Information on age and growth rates is routinely collected as part of the scientific sampling programmes by Russia, Norway, Germany, Poland and Spain and maturity data is collected by Russia and Norway. As part of this sampling programme, sampling of the catch at sea is carried out on Norwegian reference fleet fishing vessels and by observers on some Russian vessels.
	b	**Y**	Stock abundance and fishery 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.
			Basic biological data from the North East Arctic cod fishery is routinely collected by most countries participating in the fishery, in support of the analytical stock assessment process. Sampling levels for length, age sex and maturity are considered by ICES to be satisfactory. Fishery removals are adequately monitored including estimates of IUU landings in the past. The stock assessment is supported by three fishery independent surveys, two bottom trawl and one acoustic survey and by a Russian commercial trawl CPUE index.
	c	**Y**	There is good information on all other fishery removals from the stock.

PI 1.2.3		Relevant information is collected to support the harvest strategy	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Landings from all vessels operating in the North East Arctic are well monitored. Their catches are appropriately reported to the National monitoring authorities. The activities of the fleets at sea are also monitored by on board observers, inspections at sea and a Norwegian reference fleet. There is a discard ban in Norwegian and Russian waters.
100	**a**	**Y**	A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
			The information on relevant data listed under 80a is considered to be comprehensive. The stock assessment is supported by three fishery independent surveys, two bottom trawl and one acoustic survey and by a Russian commercial trawl CPUE index. The joint bottom trawl survey has been running from 1985 and covers ages 3 to 8yrs in the stock. The Russian bottom trawl survey started in 1994 and covers ages 3-9yrs The joint acoustic survey started in 1985 and also covers ages 3-9yrs. The Russian commercial trawl cpue index started in 1985 and covers the age range 9-11yrs in the stock. This is the age range which the assessment working group considers to be appropriate after evaluation of all ages in the time series. In addition to the basic data needed for an analytical stock assessment in support of a harvest strategy there are environmental data collected on the annual ecosystem survey. This provides some information on the role of cod as a top predator in the ecosystem and the role of temperature, food supply and stock abundance in influencing cod growth and recruitment and distribution. The effect of the removal of cod on the abundance of prey stocks such as capelin, redfish and haddock is also studied.
	b	**N**	**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.
			All the relevant information required for carrying out an annual stock assessment is appropriately monitored. Monitoring of landings in support of the TAC control is carried out contemporaneously with the fishery and enforcement action can be introduced quickly. There are still some uncertainties in the data sources (e.g. surveys, Norwegian onshore sampling, and scientific sampling) which need further clarification. Whilst these are not serious enough to affect the robustness of the assessment the fishery does not meet the high standard required in this element of the performance indicator.
References			Berg et al, 2005; ICES, 2003; ICES, 2010a; ICES, 2010c; ICES, 2011b; ICES 2012a; ICES, 2012b; Wheeler, 1969.
OVERALL PERFORMANCE INDICATOR SCORE:			**90**

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PI 1.2.3		Relevant information is collected to support the harvest strategy	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 1.2.4

PI 1.2.4		There is an adequate assessment of the stock status	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**b**	**Y**	The assessment estimates stock status relative to reference points.
			An annual assessment of stock status is carried out by the ICES assessment working group, AFWG. This describes stock status in relation to SSB and F reference points
	c	**Y**	The assessment **identifies major sources** of uncertainty.
			Uncertainties are identified by the assessment working group and the potential effect, on the estimation of stock status, evaluated.
80	**a**	**Y**	The assessment is appropriate for the stock and for the harvest control rule.
			The assessment method is an aged based extended survivor's analysis (XSA) using data from the fishery and from fishery independent surveys. The assessment method is commonly used by ICES for the assessment of demersal stocks and is considered by ICES and independent reviewers to be appropriate for this stock and this fishery. The outputs from the assessment provide appropriate information on biomass and fishing mortality relevant to the harvest control rule.
	c	**Y**	The assessment **takes uncertainty into account**.
			Uncertainties in the catch and survey data have been identified and are given due consideration during the assessment. The related problems and their effect on the assessment are kept under regular review.
		Y	The assessment of stock status is subject to peer review.
			The assessment is subject to peer review within JNRFC, AFWG and the ICES advisory committee, ACOM.
100	**a**	**Y**	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.
			The assessment is based on a database going back to 1946. The major contributors to that database over recent years are Russia and Norway but there are also contributions by other countries who currently participate in the fishery or who have participated in the past. The assessment model in use is an aged based extended survivor's analysis (XSA). This is an analytical assessment model which uses catch data, biological sampling for length, age, weight and maturity and three fishery independent surveys as tuning indices. This assessment method is commonly used by ICES working groups for the assessment of demersal stocks. It is considered by ICES, and independent reviewers, to be appropriate for this stock and this fishery. The assessments in 2012 and 2013were update assessments. The last benchmark assessment, with full data exploration, was in 2010 and the next benchmark assessment is scheduled for 2014/2015. The available data fully support the analytical assessment which makes the fullest possible use of the abundant biological and environmental data that are relevant to both stock and fishery.

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PI 1.2.4		There is an adequate assessment of the stock status	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
		N	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way.
			A number of uncertainties are recognised in the assessment, including IUU landings in the past, changes in the intensity of scientific sampling, apportioning catches of Coastal cod and some uncertainty in the estimation of maturity at age. The strong year classes of 2004 and 2005 have also generated uncertainty in the catchability at age parameter in the assessment model. These uncertainties and their implications for the assessment and management of the stock are minimised by 'tuning' the assessment to indices from three fishery independent surveys and one commercial cpue data series. In spite of this it is recognised that the uncertainties do potentially affect the precision of the stock assessment process and therefore this scoring issue is not fully met
		Y	The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
			The continuing increase in the SSB in the stock indicates that the assessment which underpins the harvest strategy and TAC controls is both appropriate and robust. Retrospective patterns do however show that there is a tendency to overestimate fishing mortality and to underestimate total stock biomass. The main assessment procedures do include consideration and use of alternative models both for comparison and validation of the main model. ICES has considered the use of the alternative assessment methods.
	e	**Y**	The assessment has been **internally and externally** peer reviewed.
			The assessment of the stock is subject to rigorous annual review at a number of levels. The JNRFC meetings reviews the assessment independently of ICES, even though many of the same scientists are also members of the AFWG. Within ICES, the stock assessments are subject to internal peer review by the ICES advisory committee ACOM before advice is provided to member states and the JNRFC. ICES also commissions periodic reviews of specific stock assessments and its overall assessment methodology. Assessments, assessment methods and management procedures and advice are also subject to frequent scrutiny by a range of third parties from the fishing industry itself to a variety of environmental NGOs.
References			ICES, 2002; ICES, 2010a; ICES, 2010b; ICES, 2012a; ICES, 2012b.
OVERALL PERFORMANCE INDICATOR SCORE:			**95**
CONDITION NUMBER (if relevant):			

Haddock

Evaluation Table PI 1.1.1

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	It is **likely** that the stock is above the point where recruitment would be impaired.
			The stock is well above its biomass precautionary reference point of 80Kt which is the lowest SSB with >90% probability that the stock is above its limit reference point of 50Kt.
80	**a**	**Y**	It is **highly likely** that the stock is above the point where recruitment would be impaired.
			The biomass limit point is set at Bloss, the lowest observed level of SSB (1984) and above which there is no evidence of impaired recruitment. The historic time series shows that above average recruitment can occur at around the lowest observed levels of SSB which provides a sound basis for setting the biomass limit level at Bloss. The current SSB is well above this biomass limit point and the precautionary approach, MSY B trigger and management plan levels. ICES accepts that the stock is currently at full reproductive capacity.
	b	**Y**	The stock is at or fluctuating around its target reference point.
			The SSB at spawning time in 2012 was estimated to be 384Kt but fell to 255Kt at spawning time in 2013 which is still more than 3 times the current management plan target, MSY biomass trigger point and the biomass precautionary approach level of 80,000t. It has been well above 150Kt since 2002.
100	**a**	**Y**	There is a **high degree of certainty** that the stock is above the point where recruitment would be impaired.
			SSB at spawning time in 2011 reached a peak in the historic time series dating back to 1950 and the SSB in 2012 was the second highest in that series. The current level is well above both the biomass limit reference point (50,000t) and management plan and MSY trigger level of 80,000t. These reference points ensure that the stock is above the biomass limit point, below which recruitment might be impaired, with 95% probability; a high degree of certainty. ICES considers that the stock is currently at full reproductive capacity and that it is being harvested sustainably.
	b	**N**	There is a **high degree of certainty** that the stock has been fluctuating around its target reference point, or has been above its target reference point, **over recent years**.
			The SSB fell below the biomass limit level over the period 1983 to 1988 but since then it has remained above that level. SSB did fall to around 100,000t in 1999 and 2000 but since then has rapidly increased to its current very high level. SSB has been above the management plan target and MSY B trigger level (80,000t) since 1989 and over double that level since 2002. SSB has been over 200,000t since 2007 reaching a time series maximum of 419Kt in 2011. SSB at spawning time in 2013 was

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PI 1.1.1			The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
			255Kt. There is therefore a high degree of certainty that the stock has been well above its biomass target reference point since 2007. However in spite of the high SSB there are concerns regarding the current high fishing mortality which is above the precautionary approach level but below Flim. This is a function of the current harvest control rule when SSB is very high. As a consequence the fishery does not fully meet the requirements of this scoring issue.		
References			ICES 2012a; ICES 2012b,ICES 2013		
Stock Status relative to Reference Points					
			Type of reference point	**Value of reference point**	**Current stock status relative to reference point**
Target reference point			MSY B trigger; SSB Management plan. F MSY and F Management plan Fpa	80,000t (SSB) F 0.35 F 0.47	255,372t (SSB, 2013) F(2012) 0.56
Limit reference point			Blim Flim	50,000t (SSB) F 0.77	255,372t (SSB, 2013) F (2012) 0.56
OVERALL PERFORMANCE INDICATOR SCORE:					**90**
CONDITION NUMBER (if relevant):					

Evaluation Table: PI 1.1.2

PI 1.1.2		Limit and target reference points are appropriate for the stock	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category. An appropriate range of biological reference points, for biomass and fishing mortality have been defined by ICES and agreed by the JNRFC within a management plan for the stock.
80	**a**	**Y**	Reference points are appropriate for the stock and can be estimated. The biomass and fishing mortality reference points meet internationally agreed standards and have been endorsed by ICES as consistent with a precautionary approach to managing the stock, and not in contradiction to MSY strategy.
	b	**Y**	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity. The biomass limit point is set at Bloss (50,000t), the lowest observed level of SSB (1984) and above which there is minimum risk of impairing reproductive capacity. Above average recruitment has been observed at around the lowest observed levels of SSB in the time series. This provides a sound basis for setting the biomass limit level at Bloss. The fishing mortality reference point Flim of 0.77 is based on SSB per recruit relationship using geometric mean recruitment and Blim. ACOM accepts that there is no standard method for estimating Flim or Fpa but have endorsed this approach by the JNRFC to the estimation of Flim.
	c	**Y**	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome. The management plan SSB target reference point (80,000t) is the same as the agreed MSY B trigger point and the same as Bpa in the Harvest control rule.
	d	**N/A**	Key low trophic level species, the target reference point takes into account the ecological role of the stock. Haddock is not defined as an LTL species nevertheless it is worthy of note that estimates of predation on haddock are taken into account in the estimation of natural mortality in the assessment modelling procedures. An awareness of the role of haddock as a prey item in the arctic ecosystem is also given due consideration in the assessment process. *(Reference: CR Annex CB2.3.13, CB2.3.18)*
100	**b**	**N**	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of **precautionary issues**. The biomass limit point is set at Bloss (50,000t), the lowest observed level of SSB (1984) and above which there is minimum risk of impairing reproductive capacity. The Bpa level of 80,000t, set to protect the stock against falling below Blim with 95% probability, does take into account uncertainty in the assessment

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PI 1.1.2		Limit and target reference points are appropriate for the stock	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			and stock dynamics. However, given there is no clear stock and recruitment relationship in haddock and the inherent observed volatility of haddock recruitment, it is not clear how this uncertainty has been taken into account in establishing Blim at Bloss in spite of observed above average recruitment at low levels of SSB The approach to establishing Flim, does consider precautionary issues in that it is based on geometric mean recruitment and Blim.
	c	**Y**	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a **higher level**, and takes into account relevant precautionary issues such as the ecological role of the stock with a **high degree of certainty.**
			The Bpa level of 80,000t, set to protect the stock against falling below Blim with 95% probability, does take into account uncertainty in the assessment and stock dynamics. This level is also the MSY B trigger level. Environmental factors, in particular predation on haddock, are clearly incorporated into the stock modelling and are considered to be a vital part of the whole management strategy.
References			ICES, 2006b; ICES, 2011b; ICES, 2011c; ICES, 2012a; ICES, 2012b.
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 1.1.3

PI 1.1.3		Where the stock is depleted, there is evidence of stock rebuilding	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**		Where stocks are depleted rebuilding strategies which have a reasonable expectation of success are in place.
			[Insert as much text as required into every relevant SG issue]
	b		A rebuilding timeframe is specified for the depleted stock that is the shorter of 30 years or 3 times its generation time. For cases where 3 generations is less than 5 years, the rebuilding timeframe is up to 5 years.
	c	**8**	Monitoring is in place to determine whether they are effective in rebuilding the stock within a **specified** timeframe.
80	**a**	**9**	Where stocks are depleted rebuilding strategies are in place.
	b	**10**	A rebuilding timeframe is specified for the depleted 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.
	c	**11**	There is **evidence** that they 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 a **specified** timeframe.
100	**a**	**12**	Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete **within the specified timeframe**.
	b	**13**	The shortest practicable rebuilding timeframe is specified which does not exceed **one generation** time for the depleted stock.
References			[List any references here]
OVERALL PERFORMANCE INDICATOR SCORE:			**N/A**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 1.2.1

PI 1.2.1		There is a robust and precautionary harvest strategy in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	The harvest strategy is **expected** to achieve stock management objectives reflected in the target and limit reference points. The JNRFC management plan was agreed in 2004 and the resultant harvest control rules applied for the first time in setting the quotas for 2005. The plan was modified by the JNRFC in 2007 as a result of an evaluation of the harvest control rule by ICES. The strategy is clearly achieving its objectives as evidenced by the current levels of SSB and F
	b	**Y**	The harvest strategy is **likely** to work based on prior experience or plausible argument. The harvest strategy is clearly working with fishing mortality being below the precautionary approach level, Fpa, since 1989 and fluctuating around Fmsy since 2006 and only marginally above it in 2011. SSB has been well above precautionary, management plan and MSY trigger levels since 1989.
	c	**Y**	Monitoring is in place that is expected to determine whether the harvest strategy is working. There is a comprehensive stock monitoring and assessment programme in place which describes current stock status in terms of spawning biomass, fishing mortality and recruitment. These data are ideal in the evaluation of the success, or failure of the harvest strategy.
80	**a**	**Y**	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy **work together** towards achieving management objectives reflected in the target and limit reference points. The overarching management plan which drives the harvest strategy is clearly designed to be responsive to the current status of the stock and to maintain fishing mortality and SSB at levels which underpin the MSY strategy for biomass and fishing mortality.
	b	**Y**	The harvest strategy may not have been fully tested but monitoring is in place and evidence exists that it is achieving its objectives. The harvest strategy has been operating since 2005 and has clearly achieved its objectives in terms of maintaining SSB above MSY B trigger and Fishing mortality well below Fpa and fluctuating around the management plan and MSY target levels.
100	**a**	**N**	The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in the target and limit reference points. The management plan is clearly designed to be responsive to the current status of the stock and to maintain fishing mortality and SSB at levels which underpin the MSY strategy. The strategy also incorporates SSB and F precautionary levels which are designed to maintain the stock above the biomass limit level with a 95% probability. This strategy does take into account uncertainty in the assessment and in the stock dynamics. However the HCR is not considered to be fully responsive to the status of the stock as evidenced by the current

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PI 1.2.1		There is a robust and precautionary harvest strategy in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			high level of fishing mortality which is above Fpa. The HCR has no provision to constrain F to the precautionary level when SSB is very high. As a consequence the fishery does not fully meet the requirements of this scoring issue.
	b	**Y**	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.
			In determining their annual advice the ICES advisory committee (ACOM) take into account the assessment working group's estimations of current stock status in relation to the MSY and management plan target levels. This clearly constitutes an annual evaluation of the performance of the harvest strategy. The levels of SSB and F, since the management plan was introduced in 2004, clearly show that the strategy is achieving its objectives in terms of the reference point target levels for SSB and F. The ICES evaluation of current stock status is that the stock is being harvested sustainably and has full reproductive capacity. Fishing mortality is within the management plan range and SSB is above the MSY trigger and management plan level.
	d	**Y**	The harvest strategy is periodically reviewed and improved as necessary.
			The overarching management plan, which is the basis of the harvest strategy, was established by the JNRFC in 2004. The harvest control rule was evaluated by ICES (ACOM) in 2007 and was found to be in agreement with the precautionary approach to the management of the stock. The management plan is kept under constant review by the JNRFC and modifications implemented as necessary as in 2011 when both Flim and Fpa were revised
References			ICES, 2007b; ICES, 2010a; ICES, 2012b. JNRFC, 2010.
OVERALL PERFORMANCE INDICATOR SCORE:			**95**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 1.2.2

PI 1.2.2		There are well defined and effective harvest control rules in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	**Generally understood** harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.
			The current strategy is to set an annual TAC, based on managing the stock in accordance with the agreed JNRFC management plan. The annual TAC is firmly based on the predicted catch corresponding to the ICES advice to apply the management plan. That plan is firmly based on managing the stock according to the agreed target and limit reference points for SSB and F. This is supported by a raft of technical and conservation measures.
	c	**Y**	There is **some evidence** that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.
			Monitoring of the catches and landings has been working effectively in this fishery for many years supported by some observer coverage. The problem of illegal, unreported and unregulated landings was addressed and since 2009 the problem appears to have been virtually eliminated. The ICES assessment working group considers the problem of IUU landings are no longer significant and have not needed to include an estimate of IUU landings, in the assessment, since 2008.Evidence of the success of the tools used to monitor and control the TAC can be seen in the close agreement, since 2008, between the agreed TAC and the total landings as estimated by the assessment working group.
80	**a**	**Y**	**Well defined** harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.
			The TAC control rules, introduced in 1987, together with other conservation measures have maintained the SSB, of the North East Arctic haddock stock, above the current JNRFC management plan target of 80,000t since 1989. Fishing mortality has been below the current precautionary approach level (F0.47) since 1998 and has been fluctuating around the management plan target and MSY target level (F0.35) since 2006. The harvest strategy has clear rules which effectively reduce the annual TAC if target and limit reference points for SSB or F are approached. The strategy is clearly designed to set the annual TAC at a level consistent with maintaining the SSB above, and the fishing mortality within the management plan and MSY targets. The strategy is strongly supported by appropriate technical measures including mesh size restrictions, minimum landing size, maximum by-catch of undersized fish, area closures when juvenile density is high and other area and seasonal restrictions.
	b	**Y**	The **selection** of the harvest control rules takes into account the **main** uncertainties.
			The main uncertainties affecting the harvest control rule are the reliability of the annual stock assessment in estimating current SSB and fishing mortality. The major problem, prior to 2001, was estimating the extent of IUU landings and its effect on the precision of the assessment of stock status. From 2002 through to 2008 the problem was successfully addressed with reliable

PI 1.2.2		There are well defined and effective harvest control rules in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			estimates of IUU landings which could be used in the stock assessment process. Since 2008 the problem of IUU landings has been virtually eliminated. Assessment uncertainty and stock dynamics have been taken into account in the calculation of reference points which firmly underpin the harvest strategy and the harvest control rules which the strategy generates.
	c	**Y**	**Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.
			Monitoring of the catches and landings has been working effectively in this fishery for many years. The problem of illegal, unreported and unregulated landings was addressed through more rigorous monitoring and control. The ICES working group has used zero values in their annual assessment since 2009 and appear to be satisfied that the problem has now been virtually eliminated. .Evidence of the success of the tools used to control the TAC can be seen in the close agreement, since 2008, between the agreed TAC and the total landings as estimated by the assessment working group.
100	**b**	**Y**	The **design** of the harvest control rules takes into account a **wide range** of uncertainties.
			The main uncertainties affecting the harvest control rule are the reliability of the annual stock assessment and in particular the estimation of current SSB and F The major problem prior to 2001 of estimating the extent of IUU landings has been successfully addressed. There are still some issues relating to the estimation of discarding which is known to occur in the long line and trawl fisheries. Scientific sampling of the catches at landing and by observers at sea has been declining. The precautionary nature of the whole harvest strategy and in particular the reference points which drive it do take into account these uncertainties. The raft of technical measures, targeted at the protection of juveniles, clearly recognises the natural volatility of haddock year class strength. The technical measures are clearly designed to ensure sustainable recruitment to the fishable stock and, subsequently, spawning stock biomass.
	c	**Y**	**Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
			Monitoring of the catches and landings has been working effectively in this fishery for many years. The problem of illegal, unreported and unregulated landings was addressed through more rigorous monitoring and control. The ICES working group has used zero values in their annual assessment since 2009 and appear to be satisfied that the problem has now been virtually eliminated. Evidence of the success of the tools used to control the TAC can be seen in the close agreement, since 2008, between the agreed TAC and the total landings as estimated by the assessment working group. Further evidence of the effectiveness of the tools used to control exploitation is the current exceptionally high level of SSB. This has increased from just below the current management plan, MSY B trigger level of 80,000t in 1988 to over four times that level in 2012.

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PI 1.2.2		There are well defined and effective harvest control rules in place	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Fishing mortality has also been below the precautionary approach level (F0.47) since 1998 and has fluctuated around the F MSY level (F0.35) since 2006.
References			ICES, 2002; ICES, 2009; ICES, 2010a; ICES, 2012a; ICES, 2012b
OVERALL PERFORMANCE INDICATOR SCORE:			**100**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 1.2.3

PI 1.2.3			Relevant information is collected to support the harvest strategy
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	**Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.
			The North East Arctic haddock is mainly an important by-catch species in the much larger cod fishery. Both species have been the target of national research programmes in Russia and Norway and other countries that in the past have had a significant fishery interest in the area. This research effort has provided relevant information on stock structure, stock productivity, ecosystem aspects and fleet composition in support of the harvest strategy.
	b	**Y**	Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.
			Basic landings data is provided by all countries participating in the North East Arctic haddock fishery. Some basic biological data is routinely provided by most countries in support of the analytical stock assessment. The stock assessment is supported by three fishery independent surveys which generate four tuning indices.
80	**a**	**Y**	**Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.
			The North East Arctic haddock has been the target of national research programmes in Russia and Norway and other countries, in particular the UK, who in the past have had a fishery interest in the area. This research effort has generated a fund of appropriate knowledge, on stock structure, spawning and spawning migrations, seasonal distributions and stock productivity, which supports the current harvest strategy. Haddock is a major by-catch species in the much larger cod fishery. In that context it benefits from the comprehensive knowledge on the structure of the fleets exploiting that resource both past and present. This includes knowledge of gear types and gear configurations in use throughout the fishery. There are also some directed long line fisheries for haddock in particular when the stock biomass is high. These data are regularly reviewed and updated by the ICES working group in the North East Arctic haddock stock annexe.
	b	**Y**	Stock abundance and fishery 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 the basic catch and biological data needed to support the North East Arctic haddock fishery assessment is routinely collected as required by countries participating in the fishery. The data are all made available to the ICES assessment working group (AFWG) for use in the annual stock assessment. Information on total landings is supplied by all countries participating in the fishery. Russia, Norway and Germany all provide the additional data on the length composition of the catch, catch numbers at age and weight at age from biological sampling programmes. In addition Russia and Norway provide information on the proportion of fish mature in the catch. In addition

<table>
<tr><th colspan="2">PI 1.2.3</th><th colspan="2">Relevant information is collected to support the harvest strategy</th></tr>
<tr><th>SG</th><th>Issue</th><th>Met? (Y/N)</th><th>Justification/Rationale</th></tr>
<tr><td></td><td></td><td></td><td>to this sampling programme, sampling of the catch at sea is carried out on Norwegian reference fleet fishing vessels and by observers on some Russian vessels.
The stock assessment is supported by three fishery independent surveys which generate four tuning indices.</td></tr>
<tr><td></td><td>c</td><td>Y</td><td>There is good information on all other fishery removals from the stock.</td></tr>
<tr><td></td><td></td><td></td><td>Landings from all vessels operating in the North East Arctic are well monitored. Their catches are appropriately reported to the National monitoring authorities. The activities of the fleets at sea are also monitored by on board observers and inspections at sea
There is a complete ban on discarding in the Barents Sea.</td></tr>
<tr><td>100</td><td>a</td><td>Y</td><td>A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.</td></tr>
<tr><td></td><td></td><td></td><td>The information on relevant data listed under 80a is considered to be comprehensive. The stock assessment is supported by four fishery independent surveys listed below.

<table>
<tr><th>Survey</th><th>Year range</th><th>Age range (yrs)</th></tr>
<tr><td>Russian bottom trawl survey. Oct/Dec. Q1</td><td>1991 – last data year</td><td>3-7 (1-7 in predation run)</td></tr>
<tr><td>Joint Russian / Norwegian trawl survey. February Q1</td><td>1990 – last data year</td><td>3-8 (1-8 in predation run)</td></tr>
<tr><td>Joint Russian / Norwegian Acoustic survey. February Q1</td><td>1990 – last data year</td><td>3-7 (1-7 in predation run)</td></tr>
<tr><td>Joint Russian / Norwegian Ecosystem survey. Aug/Sept Q3</td><td>2004 – last data year</td><td>3-8 (1-8 in predation run)</td></tr>
</table>

In addition to the basic data needed for an analytical stock assessment in support of a harvest strategy there are additional environmental data collected on the annual ecosystem survey. This survey together with the three trawl surveys provide information on the role of haddock both as a predator and prey item in the Arctic ecosystem. Temperature data from the Kola section provides a valuable insight into the effect of bottom temperatures on survival of haddock through their first and second years. These data are useful in helping to predict the strength of a year class about to enter the fishery although it is recognised that the age structure of the spawning biomass also has an effect.</td></tr>
<tr><td></td><td>b</td><td>N</td><td>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.</td></tr>
<tr><td></td><td></td><td></td><td>All the relevant information required for carrying out an annual stock assessment is appropriately monitored. Monitoring of landings in support of the TAC control is carried out contemporaneously with the fishery and enforcement action can be introduced quickly, if necessary.
There are still some uncertainties in the data sources relating to both catch</td></tr>
</table>

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PI 1.2.3		Relevant information is collected to support the harvest strategy	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			and survey data which need further clarification (e.g. surveys, Norwegian onshore sampling, and scientific sampling).There are concerns about a declining level of scientific sampling of catches both in Russia and Norway. This can affect the precision of the basic input data used in the assessment and the quality of the final output. Whilst these are not serious enough to affect the robustness of the assessment the fishery does not meet the high standard required in this element of the performance indicator.
References			ICES, 2010a; ICES, 2011b; ICES, 2012b; Russell, 1976; Wheeler, 1969.
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 1.2.4

PI 1.2.4		There is an adequate assessment of the stock status	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**b**	**Y**	The assessment estimates stock status relative to reference points.
			An annual assessment of stock status is carried out by the ICES assessment working group, AFWG. This describes stock status in relation to SSB and F reference points for the management plan, MSY and limit and precautionary approach levels.
	c	**Y**	The assessment **identifies major sources** of uncertainty.
			Uncertainties are identified by the assessment working group and the potential effect, on the estimation of stock status is evaluated.
80	**a**	**Y**	The assessment is appropriate for the stock and for the harvest control rule.
			The assessment method is an aged based extended survivor's analysis (XSA) using data from the fishery and tuning indices from four fishery independent surveys. This assessment method is commonly used by ICES for the assessment of demersal stocks. The method is considered by ICES and independent reviewers to be appropriate for this stock and this fishery. The outputs from the assessment provide appropriate information on biomass and fishing mortality for the harvest control rule.
	c	**Y**	The assessment **takes uncertainty into account**.
			Uncertainties in the catch and survey data have been identified and are given due consideration during the assessment. The related problems and their effect on the assessment are kept under constant review.
	e	**Y**	The assessment of stock status is subject to peer review.
			The assessment is subject to peer review within JNRFC, AFWG and regularly scrutinised by independent experts in the ICES advisory committee, ACOM.
100	**a**	**Y**	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.
			The assessment is based on a database going back to 1950 for all parameters except weight at age in the stock which goes back to 1983. The major contributors to that historic database are Russia and Norway and, up to the late 1970s, the UK. The assessment model in use is the age based extended survivor's analysis (XSA). This is an analytical assessment model which uses catch data, biological sampling for length, age, weight and maturity and four fishery independent surveys as tuning indices. The assessment in 2012 of the status of the stock in 2011 was an update assessment. The last benchmark assessment, with full data exploration, was in January 2011 on the status of the stock in 2010. The available data fully support the analytical assessment which makes the fullest possible use of the abundant biological and environmental data from the fishery and surveys. The role of haddock in the arctic ecosystem, both as predator and prey item, is taken into account in the assessment process through age-related natural mortality parameters. An awareness of the

PI 1.2.4		There is an adequate assessment of the stock status	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			natural volatility of haddock recruitment is also a feature of the assessment process and resultant advice on future stock status.
	c	**N**	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way.
			All the potential sources of uncertainty are clearly identified each year by the AFWG as a routine part of the assessment process. In the most recent assessment the working group highlighted the problems of incomplete survey coverage affecting some of the fishery independent data. They also noted that some discarding is assumed to occur in parts of the fishery but which is not recorded. Unreported catches and landings are a problem in the historic data series but the problem is considered to be diminishing with time as the practice is reported to have been eliminated. It is a unique feature of this assessment that predation on haddock by cod is incorporated into the estimates of total mortality in the assessment. However the working group notes that there is uncertainty related to these estimates. Sampling error both on the catch data and on surveys affects the precision of the estimates of catch at age. The problem is exacerbated by a notable decrease in scientific sampling levels both by Russia and Norway. All these uncertainties are taken into account and kept under regular review and carefully documented in the annual advice on the stock status from the ICES advisory committee (ACOM). The results of the annual stock assessment and subsequent advice from ACOM is always expressed in relation to relevant reference points for SSB and F which can be directly related to the management plan. The SSB and F reference points are all related in a probabilistic way to ensuring that the stock does not fall to its biomass limit level. In spite of the knowledge of these major uncertainties and the way that they are taken into account in the assessment process the fishery does not fully meet the rigorous requirements of this scoring issue.
	d	**N**	The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
			The continuing increase in the SSB in the stock indicates that the assessment which underpins the harvest strategy and TAC controls is both appropriate and robust. Retrospective patterns for SSB and F are good and show that there is only a slight tendency to underestimate both fishing mortality and spawning stock biomass. The periodic benchmark assessments do carefully explore the data sources and make recommendations on changes to XSA settings. However there is no evidence of recent consideration of alternative modelling procedures which might provide fresh insights into some aspects of the assessment.
	e	**Y**	The assessment has been **internally and externally** peer reviewed.
			The assessment of the stock is subject to rigorous annual review at a number of levels. The JNRFC meetings review the assessment independently of ICES, even though many of the same scientists are also members of the AFWG. Within ICES, the stock assessments are subject to internal peer review by the ICES advisory committee ACOM before advice is provided to member states and the JNRFC. ICES also commissions

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PI 1.2.4		There is an adequate assessment of the stock status	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			occasional periodic reviews of specific stock assessments and its overall assessment methodology. Assessments, assessment methods and management procedures and advice are also subject to frequent scrutiny by a range of third parties from the fishing industry itself and to a variety of environmental NGOs.
References			ICES, 2002; ICES, 2006a; ICES, 2011b; ICES, 2011c; ICES, 2012b.
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

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Principle 2: Cod and Haddock, trawl

Evaluation Table: PI 2.1.1

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	Main retained species are **likely** to be within biologically based limits (if not, go to scoring issue d below).
			There is good, accurate and verifiable data on the species retained by client vessels provided by PINRO covering the period 2010-2012. 96% of the catch comprises cod and haddock which are dealt with under P1, both stocks being assessed by ICES as within biologically-based limits (haddock being a main retained species when cod is the MSC target species, and *vice versa*). The only other retained species comprising more than 1% of the total landed catch is saithe, which is dealt with under SG 100.
	c	**NA**	If main retained species are outside the limits there are **measures** in place that are **expected** to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.
	d	**NA**	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.
80	**a**	**Y**	Main retained species are **highly likely** to be within biologically based limits (if not, go to scoring issue c below).
			Cod and haddock stocks are highly likely to be within biologically-based limits (haddock being a main retained species when cod is the MSC target species, and *vice versa*).
	c	**NA**	If main retained species are outside the limits there is a **partial strategy** of **demonstrably effective** management measures in place such that the fishery does not hinder recovery and rebuilding.
100	**a**	**N**	There is a **high degree of certainty** that retained species are within biologically based limits **and** fluctuating around their target reference points.
			Saithe comprises less that 3% of the catch, and is assessed by ICES in June 2013 as being harvested sustainably (fishing mortality close to that required by the management plan and within precautionary reference points; Fpa), and SSB at full reproductive capacity, within precautionary and limit reference points. The evidence suggests that saithe is highly likely to be within biologically based limits. Landings of saithe have been consistently high over the last decade, when recruitment has fluctuated around the long-term mean. The mean annual catch of saithe taken by the client fleet in 2010-12, 889 t, represents 0.5% of total international catch (170,000 t). **Y** There are several other species which are retained but do not comprise more than 1% of total landings. **Greenland halibut** *(Reinhardtius hippoglossoides*) (0.6% of total landings).

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			ICES advice is available for this species, based on landings and survey trends of biomass and abundance in Sub-areas I & II. The Norwegian survey has indicated a constant stock size over the last decade, whereas abundance indices in the Russian survey have increased considerably. Despite these indications that the stock is stable or increasing, there are no reference points, and ICES' precautionary advice for 2014 is that catches (all assumed to be landed) should be no more than 15 000 t (as for 2010-13). The TAC set by the Joint Russian–Norwegian Fisheries Commission for 2013 was 19,000 t. The client fleet's annual catch of 199 t is a negligible (1%) proportion of the total catch of around 17,000 t in Subareas I & II in 2010-12. On balance, we consider that this stock is likely to be within biologically based limits. Three **wolffish** species are caught in the UoC, spotted wolffish *Anarhichas minor*, northern wolfish *A. denticulatus* and Atlantic wolffish *A. lupus*, all at relatively low levels (0.1-0.2% of total landings). All three species are slow growing and long-lived fish that spawn late in life (5-8 yrs.), depositing eggs in large clusters on the bottom, where the male guards them until they hatch, which makes them vulnerable to bottom trawling. ICES do not provide an assessment for these species. Data from the 2012 Ecosystem Survey of the Barents Seas suggest that Atlantic and spotted wolffish are most abundant in shallower waters (50-150m) while Northern wolffish is found between 200 and 400m. The data on these species is limited, although spotted wolffish appears to be the most abundant of the three species. Given their similar life-history characteristics, and that catchability is likely to be highest for *A. minor* because of its association with cod, spotted wolffish is used as the reference species for this group. Though there has been no assessment of the stock dynamics of spotted wolffish and data are uncertain, catch rates in the longline fishery appear high and there have been no reports of a decline either in catch or mean size. Anecdotal information from stakeholders suggests that it is most likely not overfished. Data collected under the Ecosystem survey of the Barents Sea suggests abundance and biomass has increased substantially and its range may have extended over the period 2010 to 2012. Despite an apparent lack of concern raised by scientists or NGOs in relation to the wolffish species, we consider that are there is no evidence that wolffish are within biologically based limits. **Beaked Redfish** (*Sebastes mentella*). There is uncertainty about the absolute levels in the assessment model used by ICES, and reference points are not available for this stock. However, total stock biomass is estimated to have been relatively stable over the last ten years, with a higher proportion of mature fish than in the 1990s. SSB increased steadily from 1992 to 2009, followed by a decline in view of the poor recruitment of the year classes 1996 to 2003. Although subsequent recruitment appears to have returned to high levels, this will have little impact on the SSB or fishery for several years, and ICES considers that a more detailed evaluation is required on the appropriate F_{MSY} level (expected in early 2014). Though the

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PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			available data indicate that this stock is at low risk, there is no firm evidence that there is a **high degree of certainty** that beaked redfish are within biologically based limits. ICES' assessment shows that the status of **golden redfish** *Sebastes marinus* is substantially worse than that of the beaked redfish, and this species is dealt with under ETP species at 2.3. **Plaice** *Pleuronectes platessa*, is at the limit of its range in the Barents Sea, though the main stocks further south are considered by ICES to be well within biological limits. With the exception of golden redfish (which is dealt with under ETP species), abundance indices for the other retained species suggest stable or increasing stock biomass, which is why they are not considered as vulnerable and treated under main retained species. In view of the lack of reference points for most of these species, it cannot be said that there is a **high degree of certainty** that (all) retained species are within biologically based limits **and** fluctuating around their target reference points.
	b	**N**	Target reference points are defined and retained species. Target reference points are defined for cod, haddock and saithe, but not for any other retained species. According to Table C2, a score of 85 is awarded, since all scoring elements meet SG 80, a few (main retained species) achieve a higher performance, but most do not meet SG100.
References			IMR/PINRO 2012. Ecosystem Survey of the Barents Sea Autumn 2012. 6. Monitoring the demersal community. http://www.imr.no/filarkiv/2012/10/monitoring_the_demersal_community_fish.pdf/nb-no ICES Advice 2013, Book 3. ICES. 2013. Report of the Arctic Fisheries Working Group (AFWG), 18–24 April 2013, Copenhagen, Denmark. ICES CM 2013/ACOM:05.
OVERALL PERFORMANCE INDICATOR SCORE:			**85**
CONDITION NUMBER (if relevant): *Recommendation to collect better information redfish species in catch, and on wolffish generally*			

Evaluation Table: PI 2.1.2

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	There are **measures** in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.
			There is only one main retained species in either UoC: cod or haddock The following measures are in place: » Minimum mesh size (130 mm, actual 140+) and sorting grids, designed to protect juveniles of all species » Closed areas in both Norwegian and Russian sectors, designed specifically to protect juvenile gadoids. » Catch limits (TAC) and discard ban coupled with a move on rule, should the catch begin to exceed this or other limits set by the authorities. Skipper and crew knowledge and experience, effective communication systems between vessels and with the authorities, and advice from PINRO taken together represent significant measures.
	b	**Y**	The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).
			There is strong evidence that these measures are implemented and reinforced with regular inspections, and landings statistics confirm that catch limits are not exceeded. The good status of the NEA cod and haddock stocks (and very low proportion of all other retained species in the catch) provides testimony that these measures are working.
80	**a**	**Y**	There is a **partial strategy** in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.
			The measures detailed at SG60a are implemented in support of a strategy that is maintaining the main retained specie, cod and haddock, at levels which are highly likely to be within biologically based limits.
	b	**Y**	There is some **objective basis for confidence** that the partial strategy will work, based on some information directly about the fishery and/or species involved.
			There is strong evidence that this strategy is working, given the good status of the NEA cod and haddock stocks (and very low proportion of all retained species in the catch).
	c	**Y**	There is **some evidence** that the partial strategy is being **implemented successfully.**
			There is good verifiable evidence that catch limits and other standard measures are being implemented and respected, made more likely because of the high concentration of cod and haddock on the fishing grounds.

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
100	**a**	**Y**	There is a **strategy** in place for managing retained species.
			The measures that are in place in this fishery, and for all vessels in the Russian fleet: » Minimum mesh size (130 mm, actual 140+) and sorting grids, designed to protect juveniles of all species; » Closed areas in both Norwegian and Russian sectors, but none designed specifically to protect the species retained; » Catch limits (TAC) and discard ban coupled with a move-on rule should the catch begin to exceed set limits; together with skipper and crew knowledge and experience, effective communication systems between vessels and with the authorities, and advice from PINRO, all represent a strategy to manage retained species. This is clearly working for saithe, and the very low level of the other retained species in the catch (<1.0%, and no discards) suggests that exploitation rates due to the client fishery are as low as possible. The current annual catch of redfish by the client fleet is < 149 t (*S. mentella* and *S. marinus* combined), which is 2% of the international total landings of 6,000 t estimated by ICES. Although this might raise concerns in relation to *S. marinus* as an ETP species (see 2.3), this is considered insignificant in management terms with respect to the much more robust *S. mentella* stock. This strategy, as applied to the client fleet seems to be adequate for Greenland halibut, plaice, beaked redfish and wolffish, none of which appear to be outside biological safe limits. **Y**
	b	**N**	**Testing** supports **high confidence** that the strategy will work, based on information directly about the fishery and/or species involved.
			See comments under SG100a. The main shortcoming is the lack of an estimate of fishing mortality and reference points for the various wolffish species, and a large proportion of unidentified redfish in the redfish catch, given the substantial difference in status between the two main redfish species. There is a need to improve this situation. **N**
	c	**Y**	There is **clear evidence** that the strategy is being **implemented successfully.**
			There is strong evidence that these measures (gear design and non-target species limits) are implemented and reinforced with regular inspections, and landings statistics confirm that catch limits are not exceeded (0.6% catch for halibut compared to a 7% catch limit; and 0.4% for redfish compared to 15%). Given these figures, and the small proportion of the overall fishery that the client trawler fleet catch comprises, the existing measures are likely to be adequate to address the risk posed by the fishery with respect to retained species - although their success in the longer term will be contingent on

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			appropriate measures being taken by those fisheries which target these species. **Y**
	d	**Y**	There is some **evidence** that the strategy is **achieving its overall objective**. The very low level of retained species in the catch (<1.0%, and no discards) suggests that exploitation rates of retained species other than cod, haddock and saithe (which are explicitly and effectively managed by TACs etc) due to the client fishery are as low as possible. This strategy seems to be adequate for those species for which some stock trend information is available (Greenland halibut and wolffish, for example), and presumably for most other retained species. Y
References			IMR/PINRO 2012. Ecosystem Survey of the Barents Sea Autumn 2012. 6. Monitoring the demersal community. http://www.imr.no/filarkiv/2012/10/monitoring_the_demersal_community_fish.pdf/nb-no ICES Advice 2013, Book 3. ICES. 2013. Report of the Arctic Fisheries Working Group (AFWG), 18–24 April 2013, Copenhagen, Denmark. ICES CM 2013/ACOM:05.» Norwegian Directorate of Fisheries: Regulations. http://www.fiskeridir.no/english/fisheries/regulations
OVERALL PERFORMANCE INDICATOR SCORE:			**95**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 2.1.3

PI 2.1.3			Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	**Qualitative information** is available on the amount of main retained species taken by the fishery.
			See 80 a
	b	**Y**	Information is **adequate to qualitatively** assess outcome status with respect to biologically based limits.
			See 80 b
	c	**Y**	Information is adequate to support **measures** to manage **main** retained species.
			See 80 c
80	**a**	**Y**	**Qualitative information** and **some quantitative information** are available on the amount of main retained species taken by the fishery.
			Accurate and verifiable data on catch and landings (no discards) is available by species, which are recorded, checked and passed to appropriate authorities. PINRO provides impartial quality control of data. The information on species composition is consistent between years (2010-2012) and shows that the only main retained species are cod and haddock. ,
	b	**Y**	Information is **sufficient to estimate** outcome status with respect to biologically based limits.
			There is good catch data on the main retained species (cod and haddock) by the client trawler fleet, as noted under 80 a. Good catch data are also available for other fleets which, together with information on abundance and size composition as determined in PINRO/IMR surveys under the Barents Sea Ecosystem Survey, and a good understanding of life history characteristics, is sufficient to estimate outcome status with respect to biologically-based limits for these species.
	c	**Y**	Information is adequate to support a **partial strategy** to manage **main** retained species.
			The information described above, coupled with appropriate analyses, is adequate to support a strategy to manage cod and haddock.
	d	**Y**	Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator score or the operation of the fishery or the effectiveness of the strategy)
			As noted above, data on catch, catch composition and landings are comprehensive and offer a good basis for assessing fishing pressure on cod and haddock and associated risks. The Ecosystem Survey of the Barents Sea (monitoring the demersal community) is specifically designed to flag up emerging problems in terms of population abundance and structure of a range of key species.

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PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
100	**a**	**N**	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.
			There are substantial and verifiable data on catches of all retained species, but redfish are not fully identified to species in the catch and a information on wolfish has not been either systematically collected or worked up to allow for good assessment of the consequences for the status of affected populations.
	b	**N**	Information is **sufficient to quantitatively** estimate outcome status with **a high degree of certainty.**
			For the reasons given under 100a, it is unlikely that existing information is sufficient to estimate outcome status for all species with a high degree of certainty. The main uncertainty concerns wolfish, for which there is no assessment from ICES.
	c	**N**	Information is adequate to support a **comprehensive strategy** to manage retained species, and evaluate with a **high degree of certainty** whether the strategy is achieving its objective.
			In addition to the limitations noted above, there remain significant uncertainties about life history and population parameters for wolffish and redfish species, and these species are by their very nature difficult to manage.
	d	**N**	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.
			Monitoring of the catch of retained species is good in most cases, but data on length weight/size distribution for some species is either not regularly collected or not analysed for the purposes of stock management.
References			IMR/PINRO 2012. Ecosystem Survey of the Barents Sea Autumn 2012. 6. Monitoring the demersal community. http://www.imr.no/filarkiv/2012/10/monitoring_the_demersal_community_fish.pdf/nb-no ICES Advice 2013, Book 3. ICES. 2013. Report of the Arctic Fisheries Working Group (AFWG), 18–24 April 2013, Copenhagen, Denmark. ICES CM 2013/ACOM:05.
OVERALL PERFORMANCE INDICATOR SCORE:			**80**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 2.2.1

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the by-catch species or species groups and does not hinder recovery of depleted by-catch species or species groups	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	Main by-catch species are **likely** to be within biologically based limits (if not, go to scoring issue b below).
			The fishery is relatively clean and a discard ban is in place for listed species. As such we do not consider that there are any main discarded fish species in this fishery
	b		If main by-catch species are outside biologically based limits there are mitigation **measures** in place that are **expected** to ensure that the fishery does not hinder recovery and rebuilding.
			NA
	c	**Y**	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the by-catch species to be outside biologically based limits or hindering recovery.
			NA
80	**a**	**Y**	Main by-catch species are **highly likely** to be within biologically based limits (if not, go to scoring issue b below).
			See 60 a
	b	**Y**	If main by-catch species are outside biologically based limits there is a **partial strategy** of **demonstrably effective** mitigation measures in place such that the fishery does not hinder recovery and rebuilding.
			The combination of a large mesh (140-145mm) operated by a well-targeted fishery (97% cod or haddock) and the Russian and Norwegian discard ban ensures that there are no main by-catch species, and those that are caught are returned alive to the sea. This could be construed as representing at least a **partial strategy** of **demonstrably effective** mitigation measures that are in place such that the fishery does not hinder recovery and rebuilding of any species.
100	**a**	**N**	There is a **high degree of certainty** that by-catch species are within biologically based limits.
			A discard ban is in place for the client fleet with respect to listed species and evidence suggests that this is broadly respected. The only significant discarding of listed species which may be taking place relates to spillage or discarding of target species (cod and haddock) that are exceptionally abundant. This is dealt with under P1. Data on species and quantities discarded from the Client fleet are available from MSC logbooks, which record small numbers of skate species, Altantic halibut, common ling, anglerfish, lumpfish, grenadier, chimera and squid (molluscs, starfish, sponge and coral are dealt with under PI 2.4). The most numerous fish species in the by catch are members of the skate family (*Rajidae*), though they are not identified to species in the MSC logbook records. Although it is possible that this may include the critically

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PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the by-catch species or species groups and does not hinder recovery of depleted by-catch species or species groups	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			endangered common or blue skate *Dipturus batis*, the client trawl fishery operates well to the north of the main areas of distribution. It is more likely that a large proportion of the "skate" by catch is of starry ray (*Amblyraja radiata*), which is less susceptible to fishing mortality than other larger-bodied skate species and is assessed by IUCN as Least Concern in the Northeast Atlantic region. Discussions with vessel captains and PINRO suggests that discards of these and other species are not a significant issue, and no specific concerns were raised in this regard by other stakeholders. This might be expected given good selectivity of the gear, the very high density and concentration of cod and haddock at the present time (implying short trawl times relative to catch), and the knowledge, experience and technology available to modern fishing vessels. However, the available information is inadequate to be sure that there is a high degree of certainty that by-catch species are within biologically-based limits.
References			Vessel's MSC logbooks Dolgov, A. V., A. A. Grekov, I. P. Shestopal, and K. M. Sokolov. (2005). By-catch of Skates in Trawl and Long-Line Fisheries in the Barents Sea. J. Northw. Atl. Fish. Sci., 35: 357-366 Drevetnyak K. V., Dolgov, A.V., Sokolov, K.M., Gusev, E.V. and Grekov A.A. Skates in the Barents Sea: stock status and catch by fishing fleet. 2005 ICES Annual Science Conference. Elasmobranch Fisheries Science (Session N) CM 2005/ N:11 Norwegian Government. Act of 19 June 2009 No. 100 Relating to the Management of Biological, Geological and Landscape Diversity (Nature Diversity Act) http://www.regjeringen.no/en/doc/laws/Acts/nature-diversity-act.html?id=570549
OVERALL PERFORMANCE INDICATOR SCORE:			**80**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 2.2.2

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	There are **measures** in place, if necessary, which are expected to maintain main by-catch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery.
			Given the discard ban, the use of large meshes etc (see 80a), and the evidence from vessels' MSC logbooks, we consider that there are no "main" by-catch species
	b	**Y**	The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).
			Levels of by catch and discards are very small, see 80b
80	**a**	**Y**	There is a **partial strategy** in place, if necessary, for managing by-catch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery.
			The fleet operates standard procedures designed to reduce all bycatch, including separator grid and large mesh size. A discard ban is in place in relation to listed species, implemented and reinforced through a "move on rule". Aided by modern technology, skippers' knowledge enables them to locate the best places to find good concentrations of the target species. Coupled with the current high density of target species, this should reduce discarding to a minimum.
	b	**Y**	There is **some objective basis for confidence** that the partial strategy will work, based on some information directly about the fishery and/or the species involved.
			Historic and current research, observer programmes, and anecdotal evidence all support the view that the discard ban/move-on rule and associated technical measures are working. Independent stakeholders (scientific, environmental) have not raised discards as an issue. The low levels of discards, which are returned to the sea alive, evident from the MSC logbooks suggests that the impact on species that may be threatened or vulnerable are likely to be negligible.
	c	**Y**	There is **some evidence** that the partial strategy is being implemented successfully.
			There is strong evidence to suggest that the discard ban and move-on rule are implemented effectively for the client fleet. None of the client vessels are on the black list of Norwegian department of fisheries or on NEAFC black list, so there appear to be no violations. Separator grids and large mesh size are standard and used routinely by all Russian vessels using demersal trawl in the Barents Sea, and by catch and discard levels are low.
100	**a**	**Y**	There is a **strategy** in place for managing and minimising bycatch.
			There is a comprehensive system in place designed specifically to minimize

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PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			by catch, including technical measures, handling protocols, inspections, and survey monitoring of key demersal species. Additional measures include sorting on deck for immediate separation and return to the sea of living by-catch which can be legally discarded. This may be regarded as a strategy.
	b	**N**	**Testing** supports **high confidence** that the strategy will work, based on information directly about the fishery and/or species involved.
			There is high confidence that the strategy will work in respect of target species (e.g. undersize cod and haddock) and all species that can be legally retained, but there has been limited testing of the effectiveness of the discard ban in relation to vulnerable by catch species, either directly through analysis of catch and discard data, or indirectly through stock assessments.
	c	**Y**	There is **clear evidence** that the strategy is being implemented successfully.
			There are regular routine inspections, and periodic observer programmes, and the overall evidence suggests that the measures are being implemented.
	d	**N**	There is some **evidence** that the strategy is achieving its objective.
			Insofar as the strategy is targeted primarily at discarding of target and main retained species, there is good evidence from inspections and stock assessments that it is achieving its objectives. However, the strategy does not give adequate weight to the need to conserve non target and non-retained species such as elasmobranchs, and evidence of success is limited with regard to these species.
References			**See 2.2.1**
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 2.2.3

PI 2.2.3		Information on the nature and the amount of by-catch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage by-catch	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	**Qualitative information** is available on the main by-catch species affected by the fishery.
			Given the discards policy and evidence of low levels of non-target species catches from landings data and MSC logbooks, there are no “main” by-catch species discarded.
	b	**NA**	Information is **adequate** to **broadly understand** outcome status with respect to biologically based limits
			NA
	c	**Y**	Information is adequate to support **measures** to manage bycatch.
			Discussions with vessel captains and PINRO suggest that discards are not an issue, and no concerns were raised in this regard by other stakeholders. Therefore, this suggests that the management measures in place adequately support the need to minimise by-catch.
80	**a**	**Y**	**Qualitative information and some quantitative information** are available on the amount of main by-catch species affected by the fishery.
			Given the discards policy and evidence of low levels of non-target species catches from MSC logbooks, there are no “main” by-catch species discarded.
	b	**NA**	Information is **sufficient to estimate** outcome status with respect to biologically based limits.
			NA
	c	**Y**	Information is adequate to support a **partial strategy** to manage main by-catch species.
			Discussions with vessel captains and PINRO suggest that discards are not a significant issue, and no concerns were raised in this regard by other stakeholders. Therefore, this suggests that the management strategy adequately supports the need to minimise by-catch.
	d	**Y**	Sufficient data continue to be collected to detect any increase in risk to main by-catch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectively of the strategy).
			Sufficient data continue to be collected on the catches of relevant species, particularly Ecosystem survey and other fishery independent surveys, and from MSC logbooks.
100	**a**	**Y**	**Accurate and verifiable information** is available on the amount of all by-catch and the consequences for the status of affected populations.
			The discard ban on listed species automatically results in commercial by-catch species being recorded and landed, and results in better data on overall catch. The client management, staff and skippers were of the view that other discarded bycatch is negligible, and this was borne out by examination of vessels’ MSC logbooks and information from observer programmes.

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PI 2.2.3		Information on the nature and the amount of by-catch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage by-catch	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
	b	**N**	Information is **sufficient** to quantitatively estimate outcome status with respect to biologically based limits with a **high degree of certainty**.
			Though recorded by catch levels are very low for most species, there is little or no information on the status of potentially affected populations of grenadiers and chimeras, for example, nor are skate and ray species identified in the records. Existing data are, therefore, inadequate to estimate outcome status of all by catch species with a high degree of certainty.
	c	**Y**	Information is adequate to support a **comprehensive strategy** to manage bycatch, and **evaluate** with a **high degree of certainty** whether a strategy is **achieving its objective**.
			Information has already been used to develop a comprehensive strategy, and this strategy is working as far as is known. There is good information on catch of non-target retained species, and on the numbers of by-catch species that are returned to the sea, so that it may be said that the strategy is largely achieving its objective.
	d	**N**	Monitoring of bycatch data is conducted in sufficient detail to assess mortality of potential bycatch species.
			Despite the data generated as a result of the increased retained catch due to the discards ban, and MSC logbooks for discarded catch, there appears not to be any independent monitoring of this data collection, nor analyses of the resulting data to assess mortality rates (or survival on being returned alive to the sea)
References			Vessel's MSC logbooks
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 2.3.1

PI 2.3.1		The fishery meets national and international requirements for the protection of ETP species The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	Known effects of the fishery are **likely** to be within limits of national and international requirements for protection of ETP species.
			See rationale at SG80.
	b	**Y**	Known direct effects are **unlikely** to create **unacceptable impacts** to ETP species.
			There is no evidence that interactions between the client fleet and ETP species are other than infrequent and insubstantial, or that cause significant impact to the species concerned.. Golden redfish is dealt with under SG80b.
80	**a**	**Y**	The effects of the fishery are known and are **highly likely** to be within limits of national and international requirements for protection of ETP species.
			ETP species are those recognised by national legislation and/or binding international agreements to which the jurisdictions controlling the fishery under assessment are party, including Appendix I of CITES. Russia is signatory to the Convention on Biological Diversity and the Convention on International Trade in Endangered Species (CITES). Both Norway and Russia have developed “red-lists” of threatened species which are recognized in Government policy and legislation. NAMMCO (the North Atlantic Marine Mammal Commission), along with IWC, advocate measures to reduce by catch of marine mammals and accurate recording to inform understanding and abundance estimates. ICES provide and coordinate knowledge and advice relating to ETP management through the Study Group on Protected Species (SGBYC) and the working group on marine mammal ecology (WGMME). The Integrated Management Plan for the Marine Environment of the Barents Sea–Lofoten Area, and the various monitoring initiatives under the Joint Russian Norwegian environmental assessment and status report for the Barents Sea, may be regarded as international best practice in this regard. Under Russian Fishery Rules for the Northern Fish Economic basin (2009), the catch of red listed “water bio resources” is forbidden except under licence or as part of research. We are not aware of any evidence to suggest that the requirements under these agreements and initiatives are not being met, and no specific concern in this regard was raised by any stakeholder (scientists, NGOs). The evidence presented below supports the view that the effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species.
	b	**Y**	Direct effects are **highly unlikely** to create **unacceptable impacts** to ETP species.
			Examination of the Russian and Norwegian red lists indicates the species listed as endangered or critically endangered that may be encountered during trawling activities. Several marine mammals are included on the Norwegian and Russian red

			lists and are listed in CITES Annex 1, but direct encounters of the client fleet with cetaceans and seals are seldom if ever recorded, and are avoided, given the potential negative impact on fishing operations. Encounters with cetaceans are normally associated with set nets and pelagic gears rather than deeply-fished bottom trawls. Similarly, encounters with seals are unlikely in an offshore demersal fishery of this kind. A review of the impact of Norwegian offshore demersal trawl fisheries on marine mammals (SGBYC 2009) concluded that larger offshore demersal trawl vessels "are regarded as having a relatively low risk for by catches of marine mammals". Interactions with ETP seabirds are also possible, especially during hauling. However, the main problem in this regard relates to the use of gill and drift nets in coastal fisheries, and there are no reports of significant interactions with deeper water trawl nets. No seabird or marine mammal interactions were recorded in the vessels' MSC logbooks. The only fish species that is included on the Norwegian/Russian ETP list and is caught by the client fleet is golden redfish (*Sebastes marinus*). ICES' assessment shows that golden redfish are outside biologically based limits: SSB has been decreasing since the 1990s and is currently at the lowest level in the time-series, whilst fishing mortality has been increasing since 2005 and is considered to be well above a sustainable level for a redfish stock. Recruitment has been very low since the late 1990s, though there may be signs of recent better recruitment. Although ICES' advice is that there should continue to be no fishing on the *S. marinus* stock, and that any bycatch of should be kept as low as possible, the current annual catch of the client fleet is < 149 t (*S. mentella* and *S. marinus* combined) is 2% of the international total landings of 6,000t estimated by ICES, and could be considered insignificant in management terms. Internationally, there is a strategy for protecting golden redfish: all directed fisheries for redfish except by handline are closed between 20 December-31 July and in September, and directed trawl fishing is not allowed at any time. At present up to 15% redfish (both species) is allowable as by catch when fishing for other species (client fleet 0.4%). A minimum legal catch size of 32 cm has been set for all fisheries, with the allowance to have up to 10% undersized (i.e. < 32 cm) specimens of *S. marinus* (in numbers) per haul. The large mesh size used by the client fleet means that this is probably never required. Based on the above, we conclude that direct effects are highly unlikely to create unacceptable impacts to ETP species, specifically golden redfish.
	c	**Y**	Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.
			See rationale at 100c
100	**a**	**Y**	There is a **high degree of certainty** that the effects of the fishery are within limits of national and international requirements for protection of ETP species.
			The evidence presented under 80a suggests that the effects of the fishery on golden redfish are within limits of national and international requirements. The client fleet already completes MSC log-books, and no encounters with ETP species (other than golden redfish reported in the retained catch) have been recorded recently.

	b	**N**	There is a **high degree of confidence** that there are no significant **detrimental direct effects** of the fishery on ETP species.
			Given that the only evidence of a direct effect on an ETP species concerns golden redfish, the comments against SG60b suggest that there is a high degree of confidence that there are no significant detrimental direct effects of the fishery on ETP species. However, it is not known whether the by catch of "skates" which are released alive back to the sea contains common/blue skate (*Dipturus batis*), since species are not indentified in the MSC logbooks, and this should be rectified.
	c	**Y**	There is a **high degree of confidence** that there are no significant **detrimental indirect effects** of the fishery on ETP species.
			Indirect effects might include "ghost" fishing, removal of prey and pollution, as well as e.g. disturbance/interference of feeding or breeding behaviour of ETP species. Loss of gear and the danger associated with ghost fishing is kept to the minimum through trawl gear design and knowledge of seabed characteristics which, together with net-filling sensors that avoid too large a catch and the Norwegian lost gear retrieval scheme, serve to minimise potential gear loss. The Barents Sea Ecosystem Assessment has revealed that the factors responsible for the declining trends (in seabird populations) in the western parts of the region probably involve food shortage, predation from an increasing population of white-tailed eagles and lagged effects from historic catches in gill and drift nets in inshore fisheries. It is arguable that a fishery targeted at cod and haddock (predators of capelin etc.) would indirectly benefit seabirds through increase in food availability (though the discard ban might disadvantage some seabird species). Overall, there is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
References			Barents Portal - The Joint Norwegian-Russian Environmental Status Report for the Barents Sea. http://www.barentsportal.com/barentsportal09/ Grekov, A.A. Pavlenko A.A. 2011. A comparison of longline and trawl fishing practices and suggestions for encouraging the sustainable management of fisheries in the Barents Sea, — Moscow-Murmansk, World Wide Fund For Nature (WWF), 50p. Larsen, T, Nagoda D, and Andersen J R eds. 2003 The Barents Sea Ecoregion: A biodiversity assessment. http://awsassets.panda.org/downloads/barentsseaecoregionreport.pdf ICES ADVISORY COMMITTEE 2010 Report of the Study Group on Bycatch of Protected Species (SGBYC). ICES CM 2010/ACOM:25 Copenhagen, Denmark ICES Advice 2013, Book 3. ICES. 2013. Report of the Arctic Fisheries Working Group (AFWG), 18–24 April 2013, Copenhagen, Denmark. ICES CM 2013/ACOM:05.	
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 2.3.2

PI 2.3.2			The fishery has in place precautionary management strategies designed to: • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**14**	There are **measures** in place that minimise mortality, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.
			See 80a
	b	**15**	The measures are **considered likely** to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/species).
			See 80b
80	**a**	**Y**	There is a **strategy** in place for **managing the fishery's impact** on ETP species, including measures to minimise mortality, that is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.
			NAMMCO and IWC advocate measures to reduce by catch of marine mammals and accurate recording to inform understanding and abundance estimates. There are several research programmes to monitor marine mammal abundance and distribution in the Barents Sea (Barents Sea Portal). ICES provides and coordinates knowledge and advice relating to ETP management through the Study Group on Protected Species (SGBYC) and the working group on marine mammal ecology (WGMME). Much of this advice relates to reducing the catch of marine mammals and seabirds, neither of which is considered to be a significant issue for the client trawl fleet. There are few national and international requirements relating to the catch of other ETP species, although there has been substantial discussion and research especially in relation to by catch (Grekov and Pavlenko 2011), and catch of elasmobranch species, some of which are threatened. Under Russian Fishery Rules for the Northern Fish Economic basin (2009), catching red listed "water bio resources" is forbidden except under licence or as part of research. Consequently, all such species are returned alive in the water if possible. Although practical measures to protect threatened species are limited, this reflects the rare instances of damaging encounters and may therefore be considered appropriate to the scale of the problem. Measures currently in place include standard measures for the reduction of by catch as discussed in section 2.2. These may be regarded as appropriate to the scale of interaction and national/international requirements as described under 2.3.1.
	b	**Y**	There is an **objective basis for confidence** that the strategy will work, based on **information** directly about the fishery and/or the species involved.
			In so far as encounters with ETP species appear to be rare, or well within allowable levels of by catch (client fleet at 0.4% for redfish (both species), against 15%), the strategy as described above may be said to be working.

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PI 2.3.2			The fishery has in place precautionary management strategies designed to: • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Inspections are regular, and there is no on-board evidence (MSC logbooks) of significant problems related to ETP species. There are longstanding monitoring programmes related to marine mammal abundance and no evidence of significant negative interactions with the trawl fleet.
	c	**Y**	There is **evidence** that the strategy is being implemented successfully.
			Norway submits periodic reports on ETP issues to NAMMCO, but representatives of Russia did not participate in this group. However, some aspects of the strategy are now explicit in national legislation, and PINRO continues to collect data on by-catch species (including ETP) and provides it to international organizations such as ICES, NEAFC and NAFO. Regular inspections of vessels at sea and in port reveal no significant infringements of existing measures. Periodic evidence from observers also reinforces the view that measures are being implemented.
100	**a**	**N**	There is a **comprehensive strategy** in place for managing the fishery's impact on ETP species, including measures to minimise mortality that is designed to achieve **above** national and international requirements for the protection of ETP species.
			Although the existing set of measures and initiatives can be said to meet international standards, they cannot be described as comprising a comprehensive strategy (objectives, measures, monitoring). Though MSC logbooks are used on the client vessels and have been available for examination by the assessment team, there is apparently no process through which the data are compiled and analysed. There is an FAO-sponsored international Plan of Action (POA) for sharks (elasmobranch) conservation and management, but neither Russia nor Norway has yet developed a national POA.
	b	**N**	The 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.
			As noted above, there is limited data on encounters with ETP species, which apparently reflects the infrequency of such encounters. This suggests that the strategy is working, though the evidence is inadequate to support a high degree of confidence.
	c	**N**	There is **clear evidence** that the strategy is being implemented successfully.
			See100b
	d	**N**	There is evidence that the strategy is achieving its objective.
			There is a lack of evidence that the broader policy objectives are being achieved. Good information on the status of some red list ETP species is lacking, though the client fleet cannot be held to account in this respect.
References			Barents portal: MammalMonitoring http://www.barentsportal.com/barentsportal09/index.php?option=com_content&view=article&id=289&Itemid=284&lang=en

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PI 2.3.2		The fishery has in place precautionary management strategies designed to: • Meet national and international requirements; • Ensure the fishery does not pose a risk of serious harm to ETP species; • Ensure the fishery does not hinder recovery of ETP species; and • Minimise mortality of ETP species.	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Convention on international trade in endangered species of wild flora and fauna. Twenty-sixth meeting of the Animals Committee Geneva (Switzerland), 15-20 March 2012 and Dublin (Ireland), 22-24 March 2012 Report on assessing the intrinsic vulnerability of harvested sharks. Annex Norway – p. 1 Response from Norway on shark questions. ICES ADVISORY COMMITTEE 2010 Report of the Study Group on Bycatch of Protected Species (SGBYC). ICES CM 2010/ACOM:25 Copenhagen, Denmark NEAFC Recommendation 7:2012. Recommendation for the conservation and management of deep sea sharks.
OVERALL PERFORMANCE INDICATOR SCORE:			**80**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 2.3.3

PI 2.3.3			**Relevant information is collected to support the management of fishery 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.**
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**		Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.
			See 80 a
	b	**16**	Information is **adequate** to **broadly understand** the impact of the fishery on ETP species.
			See 80 b
	c	**17**	Information is adequate to support **measures** to manage the impacts on ETP species.
			See 80 c
80	**a**	**Y**	**Sufficient data** are available to allow fishery related mortality and the impact of fishing to be **quantitatively** estimated for ETP species.
			The PINRO / IMR Report on the State of the Barents Sea ecosystem provides an overview of the ETP species that occur in the Barents Sea, including their spatial and temporal distribution and ecology. Marine mammal survey work has been undertaken for many years and underpins abundance estimates in the Barents Sea. Methods include mark-recapture, breeding surveys of some species and transect surveys by ship or spotter plane (for cetaceans). The surveys are driven in part by ICES advice relating to quotas for commercial harvesting of marine mammals, or species identified as particularly vulnerable. The Norwegian IMR undertakes annual surveys of minke whales and other large baleen whales and generates abundance estimates every 6 years. Since 2002 the distribution of marine mammals in the Barents Sea has been recorded by research vessels, aircraft, fishing vessels and coastguard vessels under the Joint PINRO / IMR ecosystem survey. VMS data now allows for precise analysis of spatial distribution of fishing effort allowing for potential interactions to be assessed or predicted. The discard ban and species recording requirements generate high quality data on the catch of a wide range of species, although the analysis presented under 2.1 suggests that encounters with ETP species are likely to be rare (apart from golden redfish in the retained catch). The Norwegian reference fleet provides information on catch of all species, though this is unlikely to correspond to catch composition of the trawl fleet in the northern Barents Sea. Norway and Russia (through PINRO) submit analysis of gear interaction with key ETP species to the ICES SGBYC. *Sufficient data are available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.*
	b	**Y**	Information is **sufficient** to determine whether the fishery may be a threat to protection and recovery of the ETP species.
			The information and analyses described under 80a, and the data collected through MSC logbooks, are considered sufficient to determine whether the

PI 2.3.3			**Relevant information is collected to support the management of fishery 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.**
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			fishery may be a threat to protection and recovery of ETP species. The trawl fleet as a whole has not been identified in these assessments as representing a particular threat to ETP species, and the lack of ETP species recorded for the client fleet emphasises this.
	c	**Y**	Information is sufficient to measure trends and support a full **strategy** to manage impacts on ETP species.
			The information and analysis described under 80a is adequate to meet this criterion
100	**a**	**N**	Information is **sufficient** to **quantitatively** estimate outcome status of ETP species with a high degree of certainty.
			Data, especially trend data, from surveys and on fishery interactions with ETP species is limited – in large part because of their rarity. This means that outcome status cannot be estimated quantitatively with a high degree of certainty. To meet this requirement there would be a need for more representative reference fleet data, and/or more comprehensive data generated by on-board observers. The MSC log books, specifically reporting ETP species encounters, will help to address current data limitations.
	b	**N**	**Accurate and verifiable information** is available on the **magnitude of all impacts, mortalities and injuries** and the **consequences for the status** of ETP species.
			See 100 a
	c	**N**	Information is adequate to support a **comprehensive strategy** to manage impacts, minimise mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives.
			See 100 a
References			Arneberg, P., Korneev, O., Titov, O., Stiansen, J.E. (Eds.), Filin, A., Hansen, J.R., Høines, Å., and Marasaev, S. (Co-eds.) 2009. Joint Norwegian-Russian environmental status 2008 Report on the Barents Sea Ecosystem. Part I – Short version. IMR/PINRO Joint Report Series, 2009(2), 22 pp. Blanchard, J.L. Pinnegar J.K. and S. Mackinson 2002 Exploring marine mammal fishery interactions using ecopath with ecosim: modeling the Barents Sea Ecosystem. CEFAS Science Series Technical Report No 17. http://www.barentsportal.com ICES WGSE REPORT 2008 ICES LIVING RESOURCES COMMITTEE. Report of the Working Group on Seabird Ecology (WGSE). ICES CM 2008/LRC:05 REF. ACOM, WGECO ICES 2010. Report of the Study Group on Bycatch of Protected Species (SGBYC). ICES CM 2010/ACOM:25 WWF. The Barents Sea – a sea of opportunities…and threats. Petroleum activities and fragile nature. www.panda.org/downloads/arctic/barentsreport.pdf

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PI 2.3.3		**Relevant information is collected to support the management of fishery 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.**	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
OVERALL PERFORMANCE INDICATOR SCORE:			**80**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 2.4.1

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis and function	
SG	**Issue**	**Met? (Y/P/N)**	**Justification/Rationale**
60	**a**	**Y**	The fishery is **unlikely** to reduce habitat structure and function to a point where there would be serious or irreversible harm.
			See SG80a
80	**a**	**Y**	The fishery is **highly unlikely** to reduce habitat structure and function to a point where there would be serious or irreversible harm.
			There is evidence that intensive trawling has caused reduction in biodiversity in the south Barents Sea in the past (1920s-1960s) (Denisenko & Denisenko 1991; Denisenko 2007; PINRO 2012) and some impact on benthic habitats is to be expected from heavy trawls fitted with rock-hopper gear. Though this impact is much less than with e.g. traditional rollers as the rock-hopper trawl enables vessels to fish on rough ground that had already been fished over for many decades, but with significantly reduced total mass of gear plus saved fuel and, serendipitously, exerting a lighter environmental footprint than previous gear. This is not to say, however, that rock-hoppers have any less potential to cause significant environmental change through, e.g. boulder turning or breaking upright fragile species. Of particular concern are those benthic communities known as “vulnerable marine ecosystems or VMEs” which are subject to international guidance from FAO and to research and policy discussion at the level of NEAFC, ICES and national governments. These include organisms and habitats that contribute to the structural diversity of the environment, such as biogenic reefs, soft and hard corals, and sponge beds. Not only are these habitats bio-diverse in their own right, but they may be important in supporting a wide range of commercial and non-commercial fish species. Threatened, declining and vulnerable habitats have been mapped under the Barents Sea Ecoregion Report, the Integrated management Plan for the Marine Environment of the Barents Sea-Lofoten Area, and under various Russian research initiatives. Some of these communities (and in particular coldwater corals) are protected through a series of closed areas. VMS data on the spatial distribution of fishing effort, coupled with the steadily improving information on the distribution of marine habitats being collected under the Joint Russian-Norwegian Ecosystem assessment and the Mareano project, show there to be significant correlation between fishing locations and high biodiversity (for example the western continental slope/shelf edge in areas of strong hydrodynamic activity). Anecdotal evidence from vessel captains suggests that substantial hauls of benthic organisms are rare (and increasingly so as cod and haddock stocks are abundant, and trawl times shorter and better targeted. There is also strong evidence from client vessels’ MSC logbooks that sponges or corals are only sporadically encountered, and in much smaller quantities than those (60 kg of live coral and/or 800 kg of live sponge per “encounter“) that would require the fishing activity to be displaced, which implies that skippers take pains to avoid them. Otherwise, there appears to be a relatively rapid recovery associated with dynamic environments in which cod and haddock thrive.

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis and function	
SG	**Issue**	**Met? (Y/P/N)**	**Justification/Rationale**
			Whilst trawling does pose a risk to VMEs and vulnerable habitats more generally, fishing vessels will avoid areas where loss of gear is likely (also associated with biogenic reefs) or areas where substantial hauls of benthic organisms regularly occur. Some information about the history of the trawl fisheries in the Barents Sea is relevant here. When deep-sea trawling in the NE Arctic began in the 1920s skippers were fishing blind. Position fixing was limited to sun and star-sighting with a sextant – if there was enough clear sky – and swinging the lead to measure depth and substrate type. There were no Loran or Decca, let alone GPS satellites; there was no radar for coastal fixes; there were no echo-sounders. Skippers relied on dead reckoning and good luck. Post 1945, position fixing has gradually improved. Loran gave ship position c. ± 5 miles, offshore Decca fixes maybe ± 1 mile but not until 1990–91 did satellite navigation become publicly available with reliability better than± 10 m. Pre-1980s echo sounders gave depth and an indication of whether it was a hard or soft seabed, but certainly could not be used to discriminate coral reefs of sponge beds in the way that modern multi-beam multi-frequency sonar can. From the 1920s through to the 1960s, nets were spread by Dreadnought trawl doors, the lower door–wing-end sweeps were frequently of chain, not wire, and the footrope was mounted not on rubber wheels but spherical steel bobbins 40–90 cm in. These went across the trawl mouth wing to wing and were designed to climb over what they could and smash through what they couldn't. As the trawls up to the (mid) 1960s were all made with non-buoyant natural fibres they just dragged along the seabed helping to grind down any of the larger rubble left by the bobbins, at the same time wearing away the net material. Modern trawl fibres are buoyant and trawl nets aft of the footrope tend to swim clear of the seabed unless they pick up significant deadweight, e.g. boulders or sponges, which skippers will avoid because they crush the fish and diminish its market value, as well as increasing wear of the net on the seabed – and fishing skippers are innately driven to maximise catch value and minimise costs. With this historic background, it can be seen that from the 1920s through to the 1970s it was inevitable that areas of deep-sea seabed were razed by trawling blind with gear designed to clear a path that would make subsequent tows easier. This is no longer the case. Not only do skippers not wish to fish in a manner that puts their gear at risk or diminishes the value of the catch, but with the position-fixing and ground-discrimination electronics at their disposal, there is no need for them to do so. They can identify and avoid significant coral features or dense and extensive sponge beds. Their fishing is most concentrated in areas that they know are "clean ground" or have already been cleared of obstructions. Hence vessels not only in UoC but of all nations targeting cod and haddock in the Barents Sea tend to fish the same ground repeatedly rather than stray into new areas. This established practice helps to minimise overhead costs (gear damage) and

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis and function	
SG	**Issue**	**Met? (Y/P/ N)**	**Justification/Rationale**
			minimise the risk of reduced catch value (crushed fish). Though some assessments conducted for Barents Sea cod and haddock fishery have been scored below 80 (with a condition). the assessment team considers that the activities of the client fishery are highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
100	**a**	**N**	There is **evidence** that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
			Though the argument under SG80 strongly suggests that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm (across the various biotopes in the Barents Sea), and information relating to marine benthic habitats is steadily improving, there is insufficient evidence as to the frequency and nature of encounters between all fleets and different benthic habitats. Thus, it could not be concluded with the high degree of certainty that the evidence shows that the fishery is *highly unlikely* to reduce habitat structure and function to a point where there would be serious or irreversible harm.
References			Arneberg, P., Korneev, O., Titov, O., Stiansen, J.E. (Eds.), Filin, A., Hansen, J.R., Høines, Å., and Marasaev, S. (Co-eds.) 2009. Joint Norwegian-Russian environmental status 2008 Report on the Barents Sea Ecosystem. Part I – Short version. IMR/PINRO Joint Report Series, 2009(2), 22 pp. Denisenko N.V., Denisenko S.G. 1991. On impact of bottom trawling on benthos in the Barents Sea// Environmental situation and protection of flora and fauna of the Barents Sea. Apatity, published by Kola Science Centre of USSR Academy of Science. S. 158-164. Denisenko S.G. 2007. Zoobenthos of the Barents Sea under conditions of changing climate and human intervention. S. 418-511- In book: Dynamics of marine ecosystems and contemporary problems of protection of biological potential of Russian seas. Vladivostok: Dalnauka. 512 s Grekov, A.A. and Pavlenko A.A. 2011 A comparison of longline and trawl fishing practices and suggestions for encouraging the sustainable management of fisheries in the Barents Sea, — Moscow-Murmansk, World Wide Fund For Nature (WWF), 50p.NEAFC. Consolidated text of all NEAFC recommendations on regulating bottom fishing Hiddink J.G., Jennings S., and Kaiser M.J (2006). Indicators of the Ecological Impact of Bottom-Trawl Disturbance on Seabed Communities. Ecosystems (2006) 9: 1190–1199 ICES benthic Ecology WG Reports Løkkeborg S. 2005. Impacts of trawling and scallop dredging on benthic habitats and communities. FAO fisheries technical paper 472, 69 p.

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PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis and function	
SG	**Issue**	**Met? (Y/P/ N)**	**Justification/Rationale**
			PNRO 2012. Confidential report on the CLIENT trawl fleet to FCI. Spiridonov, V. A., Gavrilo, M.V., Krasnova E. D., and Nikolaeva N.G. (Eds) 2011. Atlas of marine and coastal biological diversity of the Russian Arctic Atlas of marine and coastal biological diversity of the Russian Arctic. — Moscow: WWF Russia, 64 pp. PINRO Report. Confidential report
OVERALL PERFORMANCE INDICATOR SCORE:			**80**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 2.4.2

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	There are **measures** in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.
		18	Paragraph 83 of the UN General Assembly Resolution 61/105 requires regional fisheries management organizations to protect vulnerable marine ecosystems from bottom fishing activities that would have significant adverse impact on such ecosystems. There are measures designed to map and monitor the status of marine habitats under the Joint Russian-Norwegian Ecosystem Assessment and the Integrated management Plan for the Barents Sea-Lofoten Area. Some of these communities (and in particular coldwater corals) are protected through a series of closed areas in the southern part of areas under Norwegian jurisdiction. Norwegian fishery regulations state that "intentional and negligent destruction of known coral reefs is prohibited, and precaution is required when fishing in the vicinity of known cold-water coral reefs". There is also an evolving policy framework emanating from the UNGA (referred to above), FAO (VME recommendations), NEAFC (bottom fishing regulations; OSPAR VME guidance and species identification); ICES working groups, etc. which is likely to feed into the establishment of measures appropriate the scale of the impact. These are expected to deliver outcome level 80.
	b	**Y**	The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).
			Existing measures (closed areas; avoidance rules) are likely to work, assuming they take account of scale requirements associated with the ecology of the various species involved.
80	**a**	**Y**	There is a **partial strategy** in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.
			There are several measures in place that together form a partial strategy to ensure that the fishery does not pose a risk of serious or irreversible harm to habitat types. **Closed areas:** Both Norway and Russia have established areas closed to fishing, Norway in the Svalbard zone and Russia in its EEZ. **Regulations relating to bottom fishing activities:** The Norwegian Ministry of Fisheries and Coastal Affairs regulates fishing with bottom gear in the fisheries protection zone around Svalbard. The regulation, which entered into force from 1 September 2011, establishes a distinction in existing fishing areas (where the water depth is less than 1000 m) and new fishing areas (where the water depth is more than 1000 m). In existing fishing areas a "move on" rule requires a vessel that catches more than 30 kg of live corals or 400 kg of live sponges in a single haul to 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.

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Vessels must hold a special permit from the Directorate of Fisheries to fish in new fishing areas (>1000 m depth) if having submitted to the Directorate for approval: a detailed protocol for the exploratory fishery, including a harvesting plan describing fishing gear, target species, bycatch, 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 described above for the existing fishing grounds apply. The Directorate of Fisheries may require a vessel to carry an observer when fishing in new fishing areas, with the associated costs to be covered by the owner of the vessel. If sufficient documentation can be provided of bottom fisheries in areas that are deeper than 1000 m, such areas may, on application to the Directorate of Fisheries, be classified as existing fishing areas. A similar approach for bottom fishing has been implemented by NEAFC in its Regulatory Area, again establishing a distinction between existing and new fishery areas. For new fishing areas all bottom fishing activities (or when bottom gear have not been previously used in the area), 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). Sea bed mapping: The integrated management plan for the Barents Sea includes a programme of research and mapping of benthic habitats, for example the Norwegian MAREANO programme . This programme will contribute to periodic updates of the integrated management plan. **VMS data collection:** NEAFC has recommended Member States to provide VMS data to ICES and NEAFC constituent bodies to meet the needs of both science and compliance. (Recommendation 10, 2013: made at the 31th Annual Meeting in November 2012.) The measures described here together constitute more than just a partial strategy.
	b	**Y**	There is some **objective basis for confidence** that the partial strategy will work, based on **information directly about the fishery and/or habitats** involved.
			Knowledge and mapping of habitats is increasing, as is our understanding of the relative value and extent of different areas that support fisheries, productivity and biodiversity. **The closed areas for deep/cold water corals off the NW Norwegian coast (8 are implemented), are likely to work by their very nature, and**

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			there is evidence that fishermen avoid such areas in order to protect valuable gear and catch. There is some concern over the destruction of sponges, given our limited understanding of the role these may play in providing habitat for a wide array of target and non-target species and ETP species. **However, the overall health of the Barents Sea ecosystem, in particular the abundant fish stocks and evidence of a rich benthic fauna with extensive deep water sponge aggregations and estimated 50 - 70% of the original coral areas still intact despite decades of bottom trawling, suggests that these wider impacts may be limited. From a precautionary perspective, nevertheless, more** could **be done in terms of improved monitoring of the extent of trawl damage to benthic habitats and understanding the function of these habitats in the wider ecosystem. Adoption of less impacting gear types (e.g. semi-pelagic trawls) might also be considered (see SG100a).** For this reason we have placed a recommendation on the client to invest in testing of lighter gears and to completely avoid areas with sponges and corals.
	c	**Y**	There is **some evidence** that the partial strategy is being implemented successfully.
			There is substantial and high quality information relating to the spatial distribution of fishing effort, and it is clear that fishing boats have in the main respected closed areas and largely avoid by catch of sponge or corals. As such, there is objective evidence that the partial strategy is being implemented.
100	**a**	**N**	There is a **strategy** in place for managing the impact of the fishery on habitat types.
			It is not clear whether the partial strategy outlined above is adequate to protect vulnerable habitats (particularly VMEs) more widely, given historic evidence showing that intensive trawling has reduced biodiversity, albeit in relatively small areas. Until such time as the partial strategy addresses these wider issues, it is unclear that it will work - in terms of preventing serious or irreversible harm to all habitat types in proportion to their importance. Given the evidence, the limited measures within the Norwegian Jurisdiction, and the lack of direct habitat-specific measures within the Russian sector, it cannot be said that there is a strategy is in place for managing the impact of the fishery on all habitat types.
	b	**N**	**Testing** supports **high confidence** that the strategy will work, based on **information directly about the fishery and/or habitats** involved.
			The evidence presented under 80b does not support a high level of confidence.
	c	**N**	There is **clear evidence** that that strategy is being implemented successfully.

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PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Though VMS information and lack of infringements with respect to closed areas strongly suggests successful implementation of existing measures, there is no strategy as such and this scoring issue is not met.
	d	**N**	There is some evidence that the strategy is achieving its objective. Despite the overall good health of the Barents Sea ecosystem, in particular the abundant fish stocks and evidence of a rich benthic fauna with extensive deep water sponge aggregations and estimated 50 - 70% of the original coral areas still intact despite decades of bottom trawling, it cannot be concluded that the strategy as it stands is capable of controlling impacts in "new" fishing areas. This might be particularly important if the natural productivity of cod and haddock stocks declines, and fisheries explore new grounds.
References			19 » See reference list at 2.4.1 » FAO 2009 International Guidelines for the Management of Deep-sea Fisheries in the High Seas. Rome/Roma, FAO. 73p. » ICES 2012. Report of the ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC) 26–30 March 2012 Copenhagen, Denmark ICES CM 2012/ACOM:29 ICES Advisory Committee. » Larsen T., Nagoda D., and Andersen, J.R. 2003. The Barents Sea Ecoregion. A biodiversity assessment. WWF http://awsassets.panda.org/downloads/barentsseaecoregionreport »Mareano programme. http://www.mareano.no/english/index.html » NEAFC request on identification of vulnerable marine ecosystems, including definitions and assessment of fishing activities that may cause significant adverse impacts on such ecosystems » NEAFC. Consolidated text of all NEAFC recommendations on regulating bottom fishing
OVERALL PERFORMANCE INDICATOR SCORE:			**80**
CONDITION NUMBER (if relevant): Recommendation 1			

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Evaluation Table: PI 2.4.3

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	There is **basic understanding** of the types and distribution of main habitats in the area of the fishery.
			See 80 a
	b	**Y**	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.
			See 80 b
80	**a**	**Y**	The nature, distribution and **vulnerability** of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.
			There have been substantial efforts in recent years to map the distribution of major marine habitats in the Barents Sea and assess their vulnerability – under the Joint Russian Norwegian Ecosystem Assessment; under the Mareano Programme, and through scientific studies undertaken by PINRO, IMR, in some cases compiled and analysed by WWF. This provides an excellent baseline, and the detail and scale are relevant to the known distribution of fishing activity.
	b	**Y**	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.
			The annual Joint Russian Norwegian ecosystem survey undertakes benthic sampling; and generates benthic composition time series. There is now good data on fishing distribution/effort/intensity and spatial extent of interaction, and there is a substantial scientific literature on the impact of trawls on benthic habitats, including specific studies in the Barents Sea. Data are also available from the on-going observer programme, from MSC logbooks, and data are collected under the Integrated Management Plan for the Barents Sea-Lofoten Area and the Joint Russian-Norwegian Ecosystem assessment and monitoring of the Barents Sea.
	c	**Y**	Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).
			The annual Joint Russian Norwegian ecosystem survey (benthic sampling; benthic composition) generates time series and trend data. Data are also available from the on-going observer programmes across the Barents Sea fleets, and data collected under the Integrated Management Plan for the Barents Sea-Lofoten Area and the Joint Russian-Norwegian Ecosystem assessment and monitoring of the Barents Sea. Taken together with data on fishing distribution/effort/intensity and spatial extent of interaction, this should be sufficient to measure changes in habitat distributions over time.

100	**a**	**Y**	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
			This is largely known, as described above.
	b	**N**	The physical impacts of the gear on the habitat types have been quantified fully.
			The qualitative impacts of trawl gear on benthic communities are understood, and substantial research has been undertaken in the Barents Sea and elsewhere. However, quantitative impacts – for example total area of sponge beds destroyed and/or maintained in an impacted state; volume of benthic organisms destroyed or removed; and longer term impacts on other species, resilience and productivity - are not well known. While there are some data on recovery rates of major habitats, understanding of recovery rates of associated species is poorly understood. Much of the research conducted to date is limited by the many compounding factors that make interpretation of impact difficult. For example, in most cases it is not known whether vessels fish in areas where benthic biodiversity is low, or whether trawling causes biodiversity to be low, and there is still limited understanding of the relationships between benthic habitats and fisheries productivity. Clearly, more monitoring of benthic catch and damage is required, and more analysis of existing data is required, before we can fully quantify these impacts.
	c	**Y**	Changes in habitat distributions over time are measured.
			The annual Joint Russian Norwegian ecosystem survey undertakes benthic sampling and generates benthic composition time series. Data are also available from the on-going observer programme, and data collected under the Integrated Management Plan for the Barents Sea-Lofoten Area and the Joint Russian-Norwegian Ecosystem assessment and monitoring of the Barents Sea. Taken together with data on fishing distribution/effort/intensity and spatial extent of interaction, this should be sufficient to measure changes in habitat distributions over time.
References			» See refs at 2.4.1 and 2.4.2
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 2.5.1

PI 2.5.1		The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function	
SG	**Issue**	**Met? (Y/P/N)**	**Justification/Rationale**
60	**a**	**Y**	The fishery is **unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
			See 80 a
80	**a**	**Y**	The fishery 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.
			Two ICES working groups provide annual assessments of the state of the Barents Sea Ecosystem (Arctic Fisheries Working group; WG for Regional Ecosystem Description). This information is supplemented by on-going data collected under the Joint Norwegian-Russian Environmental Status Report for the Barents Sea (which issues annual Barents Sea ecosystem status report, trends, highlights expected future situation) and work undertaken as part of implementing the Integrated Management Plan for the Barents Sea-Lofoten area. All these assessments suggest that the Barents Sea Ecosystem is relatively healthy, and that current fishing activities are not disrupting ecosystem structure and function. There has been a decline in seabird populations (as throughout the NE Atlantic), but the reasons for this are unclear (local food shortage; increased predation; historic by catch in drift net and long-line fisheries) and are not attributed to current fishing activity. The high abundance of stocks of key species at different trophic levels (cod/ haddock and capelin) suggests that the fish-related elements of the ecosystem are in good overall shape. Those changes that are taking place are probably related more to climate change. These surveys and assessments are also supported by a several ecosystem modelling studies related specifically to the Barents Sea, which have explored for example the trophic links between capelin, cod, seabirds and marine mammals. These include ecopath type studies by Blanchard et al 2002; EcoCod (which seeks to estimate cod MSY taking into account a range of ecosystem factors), Gadget (Multispecies interactions between cod, herring, capelin & minke whale (& krill) in the Barents Sea); Biofrost (multispecies model for Barents Sea – addressing primarily cod / capelin dynamics); and various ecosystem modelling studies by Planque and Lindstom at IMR.
100	**a**	**Y**	There is **evidence** that the fishery 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.
			See comments under SG80 above. The high abundance of stocks of key species at different trophic levels (cod/haddock and capelin) suggests that the fish-related elements of the ecosystem are in good overall shape, supported by a productive ecosystem and able to sustain marine mammal and sea bird populations. Those changes that are taking place are probably related more to climate change.

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PI 2.5.1		The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function	
SG	**Issue**	**Met? (Y/P/N)**	**Justification/Rationale**
			Taken with our overall understanding of ecosystem structure and functioning, and the measured impacts of fisheries (that are increasingly being managed at MSY), this suggests that the fishery 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.
References			» Blanchard, J.L., Pinnegar, J.K., and Mackinson, S. (2002). Exploring marine mammal-fishery interactions using 'Ecopath with Ecosim': modelling the Barents Sea ecosystem. Cefas Science Series Technical Report No. 117.52p. » Dommasnes, A., Christensen, V., Ellertsen, B., Kvamme, C., Melle, W., Nøttestad, L., Pedersen, T., Tjelmeland, S. and Zeller, D., 2002. An Ecopath model for the Norwegian and Barents Sea. In: S. Guénette, V. Christensen, D. Pauly. (eds) Fisheries impacts on North Atlantic ecosystems: models and analyses. Fisheries Centre Research Reports 9(4). » ICES Arctic Fisheries Working Group Report 2012 » ICES Arctic Fisheries Working group for Regional Ecosystem Description. ICES Ecosystem overviews: The Barents Sea and Norwegian Sea » Hoel, A.H. 2009 Best management in ecosystem based management on the arctic. Norskpolarinstitutt. Report series 129. » IMR/PINRO 2012. Ecosystem Survey of the Barents Sea Autumn 2012. 6. Monitoring the demersal community. http://www.imr.no/filarkiv/2012/10/monitoring_the_demersal_community_fish.pdf/nb-no » Joint Norwegian Russian Ecosystem Survey 2012 » Joint Norwegian-Russian environmental status 2008 Report on the Barents Sea Ecosystem. http://www.barentsportal.com/barentsportal09/index.php?option=com_content&view=article&id=184&Itemid=201&lang=en » Larsen T., Nagoda D., and Andersen, J.R. 2003. The Barents Sea Ecoregion. A biodiversity assessment. WWF http://awsassets.panda.org/downloads/barentsseaecoregionreport.pdf » Lindstrøm, U. Smout, S., Howell, D., Bogstad, B. 2009. Modelling multi-species interactions in the Barents Sea ecosystem with special emphasis on minke whales and their interactions with cod, herring and capelin. Deep Sea Research Part II: Topical Studies in Oceanography Volume 56, Issues 21–22, October 2009, Pages 2068–2079 » Schweder, T. 2006. The Scenario Barents Sea study: a case of minimal realistic modelling to compare management strategies for marine ecosystems pp. 310-323 in Top Predators in Marine Ecosystems, Their Role in Monitoring and Management. Edited by I. L. Boyd, S. Wanless' C. J. Camphuysen. Conservation Biology (No. 12) Cambridge University Press » WWF The Barents Sea Ecoregion: a biodiversity assessment
OVERALL PERFORMANCE INDICATOR SCORE:			**100**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 2.5.2

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	There are **measures** in place, if necessary.
			There are measures in place (already described) to ensure that the fishery does not pose a risk to cod and haddock, which are important (arguably key) species in the Barents Sea ecosystem. Closed areas have also been established to protect the young of a variety of other species. There are measures in place (already described) to minimize by catch of other fish species that may play an important role in ecosystem structure and function. Closed areas have been established to protect the most valuable/vulnerable benthic habitats in the Norwegian and Russian waters and there is provision for temporally closures as considered necessary. There is limited interaction of the fishery with marine mammals and seabirds, and specific measures are not considered necessary.
	b	**Y**	The **measures** take into account potential impacts of the fishery on key elements of the ecosystem.
			The measures described above take into account key fish, seabird and marine mammal elements of the ecosystem. The JNR Barents Sea Management plan provides measures to protect benthic habitats.
	c	**Y**	The measures are considered likely to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/ecosystems).
			Individual measures have been described under other principles, and are likely to work. As cod and haddock stocks are abundant, targeting these species and minimizing wider impacts on by catch species and habitats becomes easier. Sorting grids and minimum net size have been demonstrated to work.
80	**a**	**Y**	There is a **partial strategy** in place, if necessary.
			An ecosystem-based management plan is in place for the Barents Sea-Lofoten area. This plan includes assessment of threats to ecosystem structure and function and, where appropriate, identification of measures to address such threats. There are initiatives to extend this to the Russian zone in the Barents Sea. The Norwegian plan states that the Norwegian authorities will work to standardise and harmonise Norwegian and Russian environmental monitoring in the Barents Sea. This will include continuing to assist Russia in introducing OSPAR standards, which will facilitate Russia's entry into the OSPAR cooperation in the long term. Taken together, the mix of planning initiatives, Russian-Norwegian cooperation initiatives, ecosystem monitoring and assessments, seabed mapping, fishing effort distribution monitoring, ICES advice, and the range of individual measures designed to protect different elements of the ecosystem may be regarded as comprising a partial strategy.

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
	b	**Y**	The partial strategy takes into account **available information and is expected to restrain impacts** of the fishery on the ecosystem so as to **achieve** the Ecosystem Outcome 80 level of performance.
			The implementation of individual measures, and the overall assessment and planning process, take into account historic and current information as collected under the Joint-Norwegian-Russian Ecosystem assessment, ICES advice, and scientific advice from IMR, PINRO and the scientific community more widely. This strategy is expected to restrain impacts on most ecosystem elements so as to achieve outcome 80 level of performance.
	c	**Y**	The partial strategy is considered likely to work, based on **plausible argument** (e.g. general experience, theory or comparison with similar fisheries/ecosystems).
			There are no obvious weaknesses in the overall strategy, in so far as it encompasses the key elements of research, objective setting, implementation measures, monitoring of implementation, outcome assessment and review/adaptation.
	d	**Y**	There is **some evidence** that the measures comprising the partial strategy are being **implemented successfully.**
			See 100 d
100	**a**	**Y**	There is a **strategy** that consists of a **plan**, in place.
			As described above, there is an integrated management plan for the Barents Sea-Lofoten Area, which covers the area where the client fishery operates. There is, as yet, no equivalent for areas under Russian jurisdiction.
	b	**N**	The **strategy**, which consists of a **plan**, contains measures to **address all main impacts of the fishery** on the ecosystem, and at least some of these measures are in place. The plan and measures are **based on well-understood** functional relationships between the fishery and the Components and elements of the ecosystem. This plan provides for **development of a full strategy that restrains impacts** on the ecosystem to ensure the fishery does not cause serious or irreversible harm.
			The strategy, plan and individual measures have been described above. Taken together, they represent a relatively comprehensive approach, but there remain some gaps both in understanding and in implementation – in particular with regard to benthic habitats. We have limited understanding of their role in fishery productivity and the wider ecosystem more generally, and the measures to protect valuable and vulnerable benthic species, habitats and VMEs are restricted to relatively small area of the Barents Sea. Until such time as the plan is extended to the areas under Russian jurisdiction, and there is a clear strategy to improve understanding of functional relationships between benthic habitats and ecosystem functioning and/or a precautionary management system is in place, this cannot be

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PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			scored at 100.
	c	**N**	The measures are considered likely to work based on **prior experience**, plausible argument or **information** directly from the fishery/ecosystems involved.
			Most of the measures as described above are likely to work, since they are based on a good understanding of the distribution of communities and ecosystem linkages in the Barents Sea, and are understood and respected by fishermen. As cod and haddock stocks are abundant, targeting these species and minimizing wider impacts on by catch species and habitats becomes easier. It could be argued, however, that existing measures relating to protection of seabed communities require environmental objectives in terms of population status, but these are not sufficiently elaborated to evaluate their effectiveness in quantitative terms.
	d	**Y**	There is evidence that the measures are being **implemented successfully**.
			There is substantial evidence relating to implementation, including: VMS data relating to the spatial intensity of fishing effort, and compliance with closed area restrictions; Catch records; MSC logbooks; Vessel inspections Observer programmes Review and analysis of fishing activity by PINRO
References			» Integrated Management of the Marine Environment of the Barents Sea and the Sea Areas off the Lofoten Islands (management plan) http://www.regjeringen.no/en/dep/md/Selected-topics/hav--og-vannforvaltning/havforvaltning/integrated-management-of-the-barents-sea.html?id=87148 » http://arcticgovernance.custompublish.com/norway-and-integrated-oceans-management-the-case-of-the-barents-sea.4651095-142902.html » Hoel , A.H., von Quillfeldt, C.H., Olsen, E. 2009 Norway and Integrated Oceans Management – the Case of the Barents Sea. REPORT SERIES NO 129 Norsk Polar Institutt
OVERALL PERFORMANCE INDICATOR SCORE:			**95**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 2.5.3

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	Information is adequate to **identify** the key elements of the ecosystem (e.g., trophic structure and function, community composition, productivity pattern and biodiversity).
			As described under 2.5.1, the Barents Sea food web and ecosystem are well researched, a range of models at different levels of complexity have been developed, and key relations analysed. A good deal of biodiversity (location, migrations etc.) has been mapped. Key indicators and parameters are monitored on a regular basis and trend data collected. Nevertheless, these interactions are complex and unpredictable, and require a precautionary approach to management
	b	**Y**	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and **have not been investigated in detail**.
			See 80 b
80	**a**	**Y**	Information is adequate to **broadly understand** the key elements of the ecosystem.
			The Barents Sea is well researched relative to most aquatic systems and the key elements of the ecosystem are broadly understood.
	b	**Y**	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information and **some have been investigated in detail**.
			As described in 2.5.1, the main impacts of the fishery on key ecosystem elements can be inferred from existing information, and some have been investigated in detail.
	c	**Y**	The main functions of the Components (i.e., target, bycatch, retained and ETP species and habitats) in the ecosystem are **known**.
			The main functions of target, bycatch, retained and ETP species are known. There remains some uncertainty over the functions of benthic habitats.
	d	**Y**	Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.
			Survey, monitoring and modelling all support fishery impact assessment studies, and some of the consequences for the ecosystem have been inferred. Whilst relationships between cod, haddock, capelin and marine mammals are all well researched, relationships between the fishery and seabird populations are complex and less well understood, although direct impacts of the fishery appear to be limited.
	e	**Y**	Sufficient data continue to be collected to detect any increase in risk level (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			There is a relatively comprehensive monitoring programme in place through the Joint Norwegian-Russian Barents Sea Ecosystem assessment and the Norwegian Integrated management Plan for the Barents Sea Lofoten Area. Other related initiatives monitor marine mammals and seabirds. PINRO and IMR collect comprehensive data related to the major commercial fisheries. Risks associated with changing populations or relationships between fisheries and various elements of the ecosystem should be picked up.
100	**b** **20**	**Y**	Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and **have been investigated**.
			As described in 2.5.1, the main impacts of the fishery on key ecosystem elements can be inferred from existing information, and have been investigated in some detail.
	c	**Y**	The impacts of the fishery on target, by-catch and ETP species are **identified** and the main functions of these Components in the ecosystem are **understood**.
			As described under 80c, impacts on target, by-catch and ETP species have been identified, and there is good understanding of the main functions of most of these components in the wider ecosystem.
	d	**N**	Sufficient information is available on the impacts of the fishery on the Components **and elements** to allow the main consequences for the ecosystem to be inferred.
			Although the level of research and understanding is impressive, given the comprehensiveness of ecosystem studies and assessments, and may be regarded as close to best practice, there may be gaps in understanding, the role of for example benthic habitats on the wider ecosystem, and the wider implications of trawl damage to such habitats.
	e	**Y**	Information is sufficient to support the development of strategies to manage ecosystem impacts.
			Although there are some gaps in our understanding, there is enough information available to support strategies to manage marine ecosystem impacts, especially as a precautionary approach is taken to avoid damage to benthic habitats, though there remains some uncertainty as to wider consequences to the marine ecosystem.
References			» See 2.5.1 and 2.5.2
OVERALL PERFORMANCE INDICATOR SCORE:			**95**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 3.1.1

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: • Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; • 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.	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: • Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; • 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.	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			The Russian Federation has signed and ratified relevant international agreements such as the 1982 Law of the Sea Convention and the 1995 Straddling Stocks Agreement. The Russian Constitution of 1993 states that the provisions of international agreements entered by the Russian Federation stand above those of national law. The Federal Fisheries Act of the Russian Federation was signed in 2004 and revised in 2007. This is a framework law, and a number of supporting legal documents have been issued in recent years to implement the intensions behind the 2007 revision. Specific regulations are given at the level of fishery basins. Current regulations for Russia's northern fishery basin were adopted in 2009, providing, among other things, rules for closed areas, fishing gear (e.g. mesh size), by-catch and minimal allowable size of different species. It should be noted that these measures by and large reflect decisions made at bilateral level with Norway, in the JNRFC. The JNRFC sets TAC for cod and haddock, which is shared 50–50 between the two countries. A number of specific national fishery rules have been harmonized by the JNRFC, or jointly introduced by the two countries. These include the minimum mesh size of 130 mm, harmonized in 2009, and minimum fish size of 44 cm for cod and 40 cm for haddock, harmonized in 2010. Conversion factors were harmonized in 1997 and the procedures for closing and opening of fishing grounds in 1999. Mandatory use of selection grids was jointly introduced by the parties in 1997 and satellite tracking of all fishing vessels in 2001.
	b	**Y**	The management system incorporates or is subject by law to a **mechanism** for the resolution of legal disputes arising within the system.
			Disputes between Norway and Russia are solved in the JNRFC, or in its Permanent Committee. In Russia, most disputes are solved within the system for fisheries management, not requiring judicial treatment. There is a well-established system of consultation with user groups, through fishery councils at different levels (the public chamber at federal level) and directly between user groups and government. Large user groups such as Murmansk Trawl Fleet have direct access to federal authorities. Quota allocation and other regulatory measures are subject to consultation between user groups and government. Internal fishery infringements are processed and dealt with by the enforcement bodies in Norway and Russia (depending on where the infringement took place), and fishermen and ship owners have the possibility to bring their case to court instead of accepting a fine.
	c	**Y**	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 of the fishery.
			Neither the federal management authority – the Federal Fisheries Agency (the FFA) – nor its constituent components at federal and regional level (such as the BBTU in the northern basin) are subject to continuing court

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: • Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; • 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.	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			challenges. There are no signs of defiance of the law by repeated violations of the same law or regulation for the sustainability of the fishery.
	d	**Y**	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 rights of fishery-dependent communities are explicitly stated in the Federal Fisheries Act. As fisheries were assembled in large production entities in Soviet times, 'fishery-dependent community' in Russia largely equals big cities with considerable fishing activities. This is particularly the case in the northern basin, with Murmansk as the region's 'fishery capital'. Hence, it can be argues that this provision is also implemented in practice, as by far the major share of fish quotas in the Russian northern basin go to vessels registered in Murmansk (although some of the companies, to which the quotas are formally allocated, are located in the other regions of the northern basin, Arkhangelsk Oblast, the Republic of Karelia and Nenets Autonomous District). The Federal Fisheries Act states that 'the small indigenous peoples of the North, Siberia and the Far East' (ethnic groups with a 'traditional' lifestyle and consisting of less than 50,000 people) shall be given access to fish resources in order to secure their livelihood. It lists 'fisheries to protect the traditional lifestyle of small indigenous peoples of the North Siberia and the Far East' as one of seven 'types of fisheries' (along with, e.g., 'industrial fisheries', 'coastal fisheries' and 'fisheries for scientific and enforcement purposes'). The Act further states that quotas for such fisheries are distributed by the executive power of Russia's federal subjects (i.e. regional authorities). The indigenous Saami receive a fixed annual quota of 300 tonnes of cod and 75 tonnes of haddock, based on their traditional fishing rights in the region.
80	**b**	**Y**	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 fishery.

PI 3.1.1			The management system exists within an appropriate legal and/or customary framework which ensures that it: • Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; • 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.
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Disputes between Norway and Russia are solved in the JNRFC, or in its Permanent Committee. In Russia, most disputes are solved within the system for fisheries management, not requiring judicial treatment. There is a well-established system of consultation with user groups, through fishery councils at different levels (the public chamber at federal level) and directly between user groups and government. Large user groups such as Murmansk Trawl Fleet have direct access to federal authorities. Quota allocation and other regulatory measures are subject to consultation between user groups and government. The process is transparent for actors within the Russian fisheries complex, and it is considered to be effective. Internal fishery infringements are processed and dealt with by the enforcement bodies in Norway and Russia (depending on where the infringement took place), and fishermen and ship owners have the possibility to bring their case to court instead of accepting a fine.
	c	**Y**	The management system or fishery is attempting to comply in a timely fashion within binding judicial decisions arising from any legal challenges.
			The management system acts proactively – in the JNRFC and in the fishery councils (described for the SG above) at various levels in Russia – to settle any disagreement outside the judicial system. There is an internal appeal commission in the FFA, where fishers for instance can appeal decisions to withdraw quota rights. There are no signs that the management system does not attempt to comply in a timely fashion within binding judicial decisions arising from legal challenges.
	d	**Y**	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 rights of fishery-dependent communities are explicitly stated in the Federal Fisheries Act. As fisheries were assembled in large production entities in Soviet times, 'fishery-dependent community' in Russia largely equals big cities with considerable fishing activities. This is particularly the case in the northern basin, with Murmansk as the region's 'fishery capital'. Hence, it can be argues that this provision is also implemented in practice, as by far the major share of fish quotas in the Russian northern basin go to vessels registered in Murmansk (although some of the companies, to which the quotas are formally allocated, are located in the other regions of the northern basin, Arkhangelsk Oblast, the Republic of Karelia and Nenets Autonomous District). The Federal Fisheries Act states that 'the small indigenous peoples of the North, Siberia and the Far East' (ethnic groups with a 'traditional' lifestyle and consisting of less than 50,000 people) shall be given access to fish resources in order to secure their livelihood. It lists 'fisheries to protect the traditional lifestyle of small indigenous peoples of the North Siberia and the Far East' as one of seven 'types of fisheries' (along with, e.g., 'industrial fisheries', 'coastal fisheries' and 'fisheries for scientific

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2;** • **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.**	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			and enforcement purposes'). The Act further states that quotas for such fisheries are distributed by the executive power of Russia's federal subjects (i.e. regional authorities). In the northern basin, a fixed quota of 300 t cod and 75 t haddock is given to the Saami, based on their traditional fishing rights in the region.
100	**b**	**N**	The management system incorporates or 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**.

PI 3.1.1			The management system exists within an appropriate legal and/or customary framework which ensures that it: • Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; • 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.
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Disputes between Norway and Russia are solved in the JNRFC, or in its Permanent Committee. In Russia, most disputes are solved within the system for fisheries management, not requiring judicial treatment. There is a well-established system of consultation with user groups, through fishery councils at different levels (the public chamber at federal level) and directly between user groups and government. Large user groups such as the FIUN have direct access to federal authorities. Quota allocation and other regulatory measures are subject to consultation between user groups and government. The process is transparent for actors within the Russian fisheries complex. It is considered to be effective, but the assessment team has not been provided with documentation that makes it possible to conclude that the system is tested and proven to be effective. Internal fishery infringements are processed and dealt with by the enforcement bodies in Norway and Russia (depending on where the infringement took place), and fishermen and ship owners have the possibility to bring their case to court instead of accepting a fine.
	c	**Y**	The management system or fishery acts proactively to avoid legal disputes or rapidly implements binding judicial decisions arising from legal challenges.
			The management system acts proactively – in the JNRFC and in the fishery councils (described for the SG above) at various levels in Russia – to settle any disagreement outside the judicial system. There is an internal appeal commission in the FFA, where fishers for instance can appeal decisions to withdraw quota rights. There are no signs that the management system does not attempt to comply in a timely fashion within binding judicial decisions arising from legal challenges.
	d	**Y**	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.
			The rights of fishery-dependent communities are explicitly stated in the Federal Fisheries Act. As fisheries were assembled in large production entities in Soviet times, 'fishery-dependent community' in Russia largely equals big cities with considerable fishing activities. This is particularly the case in the northern basin, with Murmansk as the region's 'fishery capital'. Hence, it can be argues that this provision is also implemented in practice, as by far the major share of fish quotas in the Russian northern basin go to vessels registered in Murmansk (although some of the companies, to which the quotas are formally allocated, are located in the other regions of the northern basin, Arkhangelsk Oblast, the Republic of Karelia and Nenets Autonomous District). The Federal Fisheries Act states that 'the small indigenous peoples of the North, Siberia and the Far East' (ethnic groups with a 'traditional' lifestyle and consisting of less than 50,000 people) shall be given access to fish resources in order to secure their livelihood. It lists

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PI 3.1.1			**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2;** • **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.**
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			'fisheries to protect the traditional lifestyle of small indigenous peoples of the North Siberia and the Far East' as one of seven 'types of fisheries' (along with, e.g., 'industrial fisheries', 'coastal fisheries' and 'fisheries for scientific and enforcement purposes'). The Act further states that quotas for such fisheries are distributed by the executive power of Russia's federal subjects (i.e. regional authorities).. In the northern basin, a fixed quota of 300 t cod and 75 t haddock is given to the Saami, based on their traditional fishing rights in the region.
References			• Federal Fisheries Act of the Russian Federation, 2004. • Geir Hønneland (2004), Russian Fisheries Management: The Precautionary Approach in Theory and Practice, Leiden & Boston: Martinus Nijhoff. • Geir Hønneland (2012), Making Fishery Agreements Work: Post-Agreement Bargaining in the Barents Sea, Cheltenham & Northampton, MA: Edward Elgar. • Geir Hønneland & Anne-Kristin Jørgensen (2003), 'Implementing International Fisheries Agreements in Russia: Lessons from the Northern Basin', Marine Policy 26: 359–67. • Geir Hønneland & Frode Nilssen (2001), 'Quota Allocation in Russia's Northern Fishery Basin: Principles and Practice', Ocean & Coastal Management 44: 471–88. • Interviews during site visit. • Protocols from the sessions of the JNRFC, available in Norwegian on the website of the Norwegian Ministry of Fisheries (www.regjeringen.no/nb/dep/fkd) • Regulations for the Conduct of Fishery in the Northern Fishery Basin, 2009.
OVERALL PERFORMANCE INDICATOR SCORE:			**95**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 3.1.2

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	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **generally understood.**

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	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			A number of bodies of governance, industry organizations and research institutions are involved in the management of Russian fisheries. The formal arena for interaction between the Russian fishing industry and the government are the advisory bodies, the so-called fishery councils, found at federal, basin and regional levels. At the federal level, the Public Fisheries Council was established in 2008 on the basis of the requirement in the Federal Public Chamber Act to have a public council for most federal bodies of governance. Basin-level and regional fishery councils have existed since Soviet times, and the 2004 Federal Fisheries Act makes them mandatory for all basins and regions located on their territory. The Rules of Procedures for Basin Scientific and Fishery Councils in the Russian Federation were approved in 2008. They state that the councils shall advice on a wide range of fishery-related issues, including conduct of fisheries in the relevant region; control and surveillance; conservation; recovery and harvesting of aquatic biological resources; distribution of quotas and other issues of importance to ensure sustainable management of fisheries. Russia has an extensive system of fisheries research in oceanography, biology of marine organisms, resource assessment, fishing gear and processing technology, among other things. Research institutes subordinate to the Federal Fisheries Agency are highly integrated in the management process and also participate in the fishery councils at different levels. The FFA is the federal body responsible for fisheries management in the Russian Federation. The Federal Border Service (since 2003 part of the Federal Security Service, the FSB) is responsible for enforcement in the REZ. 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. Our interviews during the site visit indicate that the functions, roles and responsibilities of organizations and individuals involved in the management system are well understood.
	b	**Y**	The management system includes consultation processes that obtain **relevant information** from the main affected parties, including local knowledge, to inform the management system.
			There is a strong Russian (and previously Soviet) tradition of stakeholder consultation in the management process. The fishery councils at different (referred to above) shall 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, including the indigenous people of the North, Siberia and the Far East. 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.

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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	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
80	**a**	**Y**	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.

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	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			A number of bodies of governance, industry organizations and research institutions are involved in the management of Russian fisheries. The formal arena for interaction between the Russian fishing industry and the government are the advisory bodies, the so-called fishery councils, found at federal, basin and regional levels. At the federal level, the Public Fisheries Council was established in 2008 on the basis of the requirement in the Federal Public Chamber Act to have a public council for most federal bodies of governance. Basin-level and regional fishery councils have existed since Soviet times, and the 2004 Federal Fisheries Act makes them mandatory for all basins and regions located on their territory. The Rules of Procedures for Basin Scientific and Fishery Councils in the Russian Federation were approved in 2008. They state that the councils shall advice on a wide range of fishery-related issues, including conduct of fisheries in the relevant region; control and surveillance; conservation; recovery and harvesting of aquatic biological resources; distribution of quotas and other issues of importance to ensure sustainable management of fisheries. Russia has an extensive system of fisheries research in oceanography, biology of marine organisms, resource assessment, fishing gear and processing technology, among other things. Research institutes subordinate to the Federal Fisheries Agency are highly integrated in the management process and also participate in the fishery councils at different levels. The FFA is the federal body responsible for fisheries management in the Russian Federation. The Federal Border Service (since 2003 part of the Federal Security Service, the FSB) is responsible for enforcement in the REZ. 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. The functions, roles and responsibilities of organizations and individuals involved in the management system are explicitly defined and seem well understood for all key areas of responsibility and interaction.
	b	**Y**	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.
			There is a strong Russian (and previously Soviet) tradition of stakeholder consultation in the management process. The fishery councils at different (referred to 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), including the indigenous people of the North, Siberia and the Far East. 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. The management system demonstrates consideration of the information obtained by continuously adapting its policies in accordance with user-group opinion as

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	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			expressed at the fishery councils at different levels.
	c	**Y**	The consultation process **provides opportunity** for all interested and affected parties to be involved.
			The consultation process provides opportunity for all interested and affected parties to be involved; cf. information on the public chambers at different levels in a) and b) of this SG. Meetings are publicly announced and all interested parties can attend, including NGOs and the media.
100	**a**	**Y**	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.
			A number of bodies of governance, industry organizations and research institutions are involved in the management of Russian fisheries. The formal arena for interaction between the Russian fishing industry and the government are the advisory bodies, the so-called fishery councils, found at federal, basin and regional levels. At the federal level, the Public Fisheries Council was established in 2008 on the basis of the requirement in the Federal Public Chamber Act to have a public council for most federal bodies of governance. Basin-level and regional fishery councils have existed since Soviet times, and the 2004 Federal Fisheries Act makes them mandatory for all basins and regions located on their territory. The Rules of Procedures for Basin Scientific and Fishery Councils in the Russian Federation were approved in 2008. They state that the councils shall advice on a wide range of fishery-related issues, including conduct of fisheries in the relevant region; control and surveillance; conservation; recovery and harvesting of aquatic biological resources; distribution of quotas and other issues of importance to ensure sustainable management of fisheries. Russia has an extensive system of fisheries research in oceanography, biology of marine organisms, resource assessment, fishing gear and processing technology, among other things. Research institutes subordinate to the Federal Fisheries Agency are highly integrated in the management process and also participate in the fishery councils at different levels. The FFA is the federal body responsible for fisheries management in the Russian Federation. The Federal Border Service (since 2003 part of the Federal Security Service, the FSB) is responsible for enforcement in the REZ. 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. The functions, roles and responsibilities of organizations and individuals involved in the management system are explicitly defined and seem well understood for all key areas of responsibility and interaction.
	b	**Y**	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

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
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			explains how it is used or not used.
			There is a strong Russian (and previously Soviet) tradition of stakeholder consultation in the management process. The fishery councils at different (referred to 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), including the indigenous people of the North, Siberia and the Far East. 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. 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. Stakeholders express satisfaction with the extent to which management authorities explain how the information is used or not used.
	c	**N**	The consultation process **provides opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement.
			The consultation process provides opportunity for all interested and affected parties to be involved; cf. information on the public chambers at different levels in a) and b) of this SG. Meetings are publicly announced and all interested parties can attend, including NGOs and the media. However, this stops short of management authorities encouraging and actively facilitating their effective engagement.
References			• Federal Fisheries Act of the Russian Federation, 2004 • Geir Hønneland (2004), Russian Fisheries Management: The Precautionary Approach in Theory and Practice, Leiden and Boston: Martinus Nijhoff. • Anne-Kristin Jørgensen (2009), 'Recent Developments in the Russian Fisheries Sector'. In Wilson Rowe, Elana (ed.), Russia and the North. Ottawa: University of Ottawa Press, pp. 87-106 • Interviews during site visit. • Resolution on the Northern Basin Scientific and Fishery Council and Working Group of the Northern Basin Scientific and Fishery Council, 2002 • Resolution on the Working Order of the Territorial Fishery Council of Murmansk County, 2005.
OVERALL PERFORMANCE INDICATOR SCORE:			**90**

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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	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
CONDITION NUMBER (if relevant): **RECOMMENADTION**: The client shall facilitate the communication between NGOs and organisations involved in the fishery management system.			**x**

Evaluation Table: PI 3.1.3

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach	
SG	**Issue**	**Met? (Y/P/N)**	**Justification/Rationale**
60	**a**	**Y**	Long-term objectives to guide decision-making, consistent with the MSC Principles and Criteria and the precautionary approach, are **implicit** within management policy
			Russian fisheries law defines protection and rational use of aquatic biological resources as the main goal of the country's fisheries management. The concept 'protection and rational use' was widespread 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 approaches the requirements of the precautionary approach, although it might arguably lack the extra margin of precaution prescribed by the approach. According to the 1993 Russian Constitution the provisions of international agreements entered by the Russian Federation stand above those of national law. The Russian Federation has signed and ratified a number of international agreements which adopt the precautionary approach, including the 1992 Convention on Biological Diversity and the 1995 Straddling Stocks Agreement, and works actively in international organizations or arrangements which explicitly adhere to the precautionary approach to fisheries management, such as ICES and the JNRFC. The precautionary approach has been in practical use by the JNRFC since the late 1990s, when ICES' precautionary reference points were adopted. The harvest control rule established by the JNRFC in 2002 is explicitly founded on the precautionary approach. The 2010 agreement between Norway and Russia on marine delimitation and cooperation in the Barents Sea explicitly states that fisheries management in the area shall be based on the precautionary approach.
80	**a**	**Y**	**Clear** long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach are **explicit** within management policy.

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach	
SG	**Issue**	**Met? (Y/P/N)**	**Justification/Rationale**
			Russian fisheries law defines protection and rational use of aquatic biological resources as the main goal of the country's fisheries management. The concept 'protection and rational use' was widespread 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 approaches the requirements of the precautionary approach, although it might arguably lack the extra margin of precaution prescribed by the approach. According to the 1993 Russian Constitution the provisions of international agreements entered by the Russian Federation stand above those of national law. The Russian Federation has signed and ratified a number of international agreements which adopt the precautionary approach, including the 1992 Convention on Biological Diversity and the 1995 Straddling Stocks Agreement, and works actively in international organizations or arrangements which explicitly adhere to the precautionary approach to fisheries management, such as ICES and the JNRFC. The precautionary approach has been in practical use by the JNRFC since the late 1990s, when ICES' precautionary reference points were adopted. The harvest control rule established by the JNRFC in 2002 is explicitly founded on the precautionary approach. The 2010 agreement between Norway and Russia on marine delimitation and cooperation in the Barents Sea explicitly states that fisheries management in the area shall be based on the precautionary approach.
100	**a**	**Y**	**Clear** long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are **explicit** within **and required by** management policy.
			Russian fisheries law defines protection and rational use of aquatic biological resources as the main goal of the country's fisheries management. The concept 'protection and rational use' was widespread 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 approaches the requirements of the precautionary approach, although it might arguably lack the extra margin of precaution prescribed by the approach. According to the 1993 Russian Constitution the provisions of international agreements entered by the Russian Federation stand above

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PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach	
SG	**Issue**	**Met? (Y/P/N)**	**Justification/Rationale**
			those of national law. The Russian Federation has signed and ratified a number of international agreements which adopt the precautionary approach, including the 1992 Convention on Biological Diversity and the 1995 Straddling Stocks Agreement, and works actively in international organizations or arrangements which explicitly adhere to the precautionary approach to fisheries management, such as ICES and the JNRFC. The precautionary approach has been in practical use by the JNRFC since the late 1990s, when ICES' precautionary reference points were adopted. The harvest control rule established by the JNRFC in 2002 is explicitly founded on the precautionary approach. The 2010 agreement between Norway and Russia on marine delimitation and cooperation in the Barents Sea explicitly states that fisheries management in the area shall be based on the precautionary approach.
References			• Federal Fisheries Act of the Russian Federation, 2004. • Geir Hønneland (2004), Russian Fisheries Management: The Precautionary Approach in Theory and Practice, Leiden and Boston: Martinus Nijhoff. • Geir Hønneland (2012), Making Fishery Agreements Work: Post-Agreement Bargaining in the Barents Sea, Cheltenham & Northampton, MA: Edward Elgar. • Geir Hønneland and Anne-Kristin Jørgensen (2003), Implementing International Environmental Agreements in Russia, Manchester and New York: Manchester University Press. • Anne-Kristin Jørgensen (2009), 'Recent Developments in the Russian Fisheries Sector'. In Wilson Rowe, Elana (ed.), Russia and the North. Ottawa: University of Ottawa Press, pp. 87-106. • Protocols from sessions in the JNRFC. • Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean, 2010.
OVERALL PERFORMANCE INDICATOR SCORE:			**100**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 3.1.4

PI 3.1.4		The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing	
SG	**Issue**	**Met? (Y/P/N)**	**Justification/Rationale**
60	**a**	**Y**	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2. Fishing companies and fish-processing plants can apply for support to the FFA for support to cover annual interest on loans taken up to buy equipment. The current targeted programme for the fisheries sector (2009–2013) is directed towards three main issue areas: shipbuilding, port infrastructure and fish restocking plants. The part of the programme which is to be funded via the federal budget will go towards large infrastructure projects, construction of research and inspection vessels and modernization of restocking plants. The projects aimed at renewal and modernization of the fishing fleet and the processing industry are all to be financed by 'non-budget sources'. The programme does not specify what this means, beyond a sentence mentioning private investors and credit institutions. Both the Russian fisheries authorities and industry organizations have repeatedly called for more state support, including subsidies, for the fisheries sector, but the overall impression is that the Government is not generally in favour of direct subsidies. Despite this, in 2009 the Government introduced a new form of subsidies aimed at fleet renewal and modernization of the processing industry. Starting in 2009, companies which have taken up loans to finance such projects could apply for a 2/3 refund of the annual interest on the loans. The subsidies are aimed at the replacement of old vessels with more cost-effective ones. The FIUN stipulates that one new vessel will replace three old ones, and they present the initiative as a measure to combat overfishing. The number of vessels in the northern fishery basin has steadily declined during the post-Soviet period, from more than 500 in the early 1990s to 200-300 today. According to the BBTA, the total number of vessels registered in Murmansk has gone down from 456 in 2006 to 336 in 2012, of which 283 are fishing vessels. In summary, although some subsidies have been identified, these are mostly in the form of bank loans. For this fleet, they are not thought to contribute to unsustainable fishing. At national level, the management system provides economic and social incentives for sustainable fishing. These include: • Penalties for infringements / non-compliance • New system of quota allocation (enhanced by the adoption of clear harvest control rules) is more stable and more akin to a rights-based system. In particular the guarantee of quota share for a 10-year period increases both certainty and commercial flexibility for industry to plan operations in a profitable and economically efficient manner. This greatly reduces the risk of vessels over-capitalizing and being forced to fish illegally following unexpected quota shortages.
80	**a**	**Y**	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure **that perverse incentives** do not arise.

PI 3.1.4		The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing	
SG	**Issue**	**Met? (Y/P/ N)**	**Justification/Rationale**
			Fishing companies and fish-processing plants can apply for support to the FFA for support to cover annual interest on loans taken up to buy equipment. The current targeted programme for the fisheries sector (2009–2013) is directed towards three main issue areas: shipbuilding, port infrastructure and fish restocking plants. The part of the programme which is to be funded via the federal budget will go towards large infrastructure projects, construction of research and inspection vessels and modernization of restocking plants. The projects aimed at renewal and modernization of the fishing fleet and the processing industry are all to be financed by 'non-budget sources'. The programme does not specify what this means, beyond a sentence mentioning private investors and credit institutions. Both the Russian fisheries authorities and industry organizations have repeatedly called for more state support, including subsidies, for the fisheries sector, but the overall impression is that the Government is not generally in favour of direct subsidies. Despite this, in 2009 the Government introduced a new form of subsidies aimed at fleet renewal and modernization of the processing industry. Starting in 2009, companies which have taken up loans to finance such projects could apply for a 2/3 refund of the annual interest on the loans. The subsidies are aimed at the replacement of old vessels with more cost-effective ones. The FIUN stipulates that one new vessel will replace three old ones, and they present the initiative as a measure to combat overfishing. The number of vessels in the northern fishery basin has steadily declined during the post-Soviet period, from more than 500 in the early 1990s to 200-300 today. According to the BBTA, the total number of vessels registered in Murmansk has gone down from 456 in 2006 to 336 in 2012, of which 283 are fishing vessels. In summary, although some subsidies have been identified, these are mostly in the form of bank loans. For this fleet, they are not thought to contribute to unsustainable fishing. At national level, the management system provides economic and social incentives for sustainable fishing. These include: • Penalties for infringements / non-compliance • New system of quota allocation (enhanced by the adoption of clear harvest control rules) is more stable and more akin to a rights-based system. In particular the guarantee of quota share for a 10-year period increases both certainty and commercial flexibility for industry to plan operations in a profitable and economically efficient manner. This greatly reduces the risk of vessels over-capitalizing and being forced to fish illegally following unexpected quota shortages.
100	**a**	**P**	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and **explicitly considers** incentives in a **regular review** of management policy or procedures to ensure they not contribute to unsustainable fishing practices.

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PI 3.1.4		The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing	
SG	**Issue**	**Met? (Y/P/ N)**	**Justification/Rationale**
			The referred strategy documents show that the management system explicitly considers incentives in a review of management policy or procedures to ensure that they do not contribute to unsustainable fishing practices. However, the management team has not been provided with documentation that this is done regularly. Therefor a partial score is warranted.
References			• Geir Hønneland (2004), Russian Fisheries Management: The Precautionary Approach in Theory and Practice, Leiden and Boston: Martinus Nijhoff. • Geir Hønneland (2012), Making Fishery Agreements Work: Post-Agreement Bargaining in the Barents Sea, Cheltenham & Northampton, MA: Edward Elgar. • Interviews during the site visit. • Anne-Kristin Jørgensen (2009), 'Recent Developments in the Russian Fisheries Sector'. In Wilson Rowe, Elana (ed.), Russia and the North. Ottawa: University of Ottawa Press, pp. 87-106. • Kontseptsia razvitia rybolognogo khozyaystva, Moscow: FFA. • Ekonomicheskoe razvitie otrasli: investitsii i subsidii, Moscow: FFA. • List of registered vessels in Murmansk, provided by the BBTA. • Interviews during site visit.
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

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Evaluation Table: PI 3.2.1

PI 3.2.1		The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2	
SG	**Issue**	**Met? (Y/PN)**	**Justification/Rationale**
60	**a**	**Y**	**Objectives**, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **implicit** within the fishery's management system.
			Well-defined and measurable short- and long-term objectives are explicit in the annual protocols and research programmes of the JNRFC. The Commission uses precautionary reference points established by ICES as the basis for establishment of TACs. In the basic principles of the Commission, defined in 2002, it is stated that the Commission will follow the provisions for a responsible fishery as expressed in the FAO Code of Conduct for Responsible Fisheries. As main management objectives are defined: i) to attain high sustainable catches from exploited stocks in the ecosystems of the Barents and Norwegian seas without decreasing their productivity; ii) to keep exploited stocks within safe biological limits while maintaining the biodiversity and productivity of marine ecosystems; and iii) to ensure sustainable development of the fisheries industry while exploiting the stocks within safe biological limits. The 2010 agreement between Norway and Russia on marine delimitation and cooperation in the Barents Sea explicitly states that fisheries management in the area shall be based on the precautionary approach.
80	**a**	**Y**	**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's management system.
			Well-defined and measurable short- and long-term objectives are explicit in the annual protocols and research programmes of the JNRFC. The Commission uses precautionary reference points established by ICES as the basis for establishment of TACs. In the basic principles of the Commission, defined in 2002, it is stated that the Commission will follow the provisions for a responsible fishery as expressed in the FAO Code of Conduct for Responsible Fisheries. As main management objectives are defined: i) to attain high sustainable catches from exploited stocks in the ecosystems of the Barents and Norwegian seas without decreasing their productivity; ii) to keep exploited stocks within safe biological limits while maintaining the biodiversity and productivity of marine ecosystems; and iii) to ensure sustainable development of the fisheries industry while exploiting the stocks within safe biological limits. The 2010 agreement between Norway and Russia on marine delimitation and cooperation in the Barents Sea explicitly states that fisheries management in the area shall be based on the precautionary approach.
100	**a**	**P**	**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's management system.

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PI 3.2.1		The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2	
SG	**Issue**	**Met? (Y/PN)**	**Justification/Rationale**
			Well-defined and measurable short- and long-term objectives are explicit in the annual protocols and research programmes of the JNRFC. The Commission uses precautionary reference points established by ICES as the basis for establishment of TACs. In the basic principles of the Commission, defined in 2002, it is stated that the Commission will follow the provisions for a responsible fishery as expressed in the FAO Code of Conduct for Responsible Fisheries. As main management objectives are defined: i) to attain high sustainable catches from exploited stocks in the ecosystems of the Barents and Norwegian seas without decreasing their productivity; ii) to keep exploited stocks within safe biological limits while maintaining the biodiversity and productivity of marine ecosystems; and iii) to ensure sustainable development of the fisheries industry while exploiting the stocks within safe biological limits. The 2010 agreement between Norway and Russia on marine delimitation and cooperation in the Barents Sea explicitly states that fisheries management in the area shall be based on the precautionary approach. Among the 'management obligations' listed in the Commission's basic principles is the requirement to apply the precautionary approach and base the Commission's work on the best scientific data available. However, although some P2 objectives are included, these are less well defined and measurable than the P1 objectives. Therefore the 100 performance indicator is not fully met.
References			• Annual Joint Norwegian–Russian Research Programmes for the Barents Sea, attached to the protocols from the annual sessions in the Joint Norwegian–Russian Fisheries Commission • Basic Principles and Criteria for Long-term, Sustainable Management of Living Marine Resources in the Barents and Norwegian Seas, issued by the Joint Norwegian–Russian Fisheries Commission in 2002 • Protocols from sessions in the JNRFC. • Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean, 2010.
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 3.2.2

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	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 in the JNRFC and its Permanent Committee that result in measures and strategies to achieve the fishery-specific objectives. Any potential problem is first raised in direct contact between Norwegian and Russian fishery authority, then possibly referred to further discussion in the Joint Commission, which meets 1-2 a year, or in its Permanent Committee, which meets 3-4 times annually. Decisions by the JNRFC are subsequently implemented in federal and regional fishery regulations in Russia.
	b	**Y**	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.
			The JNRFC is governed by the harvest control rule, which in its formulation and assessment takes into account a range of ecosystem considerations of the mixed nature of the fishery. Furthermore, relevant ICES working group reports include consideration of by-catch, endangered species and effects of fishing gear on habitats, and these are taken into account in decision making.
80	**a**	**Y**	There are **established** decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.

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PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			There are established decision-making processes in the JNRFC and its Permanent Committee that result in measures and strategies to achieve the fishery-specific objectives. Any potential problem is first raised in direct contact between Norwegian and Russian fishery authority, then possibly referred to further discussion in the Joint Commission, which meets 1-2 a year, or in its Permanent Committee, which meets 3-4 times annually. Decisions by the JNRFC are subsequently implemented in federal and regional fishery regulations in Russia.
	b	**Y**	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.
			The JNRFC is governed by the harvest control rule, which in its formulation and assessment takes into account a range of ecosystem considerations of the mixed nature of the fishery. Furthermore, relevant ICES working group reports include consideration of by-catch, endangered species and effects of fishing gear on habitats, and these are taken into account in decision making.
	c	**Y**	Decision-making processes use the precautionary approach and are based on best available information.
			The JNRFC formally states that it uses the precautionary approach (see reference above to the 2002 basic principles of the Commission and the 2010 agreement between Norway and Russia on maritime delimitation and cooperation in the Barents Sea) and bases its management on best available scientific information. ICES have evaluated both the cod and haddock harvest control rules as precautionary.
	d	**Y**	**Explanations** are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
			The protocols from meetings in the JNRFC are distributed within the fishing industry of the two countries and published on the websites of national fisheries management authorities, in Norwegian and Russian, along with press releases further substantiating the decisions.
100	**b**	**N**	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.

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PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			The JNRFC is governed by the harvest control rule, which in its formulation and assessment takes into account a range of ecosystem considerations of the mixed nature of the fishery. Furthermore, relevant ICES working group reports include consideration of by-catch, endangered species and effects of fishing gear on habitats, and these are taken into account in decision making. However, the assessment team has not been provided with documentation that research on P2 issues is sufficiently taken into consideration in order to combat the shortcomings of the management system on this Principle. There is documented evidence in the protocols from JNRFC that P2 issues are not given the same degree of attention as P1 issues within the Commission.
	d	**N**	**Formal reporting** to all interested stakeholders describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
			The protocols from meetings in the JNRFC are distributed within the fishing industry of the two countries and published on the websites of national fisheries management authorities, in Norwegian and Russian, along with press releases further substantiating the decisions. This meets the requirement of providing explanations for action, but stops short of being formal reporting to all interested stakeholders.
References			• Basic Principles and Criteria for Long-term, Sustainable Management of Living Marine Resources in the Barents and Norwegian Seas, issued by the Joint Norwegian–Russian Fisheries Commission in 2002 • Geir Hønneland (2012), Making Fishery Agreements Work: Post-Agreement Bargaining in the Barents Sea, Cheltenham & Northampton, MA: Edward Elgar. • Protocols from sessions in the JNRFC.
OVERALL PERFORMANCE INDICATOR SCORE:			**80**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 3.2.3

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	Monitoring, control and surveillance mechanisms exist are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.
			The vessels undergoing assessment take all their catch in waters subject to Norwegian enforcement, and deliver it outside Russia, either directly to Norwegian ports or through other NEAFC states via trans-shipment to transport vessels at sea. The Norwegian Directorate of Fisheries inspects all landings by Russian vessels in Norwegian ports, while the Norwegian Coast Guard performs spot checks at sea (in the NEZ and the Protection Zone around Svalbard), including inspections at check points that foreign vessels have to pass when entering or leaving the NEZ. Before the NEAFC port state regime was introduced in 2007, the Norwegian Directorate of Fisheries for several years estimated a Russian overfishing in the Barents Sea. The overfishing is now considered to have been eliminated, and the JNRFC in 2009 agreed on a new joint procedure for calculating total catches from the Barents Sea.
	b	**Y**	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.
			Sanctions to deal with non-compliance exist in both Norwegian and Russian fisheries management. The Russian system makes wide use of administrative fines, unlike Norwegian fisheries management. Both systems refer serious cases to the judicial system. According to both Russian and Norwegian enforcement authorities, prosecution of offenders on the Russian side has improved the last few years, the Border Service partly using evidence provided by Norwegian enforcement authorities to go to court. Administrative sanctions on the Russian side include the withdrawal of quota rights in the following situations: i) the company fails to take 50 % of its quota two years in a row; ii) the company has committed two serious violations of the fisheries regulations; iii) the company has failed to go to Russian port with catch taken in the REZ; iv) the vessel has switched off the VMS system for more than 48 hours.
	c	**Y**	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.
			The Norwegian Directorate of Fisheries estimated a Russian overfishing in the Barents Sea after the turn of the millennium, reaching its height at around 100,000 t in the mid-2000s. Since then, through the combined efforts of Norwegian and Russian authorities, and implementation of new measures and regulations by NEAFC, such as port state control, the analysis of estimated IUU landings shows a substantial pattern of improvement.
80	**a**	**Y**	A monitoring, control and surveillance **system** has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			The vessels undergoing assessment take all their catch in waters subject to Norwegian enforcement, and deliver it outside Russia, either directly to Norwegian ports or through other NEAFC states via trans-shipment to transport vessels at sea. The Norwegian Directorate of Fisheries inspects all landings by Russian vessels in Norwegian ports, while the Norwegian Coast Guard performs spot checks at sea (in the NEZ and the Protection Zone around Svalbard), including inspections at check points that foreign vessels have to pass when entering or leaving the NEZ. The FFA in Russia (in the northern basin: the BBTA as the Agency's regional branch) keeps track of how much fish each vessel and company (quotas are given to companies, not vessels in Russia) has fished at any moment, based on daily reports and accumulated reports each 15th day from all fishing vessels, as well as VMS data. When Russian vessels land in other European ports, they are subject to the NEAFC port state control scheme. Fish caught in the REZ is since summer 2009 taken to Murmansk for customs clearance, but is then trans-shipped for export. Before the NEAFC port state regime was introduced in 2007, the Norwegian Directorate of Fisheries for several years estimated a Russian overfishing in the Barents Sea. The overfishing is now considered to have been eliminated, and the JNRFC in 2009 agreed on a new joint procedure for calculating total catches from the Barents Sea.
	b	**Y**	Sanctions to deal with non-compliance exist, **are consistently applied** and thought to provide effective deterrence.
			Sanctions to deal with non-compliance exist in both Norwegian and Russian fisheries management. The Russian system makes wide use of administrative fines, unlike Norwegian fisheries management. Both systems refer serious cases to the judicial system. According to both Russian and Norwegian enforcement authorities, prosecution of offenders on the Russian side has improved the last few years, the Border Service partly using evidence provided by Norwegian enforcement authorities to go to court. Administrative sanctions on the Russian side include the withdrawal of quota rights in the following situations: i) the company fails to take 50 % of its quota two years in a row; ii) the company has committed two serious violations of the fisheries regulations; iii) the company has failed to go to Russian port with catch taken in the REZ; iv) the vessel has switched off the VMS system for more than 48 hours.
	c	**Y**	**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.
			The Norwegian Directorate of Fisheries estimated a Russian overfishing in the Barents Sea after the turn of the millennium, reaching its height at around 100,000 t in the mid-2000s. Since then, through the combined efforts of Norwegian and Russian authorities, and implementation of new measures and regulations by NEAFC, such as port state control, the analysis of estimated IUU landings shows a substantial pattern of improvement. Justifying the claim that some evidence exists that fishers comply with the management system, the client vessels have in recent years been inspected once a month on average and no serious infringements have been discovered. The Russian overfishing in the mid-2000s has been eliminated, and a high stock biomass has been maintained, see PI. 1.1.1.

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
	d	**Y**	There is no evidence of systematic non-compliance.
			It follows from the discussion under the preceding SG that there is no evidence of systematic non-compliance in the Barents Sea fisheries at the moment. The Russian overfishing claimed by Norwegian authorities after 2000 seems to have been eliminated. There is no evidence of the client vessels overfishing their quotas in recent years or of them being engaged in any other kind of systematic IUU fishing. The client vessels have in recent years been inspected once a month on average and no serious infringements have been discovered.
100	**a**	**Y**	A **comprehensive** monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
			The vessels undergoing assessment take all their catch in waters subject to Norwegian enforcement, and deliver it outside Russia, either directly to Norwegian ports or through other NEAFC states via trans-shipment to transport vessels at sea. The Norwegian Directorate of Fisheries inspects all landings by Russian vessels in Norwegian ports, while the Norwegian Coast Guard performs spot checks at sea (in the NEZ and the Protection Zone around Svalbard), including inspections at check points that foreign vessels have to pass when entering or leaving the NEZ. The FFA in Russia (in the northern basin: the BBTA as the Agency's regional branch) keeps track of how much fish each vessel and company (quotas are given to companies, not vessels in Russia) has fished at any moment, based on daily reports and accumulated reports each 15th day from all fishing vessels, as well as VMS data. When Russian vessels land in other European ports, they are subject to the NEAFC port state control scheme. Fish caught in the REZ is since summer 2009 taken to Murmansk for customs clearance, but is then trans-shipped for export. Before the NEAFC port state regime was introduced in 2007, the Norwegian Directorate of Fisheries for several years estimated a Russian overfishing in the Barents Sea. The overfishing is now considered to have been eliminated, and the JNRFC in 2009 agreed on a new joint procedure for calculating total catches from the Barents Sea. At company level, the client has introduced a mixture of self-imposed restrictions and reactions to violations in order to encourage compliance among its captains. They have a policy of using 140-145 mm mesh size in trawl nets (130 mm required). Captains would immediately be fired if they were caught in a serious violation of fisheries regulations. The company also deliberately pays all its staff a decent salary in order to reduce any possible inclination to cheat.
	b	**Y**	Sanctions to deal with non-compliance exist, are consistently applied and **demonstrably** provide effective deterrence.
			Sanctions to deal with non-compliance exist in both Norwegian and Russian fisheries management. The Russian system makes wide use of administrative fines, unlike Norwegian fisheries management. Both systems refer serious cases to the judicial system. According to both Russian and Norwegian enforcement authorities, prosecution of offenders on the Russian side has improved the last few years, the Border Service partly using evidence provided by Norwegian enforcement authorities to go to court.

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PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
			Sanctions also exist at company level with the client (see SI 100 a) above). Norwegian inspection and violation statistics indicate that sanctions demonstrably provide effective deterrence. Administrative sanctions on the Russian side include the withdrawal of quota rights in the following situations: i) the company fails to take 50 % of its quota two years in a row; ii) the company has committed two serious violations of the fisheries regulations; iii) the company has failed to go to Russian port with catch taken in the REZ; iv) the vessel has switched off the VMS system for more than 48 hours.
	c	**Y**	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.
			While the level of compliance among the vessels undergoing assessment is high (see SG80 above), the assessment team has not been provided with evidence that this is the case for the fishery at large. Therefore, the team cannot conclude with a high degree of confidence that this is the case.
References			• Follow-up document to the Report from the Parallel review of the Barents Sea Fisheries by the Norwegian and Russian Auditor Generals (Document nr. 3:2 (2007–2008) from the Norwegian Auditor General), the Norwegian Auditor General, September 2009. • Geir Hønneland (2012), Making Fishery Agreements Work: Post-Agreement Bargaining in the Barents Sea, Cheltenham & Northampton, MA: Edward Elgar. • Interviews during the site visit • List of inspections of the vessels undergoing assessment from 2010 to mid-2012, provided by the Client. • Protocols from sessions in the JNRFC. • Report from the Parallel review of the Barents Sea Fisheries by the Norwegian and Russian Auditor Generals (Document nr. 3:2 (2007–2008) from the Norwegian Auditor General) • Olav Schram Stokke (2009), 'Trade Measures and the Combat of IUU Fishing: Institutional Interplay and Effective Governance in the Northeast Atlantic', Marine Policy 33: 339–349.
OVERALL PERFORMANCE INDICATOR SCORE:			**100**
CONDITION NUMBER (if relevant):			

Evaluation Table: PI 3.2.4

PI 3.2.4		The fishery has a research plan that addresses the information needs of management	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	**Research** is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.
			The JNRFC produces annual research plans and long-term research strategies, sufficient to achieve the objectives consistent with MSC Principles 1 and 2. This degree of strategic planning of research appears to go beyond the approach of ICES. Given ICES' pivotal role in these fisheries, it is also important to consider their approach to research planning. ICES strategically establishes study groups based on information requirements identified by national delegates, including through industrial representations. Members of various ICES Working Groups focused on such elements as climate change, plankton, multi-species fisheries (ecosystem), etc. All review research, identify research requirements and undertake appropriate work. There is good communication between Working Groups (via ACOM), and between researchers through their specialist interests. Research / investigation is undertaken in relation to specific requirements, which generally come from the recommendations of the Stock Assessment Working Group. Members of the ICES community keep abreast of developments within the scientific community of relevance to the fishery under consideration. Research contracts are left to other organizations, including universities, to supplement scientific understanding relevant to the fishery and related ecosystem. In Russia, PINRO plays a key role in the work of ICES, and is the formal representative of Russia on ICES working groups and, as such, contributes significant resources and expertise to relevant research. For example, a number of key ICES working / study group have particular bearing on the fishery under assessment. These include (but are not limited to): • AFWG – Arctic Fisheries Working Group • WGRED – Working Group for Regional Ecosystem Description Research direction is steered by the money available. Typically it is easier to get national research funding for national projects. As a result many projects are undertaken by national scientific institutes using national fleets. The findings of these studies contribute to ICES findings.
	b	**Y**	Research results are **available** to interested parties.
			The JNRFC research plan and research results are publicly available on the internet. The annual reports of ICES working groups and study groups are publically available on the ICES website. In addition they are disseminated to interested parties – in particular, they are disseminated to decision-makers in time for annual fishery allocation negotiations.
80	**a**	**Y**	A **research plan** provides the management system with a strategic approach to research and **reliable and timely information** sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
			The JNRFC produces annual research plans and long-term research strategies, sufficient to achieve the objectives consistent with MSC Principles 1 and 2. This degree of strategic planning of research appears to go beyond the approach of ICES. Given ICES' pivotal role in these fisheries, it is also important to consider their approach to research planning. ICES

			strategically establishes study groups based on information requirements identified by national delegates, including through industrial representations. Members of various ICES Working Groups focused on such elements as climate change, plankton, multi-species fisheries (ecosystem), etc. All review research, identify research requirements and undertake appropriate work. There is good communication between Working Groups (via ACOM), and between researchers through their specialist interests. Research / investigation is undertaken in relation to specific requirements, which generally come from the recommendations of the Stock Assessment Working Group. Members of the ICES community keep abreast of developments within the scientific community of relevance to the fishery under consideration. Research contracts are left to other organizations, including universities, to supplement scientific understanding relevant to the fishery and related ecosystem. In Russia, PINRO plays a key role in the work of ICES, and is the formal representative of Russia on ICES working groups and, as such, contributes significant resources and expertise to relevant research. For example, a number of key ICES working / study group have particular bearing on the fishery under assessment. These include (but are not limited to): • AFWG – Arctic Fisheries Working Group • WGRED – Working Group for Regional Ecosystem Description Research direction is steered by the money available. Typically it is easier to get national research funding for national projects. As a result many projects are undertaken by national scientific institutes using national fleets. The findings of these studies contribute to ICES findings. Taken in combination it can be concluded there is therefore a strategic approach which delivers reliable and timely information.
	b	**Y**	Research results are **disseminated** to all interested parties in a **timely** fashion.
			The JNRFC research plan and research results are disseminated to all interested partied in a timely fashion and are widely and publicly available on the internet. The annual reports of ICES working groups and study groups are publically available on the ICES website. In addition they are disseminated to interested parties in a timely fashion – in particular they are disseminated to decision-makers in time for annual fishery allocation negotiations.
100	**a**	**N**	A **comprehensive research plan** provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and **reliable and timely information** sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
			The JNRFC produces annual research plans and long-term research strategies, sufficient to achieve the objectives consistent with MSC P1 and P2 (see SG80 for this SI above), but not for P3. The same goes for ICES research plans.
	b	**N**	Research **plan** and results are **disseminated** to all interested parties in a **timely** fashion and are **widely and publicly available**.
			The JNRFC research plan and research results are disseminated to all interested partied in a timely fashion and are widely and publicly available on the internet. The annual reports of ICES working groups and study groups are publically available on the ICES website. In addition they are disseminated to interested parties in a timely fashion – in particular they are disseminated to decision-makers in time for annual fishery allocation negotiations. However, this stops short of being widely and publically

			available, as the results are not presented in an accessible form (easy to find), to enable all interested parties (including the public/consumers) to quickly interpret the findings – without significant prior knowledge or expertise. Nor does the JNRFC website contain links to ICES reports.	
References			• Interviews during the site visit. • Protocols from the sessions of the JNRFC. • Protocols from the AFWG and the WGRED	
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
CONDITION NUMBER (if relevant):				

Evaluation Table: PI 3.2.5

PI 3.2.5		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	
SG	**Issue**	**Met? (Y/N)**	**Justification/Rationale**
60	**a**	**Y**	The fishery has in place mechanisms to evaluate **some** parts of the management system.
			Internal review of the management system is performed by the fishery councils at different levels and by the FFA in Russia, which in turn reports to the 1st Deputy Prime Minister, responsible for fisheries management in the Russian Government. The FFA can also report to the President about its activities. In the FFA, 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. Regular external review is performed by the Russian Auditor General. The latter in 2005 invited its Norwegian counterpart to conduct a parallel audit of the Barents Sea fisheries. After this work was finished in 2007, the two parties continue to monitor developments in follow-up meetings.
	b	**Y**	The fishery-specific management system is subject to **occasional internal** review.
			Internal review of the fishery-specific management system is performed by the fishery councils at basin and regional levels in Russia, as well as by the FFA.
80	**a**	**Y**	The fishery has in place mechanisms to evaluate **key** parts of the management system
			Internal review of the management system is performed by the fishery councils at different levels and by the FFA in Russia, which in turn reports to the 1st Deputy Prime Minister, responsible for fisheries management in the Russian Government. The FFA can also report to the President about its activities. In the FFA, 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.
	b	**Y**	The fishery-specific management system is subject to **regular internal** and **occasional external** review.
			Regular internal review of the fishery-specific management system is performed by the fishery councils at basin and regional levels in Russia. In addition, the fishery-specific management system is subject to various forms of review by ICES, in addition to the parallel audits performed by the Norwegian and Russian Auditors General, mentioned above. For instance, ICES has reviewed the harvest control rules for cod and haddock. There is a comprehensive system of routine monitoring of information relevant for management decision making and stock assessment purposes, although not of the management system as such.
100	**a**	**N**	The fishery has in place mechanisms to evaluate **all** parts of the management system.
			The fishery has in place mechanisms at bilateral, national and regional levels to evaluate key parts of the management system, as outlined above. However, the assessment team has not been provided with evidence that there are mechanisms to evaluate <u>all</u> parts of the management system, especially at national, basin and regional levels in Russia.

	b	**N**	The fishery-specific management system is subject to **regular internal and external review.**
			Regular internal review of the fishery-specific management system is performed by the fishery councils at basin and regional levels in Russia. Regular review of the Russian system for fisheries management is performed by the Russian Auditor General. The assessment team has not, however, been provided with evidence that this includes regular review of the fishery-specific management system. ICES review measures of the management system per se also stop short of regular external review.
References			• Federal Fisheries Act of the Russian Federation, 2004. • Interviews during the site visit. • Report from the Parallel review of the Barents Sea Fisheries by the Norwegian and Russian Auditor Generals (Document nr. 3:2 (2007–2008) from the Norwegian Auditor General). • Reports from the AFWG.
OVERALL PERFORMANCE INDICATOR SCORE:			**80**
CONDITION NUMBER (if relevant):			

Appendix 1.2 Conditions

The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 80 against any MSC Criteria. Neither conditions, nor client action plan are therefore required prior to certification being granted.

Recommendation 1.

Performance Indicator 2.4.2	**There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.**
Score	80
Rationale	Bottom trawl gear has the potential to cause habitat damage. Though the available information suggests that this is 'highly unlikely' in this fishery, due mainly to the way in which the fishery operates, management and mitigation efforts should be tailored accordingly.
Recommendation	There are a number of potential approaches to further reduce the likelihood of serious or irreversible harm to habitats, and the client is encouraged to actively pursue: » the possibility to switch to lighter / less impacting fishing gears, such as semi-pelagic gears for targeting demersal species or other models of trawls/parts of gear which can reduce the impact on benthos. » collect information on fishing patterns relative to habitat areas to help explore potential for further strategic closed areas – or fishing areas where lighter gears are possible. » continue using the navigation systems in order to completely avoid areas with sponges and corals.

Recommendation 2

Performance Indicator 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**
Score	90
Rationale	The consultation process provides opportunity for all interested and affected parties to be involved; cf. information on the public chambers at different levels in a) and b) of this SG. Meetings are publicly announced and all interested parties can attend, including NGOs and the media. However, this stops short of management authorities encouraging and actively facilitating their effective engagement.
Recommendation	The client shall facilitate the communication between NGOs and organisations involved in the fishery management system.

Recommendation 3

Performance	**PI 2.2.3**

Indicators **2.2.3** **2.3.3** **2.4.3**	Information on the nature and the amount of by-catch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage by-catch. **PI 2.3.3** Relevant information is collected to support the management of fishery 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. **PI 2.4.3** Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.
Score	2.2.3: 90 2.3.3: 80 2.4.3: 90
Rationale	The vessels currently in the UoC have previously completed MSC logbooks under another Certificate, in which information on catches of ETP species, discarded by catch and other indicators of interactions with benthos and habitat is recorded that is not found in skippers' logbooks or landings declarations. This information is important when environmental and ecosystem impacts are being evaluated.
Recommendation	The client shall continue to use or implement the use of MSC logbooks, specifically to collect information on ETP species, discards and habitat interactions.

APPENDIX 2. PEER REVIEW REPORTS

The report includes the unattributed reports of the peer reviewers in full using the 'MSC peer review template' available on the MSC website forms and templates page (http://www.msc.org/documents/scheme-documents/forms-and-templates) and responses of the assessment team.

PEER REVIEW A REPORT

Overall Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	**Yes**	**Conformity Assessment Body Response**
Justification: The overall report is very comprehensive and adequate and supports the final conclusion.		

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?	**N/A**	**Conformity Assessment Body Response**
Justification: No conditions have been raised.		

If included:

Do you think the client action plan is sufficient to close the conditions raised?	**N/A**	**Conformity Assessment Body Response**
Justification: No conditions have been raised and thus no client action plan is required.		

General Comments on the Assessment Report (optional)

It is a very well written report. The information is presented clearly, both in the body of the report as in the scoring tables. The comprehensive information provided in most occasions supports the marks given. The result is that there are only a few comments given in the following table.

MSC FISHERY ASSESSMENT REPORT

Performance Indicator Review

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
P1 Cod /Haddock	P1 Cod /Haddock	P1 Cod /Haddock	P1 Cod /Haddock		
1.1.1	Yes/Yes	Yes/Yes	NA/NA		
1.1.2	Yes/Yes	Yes/Yes	NA/NA		
1.1.3	Yes/Yes	Yes/Yes	NA/NA		
1.2.1	Yes/Yes	Yes/Yes	NA/NA		
1.2.2	Yes/Yes	Yes/Yes	NA/NA		
1.2.3	Yes/Yes	Yes/Yes	NA/NA		
1.2.4	Yes/Yes	Yes/Yes	NA/NA		

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.1.1	Yes	No	NA	The reasoning behind the scoring is not completely clear from the rationale. In the body of the report it is stated that saithe might not be considered a main retained species since the proportion of the catch is less than 5 %. It is not made clear in the rationale why saithe is still considered as a main retained sepcies. If saithe is not particularly vulnerable it could be argued that is not a main retained species. For the other retained species it is stated that percentages are low but no clear justification (considering vulnerability and quantities caught) why they are not to be considered main retained species is provided. (Rationale should also be provided for SG 60b, SG60c and SG80c and they can then be marked with Y)	Point taken. The comments against 2.1.1 in the scoring table have been amended to indicate that only cod and haddock are main retained species (where haddock and cod are MSC target species respectively). With the exception of golden redfish (which is dealt with under ETP species), abundance indices for the other retained species suggest stable or increasing stock biomass, which is why they are not considered to be main retained species. Marks checked accordingly.

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.1.2	Yes	No	NA	As is concluded in the rational for SG100a the measures that are in place can be considered as a partial strategy. They are not specifically designed to manage impact on retained species. Thus they do not form a strategy but as is stated correctly a partial strategy. The SG100a is not met. Consequently also SG100c is also not met and the overal score should be 80 instead of 90.	This issue has come into clearer focus during harmonisation with another Barents Sea fishery (which was not scored at the time of publication of the PR report), and we now consider that there is a clear strategy for managing retained species (considering golden redfish as ETP) which is achieving its objective. Scoringcomments amended accordingly (NB, median 2.1.2 score for for all similar fisheres is 90).
2.1.3	Yes	Yes	NA	Here it is clearly stated that the only main retained species is saithe.	We now recognise that cod and haddock are the only retained spp.
2.2.1	Yes	Yes	NA		
2.2.2	Yes	Yes	NA		

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.2.3	Yes	No	NA	The score seems rather high when the level of available data on discarded species is considered. The information collected throught the MSC logbooks seems enough to meet SG80d but insufficient to conclude that the information is "a**ccurate and verifiable on the amount of all by-catchand the consequences for the status of affected populations".**	All information available, from MSC logbooks, observer programmes, skippers and stakeholders indicate that dioscarding is negligible and has no consequence for the status of potentially affected populations, and the text has been amended to make this clear.
2.3.1	Yes	Yes	NA	The rationale of SG100a refers to SG80a. Probably SG80b is meant.	Text amended as necessary.
2.3.2	Yes	Yes	NA		
2.3.3	Yes	Yes	NA		
2.4.1	Yes	Yes	NA		

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.4.2	Yes	Yes	NA		
2.4.3	Yes	No	NA	As is stated under PI 2.4.1 SG100a the data from the MSC logbooks are currently insufficient evidence as to the frequency and nature of encounters between the fleet and different benthic habitats. This suggest that more information on the spatial extent of interaction is needed and that SG80b is not fully met. It seems therefore necessary to (continue to) collect data on interactions with vulnerable benthic habitats and to require the client to do so with a condition attached to this PI.	Through harmonisation, it is clear that information on the spatial activity of the UoCs and from ecosystem surveys is sufficient to measure the extent of interactions and any changes in habitat distributions over time. Nevertheless, it is intended to give a recommendation to continue keeping MSC log-books and record signs of benthic interactions.
2.5.1	Yes	Yes	NA		

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.5.2	Yes	No	NA	The rational for SG100b states that there are some gaps in the implementation of measures with regards to benthic habitat. Therefore it is difficult to justify under SG100c that the measures are considered likely to work and under SG100d that they have been implemented succesfully. These scoring issues can not be met and the score is to high.	Agreed for 100c, and text and score amended accordingly. However, there is good evidence that the measures have been implements successfully, but the lack of clearly elaborated environmental objectives does not allow their effectiveness to be adequately evaluated.
2.5.3	Yes	Yes/No	NA	Considering the fact that there are some gaps in the knowledge on the interactions with benthic habitats it could be argued that SG100a is not met.	The amended text at 2.4.3 shows that sufficient data are collected to detect any increase in risk level (vessel activity, ecosystem surveys etc.).
3.1.1	Yes	Yes	NA		
3.1.2	Yes	Yes	NA		

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
3.1.3	Yes	Yes	NA		
3.1.4	Yes	No	NA	To award a score of 100 all aspects of the SG100 scoring issue should be met. Therefore the rational should also consider whether the management system "explicitly considers incentives in a regular review of management policy or procedures to ensure they not contribute to unsustainable fishing practices". A partial score is permitted here since there is only one scoring issue.	The team agrees with this comment and has reduced the score accordingly and provided justification for this in the scoring table.
3.2.1	Yes	Yes	NA		
3.2.2	Yes	Yes	NA		

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
3.2.3	Yes	Yes	NA		
3.2.4	Yes	Yes	NA		
3.2.5	Yes	Yes	NA		

Any Other Comments

Comments	Conformity Assessment Body Response
The report refers to a MSC logbook. This is somewhat confusing for a fishery under assessment. Although it can be inferred that this MSC logbook is kept because the UoC vessels have been part of a another previously assessed UoC this is not explained in the body of the report. It is thus not clear whether the keeping of this logbook will continue to be a requirement. It seems therefore more logical to attach a Condition to Component 2.4. so that the client is continuously obliged to collect information on discards and habitat interactions. See further comments below.	See comment against 2.4.3 above. An appropriate recommendation has been included

MSC FISHERY ASSESSMENT REPORT

PEER REVIEW B REPORT

Overall Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	Yes	Conformity Assessment Body Response
Justification: I have examined the report and the Scoring and Rationales table in detail and made appropriate comments below. I concur with all but a small number of the scores which, if amended as suggested, will not significantly affect the overall scores and the recommendation to certify this fishery.		

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?	N/A	Conformity Assessment Body Response
Justification: **No conditions raised**		

If included:

Do you think the client action plan is sufficient to close the conditions raised?	Yes/No	Conformity Assessment Body Response
Justification: ***NA***		

Comments on the Assessment Report (optional)

My review is based on a reading of the Peer Review Report. I have made no attempt to access or peruse the extensive list of publications cited by the assessment team.

This is a very competent and comprehensive assessment of the Russian Federation Barents Sea Cod and Haddock 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 was particularly impressed with the large number of references quoted, and consequently the high standard of detail throughout the report. I concur with the majority of comments and scoring in the Report. Any modifications to the scoring as a result of my review will not affect the overall conclusion to certify this fishery, which I fully support.

Report issues and concerns and major text edits requiring attention. Most of the issues and concerns here relate to the text section of the Report, as comments on scoring are covered in the Performance Indicator Review below. [The issues and concerns are high-lighted and numbered (Comment DBxx – to help the assessors locate the relevant places in the Report) in an electronic copy of the Report sent to Det Norske Veritas AS, together with some minor edits not listed here.]

1. See1.4.2. Weaknesses. (Comment DB3).

   The weaknesses could be expanded to include:-

   a. There should have been some mention here of the caveats attached to the cod stock assessment (see 3.3.1.2),see the bullet points after Figure 16, e.g. no S&R relationship, limited tuning data, IUU 2003-8 still influencing the stock assessment.
   b. The same applies for haddock - see 3.3.2.2 the bullet points after Figure 22.

Assessment team response: two additional bullet points are added under 'Weaknesses' in the text of the report

2. See 1.6. Conditions for certification and time-scale for compliance (Comment DB4) and 6.2 Summary of Conditions.

   The lack of recording of bird and mammal interactions (a main weakness listed at 1.4.2) is not addressed with a recommendation? The one recommendation relevant to 3.1.2 (management communication) is not even listed as a weakness. Add a recommendation regarding recording of bird and mammal interactions and list Recommendation 1 as a weakness in 1.4.2.

The point about continued ETP (and by catch) recording in MSC logbooks was picked up by both peer reviewers, with which we agree. A recommendation (R2) has been included in the report. R1 is added under the weakness list.

   Consideration needs to be given as to whether further recommendations should be made to address the weaknesses identified for the cod stock assessment (see 3.3.1.2), see the bullet points after Figure 16, e.g. no S&R relationship, limited tuning data, IUU 2003-8 still influencing the stock assessment. The same applies for haddock - see 3.3.2.2 bullet points after Figure 22. These issues may be outwith the ability of the clients to tackle, other than in their stakeholder consultations with the relevant authorities dealing with data recording and research.

Assessment team response: This is now addressed under the stock assessment scoring comments PI 1.2.4 and the score is reduced to 95 for cod and 90 for haddock.

3. See 3.1.3 Unit of Certification & Figure 1. (Comment DB5).
   The definition of the geographical area of the unit of certification is not clearly shown in Figure 1. Is the UoC only ICES I and II? Why is FAO 27 mentioned; it is not shown in Figure 1?Is FAO 27 the same as ICES I & II? Figure 1 is not mentioned in the text.

Assessment team response: the reference to Figure 1 is added.

4. See 3.2.4.1 Overview of the Fishery. (Comment DB9).
   There are no details of the sorting grids, e.g. size, function, effectiveness, etc.

Text has been added about the sorting grids and their function, which are clearly effective in terms of reducing by catch of small fish and benthos.

5. Whole Report. (Comment DB10). Need to check whole report to make sure "landings" are used, not "catch" when it is only landings. (I know TACs are not catch (yet) and CPUE is usually actually LPUE.)

Assessment team response: amended accordingly.

6. Whole Report. (Comment DB11 & 36). It is not clear if there is a ban on cod discards. Not mentioned in 3.2.4.1.Barents Sea Cod (North East Arctic Cod) Fishery, but is mentioned in 3.4.3. Discarding (of target fish species). Needs an explicit statement early on in the report.

Assessment team response: There is a ban on discarding per se and this is made very clear under 3.4.3

7. Whole Report. (Comment 13 & several others). The Report was updated with the latest ICES 2013 Arctic Fisheries Working Group (AFWG) which met from 18 – 24 April 2013 (see .3.3.2.3. Fisheries management plan and annual advice. Addendum (September 2013).

Assessment team response: See comments below.

As a consequence the current haddock F(2012) = 0.56has been added, and this is well above Fmsy/MP and Fpa, placing a potentially different view on the current state of haddock exploitation.. However, due cognizance of this fact has not been incorporated into various places in the Report where its significance is relevant. For example: 1.4.1. first bullet point; Figure 8 and the paragraph between Figures 7 & 8; the paragraph after Figure 20; 3.3.2.3. last paragraph ("Conclusion"); Haddock Evaluation Table :- PI 1.1.1. (Comment DB67); PI 1.1.2. 60a&b, 80b, & 100b (Comments DB31, 69, 70, 71, & 72); PI 1.2.2. 80a & 100c (Comment DB76).

"ICES recognise that this is a function of the harvest control rule 25% limit on TAC change when the stock is above Bpa. The situation is expected to continue in 2013 and 2014 because of the three very large year classes in the stock." It may be that one can conclude that there is no cause for concern about the increased level of fishing mortality.
This issue needs to be addressed and dealt with in the relevant sections of the Report.

Assessment team response: As stated in the report this was an addenedum included to update the report, for information only and was not a part of the site meeting discussion or scoring procedures. Nevertheless the Principle 1 expert did look carefully at the new information and reasonably concluded that it would not have significantly affected either the scoring comments or the scores for Principle 1.

8. See 3.3.1.2. Cod Stock status and stock assessment. (Comment DB18).

I am surprised that the cod assessment only uses one tuning index (CPUE), while the haddock assessment has four indices in use. Why? Explain as it is important in comparison with haddock. This crops up in several places in the Report, e.g. Comments DB21, 24, 52, 53, 62, 63, & 64. Why did ICES decide to only use the CPUE data and not use the survey results? What is wrong with the surveys? Was it just the choice of age range 9-11yrs? [It is a long time ago that I tuned an XSA so the fact that only one index was used may, or may not, be significant!]

Assessment team response: This is a misunderstanding and the text has been amended to clarify the fact that all four tuning indices were used for cod as well.

9. (Comment DB20). There is no mention anywhere in the Report of possible error ranges in the assessment results. Did ICES address this issue?

Assessment team response: Error ranges are an integral part of some ICES assessment methods, in particular the new State Space Model (SAM) used for some pelagic assessments *which provide 95% confidence intervals (CI) on the assessment*. However this assessment model does not provide a similar output.

10. See 3.3.2.2. Haddock Stock status and stock assessment. Comment DB25). There is a question about the interpretation of the "recent" trend in fishing mortality (Figure 8). It is not "generally below" Fmsy/MP since 1993; it has been above more times than below. Same since 2003, but it depends on what is meant by "recent years". Also Figure 8 lacks the latest 2013 update to F (see 7. above).

Assessment team response: The text was amended to clarify the issue **of** fishing mortality trends. None of the Figures have been updated to 2013 as these data did not form a part of this assessment process, it is only a post site and scoring meeting addendum for information.

11. 3.3.2.3. Haddock Fisheries Management plan and annual advice. (Comment DB29). Quote: "It is accepted that under certain circumstances the HCR, and in particular the restriction on changes in the TAC to +/- 25% when the stock is above Bpa, may lead to an advisory TAC which would generate a fishing mortality substantially higher than Fmsy. This has occurred in 2013 due mainly to the three very large recruitments, as three year olds, in 2007, 2008 followed by average or below average recruitment (ICES, 2012a)"

    Does this call into question the suitability of the current haddock (and cod?) harvest control rules (HCR)?

Assessment team response: Assessment team refers to the status of the addendum related to the 2013 AFWG report. It is also quite clear that this is recognized by ICES ACFM as a potential problem which they carefully monitor and consider in their advice.

12. See 3.4.4.1. Seabirds. (Comment DB39). In 1.4.2. Quote "no statutory requirement from the Norwegian and Russian authorities for vessels to record interactions (fatal or otherwise) with seabirds or marine mammals. Thus, reliable records of contact and potential impact on ETP species are not available."

This is considered a major weakness in fully meeting the MSC Principles and Criteria for Sustainable Fisheries, yet this weakness is not made explicit in this section (3.4.4.1).

The text has been amended to point out that MSC logbooks are used to record such interactions, but there is no systematic collation of these data at a national level. We say ”main” weakness, however, and do not consider this to be a **major** weakness in terms of scoring the fishery.

MSC FISHERY ASSESSMENT REPORT

Performance Indicator Review

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
1.1.1 Cod	Yes	Yes	NA	This stock is well assessed and SSB is currently well above reference points (Blim, Bpa, Bmsy, and Btrigger).	HADDOCK: Pi 1.1.1 is mainly targeted at the statuis of the stock in relation to biomass the likellihood of SSB falling to a point where recruitment would be impaired. Clearly this is not the case as SSB is currently over 3 times the MSY trigger level and 5 times the biomass limit level set ata point where recruitment might be impaired. However I have taken your point and as F is noted in the reference point list I have added a comment under 100b and reduced the score to 90.
Haddock	No	Maybe No	NA	F(2012) is well above Fmsy/MP and Fpa! There is no reference to this in the PI 100b text. Should there be concerns about this high F, and would this reduce the score to 95 or90?	

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
1.1.2 Cod Haddock	Yes Yes	Yes Yes	NA NA	Blim is set appropriately, and Bmsy and Fmsy are addressed in the management plan and harvest control rules. The PI comments given support this score.	
1.1.3 Cod & Haddock	NA	NA	NA	NA	

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
1.2.1 Cod Haddock	Probably – see justification note No – recent and future trends in F not discussed	Possibly No	NA NA	The PI comments given support this score. However, it is surprising to see in the cod harmonisation table that this score is at the top of the scoring range, and is well above the 75 scored by the Barents Sea Cod (Ocean Trawlers) assessment. The current client fleet were part of the Ocean Trawlers group. It is not clear why this scoring discrepency has arisen. Some explanation is required, beyond the note given in the harmonisation table. F is above Fmsy/MP and Fpa in 2012, and likely to remain so (ICES 2013).(see 3.3.2.3 Addendum 2013)."ICES recognise that this is a function of the harvest control rule 25% limit on TAC change when the stock is above Bpa. The situation is expected to continue in 2013 and 2014 because of the three very large year classes in the stock." So can we conclude that there is no cause for concern, or should this score be lowered?	COD: Ocean trawlers assessment was carried out in 2008 /2009. Since then the 'three year rule' in the manmagement plan has been further evaluated and amended by the JNRFC in 2009 and endorsed by ICES as consistent with the precautionary approach. The Faroese fishery assessment (2012), also scored 100 for this PI. HADDOCK: Because of the high SSB there is no cause for concern at present regading the high F. Nevertheless we note your view that the current HCR has no provision to constrain F at times of very highh SSB. We have added a comment to this effect under 100a and reduced the score to 95.

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
1.2.2 Cod Haddock	No	Possibly – see justification note No	NA	Has account been taken of all the relevant assessment uncertainties listed at the end of 3.3.2.2? If not, is the 100 score still justified? These uncertainties knocked the haddock PI 1.2.3 100b score down to 90. Additional and more detailed uncertainties are mentioned in 1.2.4 100c – to quote "It is a unique feature of this assessment that predation on haddock by cod is incorporated into the estimates of total mortality in the assessment. However the working group notes that there is uncertainty related to these estimates. Sampling error both on the catch data and on surveys affects the precision of the estimates of catch at age. The problem is exacerbated by a notable decrease in scientific sampling levels both by Russia and Norway." A re-assessment of the 100 score needs to be done.	COD: These uncertainties relate mainly to the stock assessment process and are addressed under PI 1.2.4 where we have taken into account your comments and reduced the score for that PI HADDOCK: As above - these uncertainties in mainly in relation to the stock assesment and are addressed under PI 1.2.4 where we have taken into account your comments and reduced the score for that PI

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
1.2.3 Cod Haddock	Probably – see justification note	Probably – see justification note	NA NA	In the recent ICES assessments only the CPUE has been used to tune the stock assessment. The PI 100a still mentions "The stock assessment is supported by three fishery independent surveys, two bottom trawl and one acoustic survey and by a Russian commercial trawl CPUE index." Has the recent tuning proceedure been taken account of in the 90 score given? The PI comments given support this score. However, it is surprising to see in the haddock harminisation table that this score is well above the 75 scored by the Barents Sea Cod (Ocean Trawlers) assessment. The current client fleet were part of the Ocean Trawlers group. It is not clear why this scoring discrepency has arisen. Some explanation is required, beyond the note given in the harmonisation table.	COD: As explained in response to general comments above, this is a misunderstanding and we have modified the text to make it clear that all four indices are currently used in the assessment. HADDOCK: The Ocean trawlers assessment was carried out in 2009/2010 (Certified 2010). This assessment score of 90 for this PI is in line with the other assessments carried out since 2009 and reflects the current situation regarding the availability of information in suport of the harvest strategy .

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
1.2.4 Cod Haddock	Yes Yes	No Yes	NA NA	Bearing in mind the uncertainties listed, and that the tuning is now done by a single CPUE series and not in conjunction with the independent surveys, a score of 100 is not justified? The PI comments given support this score.	COD: The misunderstanding over the use of the available tuning indices in the stock assessment was a misunderstanding which has already been addressed .under general comments and at 1.2.3 above.
2.1.1 Cod & Haddock	Yes	Yes	NA		

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.1.2Cod & Haddock	Yes	No	NA	PI 100a refers to a "partial strategy". This is a =80 <100 score guidline.	This issue has come into clearer focus during harmonisation with another Barents Sea fishery (which was not scored at the time of publication of the PR report), and we now consider that there is a clear strategy for managing retained species (considering golden redfish as ETP) which is achieving its objective. Scoring comments amended accordingly (NB, median 2.1.2 score for for all similar fisheres is 90).
2.1.3Cod & Haddock	Yes	Maybe	NA		We now recognise that cod and haddock are the only retained spp, and SG80 is therefore met.
2.2.1Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.2.2Cod & Haddock	Yes	Yes	NA		
2.2.3Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	
2.3.1Cod & Haddock	Yes	Maybe	NA	The PI 80b is at variance with the weakness given in 1.4.2 Quote :"…..at present no statutory requirement from the Norwegian and Russian authorities for vessels to record interactions (fatal or otherwise) with seabirds or marine mammals. Thus, reliable records of contact and potential impact on ETP species are not available. " Maybe a score of 85 would be more appropriate.	The terxt has been amended appropriately, but we still consider a score of 90 to be justified.

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.3.2Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	
2.3.3Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	
2.4.1Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	
2.4.2Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	
2.4.3Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	
2.5.1 Cod & Haddock	Yes	Yes	NA	I feel uneasy about such a high score, but the SG 100a comments seem to support the score of 100.	

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
2.5.2 Cod & Haddock	Yes	Maybe	NA	PI 100c says "Though it could be argued that existing measures relating to protection of seabed communities are inadequate, environmental objectives in terms of population status (e.g. safe biological limits for fish) are not sufficiently elaborated to evaluate their effectiveness in quantitative terms." So 100c could be a No. In which case the score could be 90.	The text has been amended appropriately, but we still consider a score of 95 to be justified.
2.5.3 Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	
3.1.1 Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
3.1.2 Cod & Haddock	Yes	Yes	NA	The report's comments in the haddock harmonisation table are relevant and appropriate. The recommendation is noted.	
3.1.3 Cod & Haddock	Yes	Yes	NA	The report's comments in the haddock harmonisation table are relevant and appropriate.	
3.1.4 Cod & Haddock	Yes	Yes	NA	The PI comments given support this score.	
3.2.1 Cod & Haddock	Yes	Yes	NA		
3.2.2 Cod & Haddock	Yes	Probably	NA	Could be a little higher as all the PIs at 80 are met, and there are some positive indications at 100.	The team maintains a score of 80 here since the SG100 requirements are not met for any of the two scoring issues. See scoring table for justification.

MSC FISHERY ASSESSMENT REPORT

Performance Indicator	Has all the relevant information available 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.	Conformity Assessment Body Response
3.2.3 Cod & Haddock	Yes	Yes	NA		
3.2.4 Cod & Haddock	Yes	Yes	NA		
3.2.5 Cod & Haddock	Yes	Yes	NA		

Any Other Comments

Comments	Conformity Assessment Body Response
As in most reviews the PI 1 scoring was the most difficult to resolve. This is not a reflection upon the PI 1 expert, but a consequence of the difficult task of carrying out stock assessments and presenting their results.	

APPENDIX 3. STAKEHOLDER SUBMISSIONS

Appendix 3.1 Submissions during consultation opportunities

No written submissions were made by stakeholders during consultation opportunities on:
- The announcement of full assessment
- Proposed team membership
- Proposed peer reviewers
- Proposed assessment tree

Appendix 3.2 Submissions during site visits

Information received during site visits was taken into account during scoring of the fishery and relevant information was included in the Scoring Comment Table of this report under respective Performance Indicators.

Appendix 3.3 Submissions made by stakeholders about the public comment draft report

MSC

31.01.2014 assessment team received a submission from the MSC, MSC Review and Report on Compliance with the scheme requirements. The report was provided for action by the CAB and ASI in order to improve consistency with the MSC scheme requirements. Results of the MSC's review in full and responses of the assessment team are presented in the table below.

Ref	Type	Page	Requirement	Reference	Details	PI	CAB Comment
455	3931	93-94	Minor	CR-27.12.1.4 v1.3	The report states that some processed products and by products are eligible to be sold as MSC and some are not, but this is not defined within the Unit of Certification. It also could be clearer exactly what is within the eligible list e.g. does 'identifiable products' refer only to-skin on fish. It is not specified how segregation between species is ensured during at sea processing. This is relevant in case of by-catch species (e.g. Saithe) and also in case of clear segregation between cod and haddock if sold as single species products.		List of identifiable products and by-products is added to the section 5.3. Additional information on processing activities, segregation, packing and labelling is added to section 5.2.2 at sea processing.
455	3932	94-95	Minor	CR-27.12.1.3 v1.3	The risks associated with mis-identification as MSC of non-eligible fish at first point of sale following landing are not fully considered. How are products from the fishery which are not eligible to be sold as MSC clearly differently identified from those which are, when sold at auction or from cold storage? This will include certain processed product such as fish meal, but if relevant may also include any catch from outside the unit of certification. Catch certificates are referred to but are only relevant for sales in Europe. The potential for deliberate substitution between MSC and non-MSC in sale from auction or cold storage is not considered in detail either.		List of identifiable products and by-products is added to the section 5.3. Fish meal is not covered by this certification. In order to include fish meal into certification, the separate CoC certification of processing operations on board shall be required. Additional information on packing and labelling is added to section 5.2.2 at sea processing to show how certified products could be identified at the point of landing.
455	3933	93	Guidance	CR-27.12.1.5 v1.3	The report states that cod and haddock catches are clearly identified by the client when transhipped. It does not specify how MSC eligible and non-eligible products from that client		List of identifiable products and by-products is added to the section 5.3. Fish meal is not

					are identified and segregated during transhipment, so for example how is it clear that the fish meal cannot be sold on as MSC certified.		covered by this certification. In order to include fish meal into certification, the separate CoC certification of processing operations on board shall be required. Additional information on packing and labelling is added to section 5.2.2 at sea processing to show how certified products could be identified at the point of landing and during transportation.
455	3935	94	Guidance	CR-27.12.2.1 v1.3	There is no reference in the traceability section of this report as to where someone could find the latest list of vessels included within the Unit of Certification.		Shall a new vessel be added to a client certificate (client vessel or vessel of other eligible fisher), a revised vessel list will be uploaded to www.msc.org. This information is provided under section 3.1.7 other eligible fishers.
455	3937	21	Major	CR-27.4.8.1 v1.2	This is a general concern where more rationale needs to be provided in several instances as to the nature of this certificate sharing agreement and its effect on scores. All vessels identified as being eligible for certificate sharing are an effective part of the UoC and need to be included in all aspects of the report as such. Since the sharing agreement in this case is open to all Russian registered vessels targeting cod and haddock, this brings the total number of vessels in the UoC to over 250 (it is not completely clear how many vessels are eligbible and could be clarified) but at least beyond the original 3 vessels in assessment. There are a		All vessels identified as being eligible for certificate sharing are an effective part of the UoC and more justifications to support this are provided in the relevant part of the report. Mostly to Principle 2 and to a few PIs under Principle 3. In relation to scoring within the assessment, it should be noted that there are no material difference between the

					couple of instances in the report that suggest that the full impact of all vessels have not been evaluated and these will be described below in detail, but if this has not been the case throughout, all scoring issues need to be re-evaluted in the light of this larger impact.		client vessels' operations or any other Russian operators using demersal trawl to catch cod and haddock in the Barents Sea. They all retain the same species and are all subject to the same discard ban, and they all fish under the same rules and legislation. Since any eligible vessels are already operating in this manner, their impacts are taken into account in the assessment and considered to be the same as for the client fleet.
455	3938	75, 161	Major	CR-27.10.6.1 v1.3	The 3 original applicant vessels are currently part of another MSC certified fishery as the Ocean Trawler group, Barents sea cod and haddock). By the table of harmonization of scores, it is clear that this fishery originally scored 60 for 2.4.1 and 75 for 2.4.2, generating conditions. As of their last surveillance audit, these conditions are still open. The rationale provided does not mention and provide justification as to how this fishery meets SG 80 for both these PIs, when the vessels being audited currently have a condition. Furthermore, to the general comment on certificate sharing, as Russian registered vessels, the Ocean trawler group is in fact part of this UoC already and perhaps more vessels beside this, so the rationale provided needs to be made much more explicit as to how the scoring conclusions were reached. The current rationale would in fact suggest that a fishery with existing open conditions is now re-assessed as a fishery without conditions.	2.4.1	Client vessels M-0269 "Strelets" and M-0254 "Korund" were in the past allowed to share MSC certificate of Ocean Trawlers. The agreement with Ocean Trawlers required the client vessels to supply their cod and haddock products directly and exclusively to Ocean Trawlers. To be able to sell certified products through their own ownership/company the client fishery has decided to withdraw from the certification process coordinated by Ocean Trawlers and go in for a full assessment independent of Ocean Trawlers.

							Thus the client is not a part of another MSC certified fishery and they are not using the certificate of the Ocean Trawlers. Under 4.1 Harmonised Fishery Assessment in the body of the report, we note that of the range of scores for the various assessments that are applicable to the Russian Barents Sea cod and haddock fishery, only one PI (2.4.1) has been consistently scored at a lower level in the other assessments (often with a condition). However, the assessment team considers that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm (SG80). Additional rationales are therefore provided in the scoring table for PI 2.4.1 and 2.4.2 to strengthen the conclusion of the assessment team.

455	3939	14	Major	CR-27.10.6.1 v1.3	Recommendation 2. The rationale states that vessels currently in the UoC have previosuly completed MSC logbooks under another certificate. Since this would presuambly only apply to the 3 vessels part of the OT group, it would not apply to the other vessels part of the certifcate sharing agreement. Suggest clarify how information is recorded on those vessles which do not have MSC logbooks.		Text for Recommendation 2 has been amended to indicate that companies wishing to use the certificate will have to be the subject to the same registration systems. This is now also clearly reflected in the section on other eligible fishers.
455	3940	205	Major	CR-27.10.6.1 v1.3	SG 100 scoring issue b, "Should the certificate be open to other fleet operating in REEZ, implications on score shall be considered". The impact of the other eligible fishers as part of a potential certificate sharing agreement has to be assessed at this stage already and not later. The reason other fisheries are eligible to join a certificate later, is because their impact has already been assessed. MSC suggests to revise implications for this on scoring, here and if/where found elsewhere.	3.2.3	The original 100 score was based on the fact that the client vessels can demonstrate full compliance. Taking other eligible fishers into consideration, the team reduced the score to 80, bringing it in line with the scoring of the two previous Russian Barents Sea assessments.
455	3941	165	Major	CR-27.10.6.1 v1.3	SG 80 Scoring issue b) The ratioanle provided states that it is not clear whether the current strategy employed by the fishery, move-on measures etc, can afford sufficient protection of habiats. In addition, the rationale mentions that closed off areas are likely to work, if they are implemented, meaning they are not having an effect now. Given the above two points, MSC suggests that more rationale is needed to justify how there is an objective basis for confidence that the partial strategy will work.	2.4.2	The wording under PI 2.4.1 was misleading and is now amended to better justify the score given.
455	3942	165	Major	CR-27.10.6.1 v1.3	SG 80 a) The provided rationale states that there are no closed areas in place under Russian jurisdiction, nor has a specific strategy been implemented to protect VMES. Given the rationale, the partial strategy seems only to be based on anecdotal evidence and MSC logbooks to avoid certain	2.4.2	The wording under PI 2.4.2 was misleading and is now amended to better justify the score given.

					habitats. MSC suggests more rationale is needed to meet the MSC defintion of partial strategy. As mentioned before, if additional vessles were to be addded through certifcate sharing, the management measures in place for those vessels need to be considered in this scoring as well. In addition, the OT group, of which the 3 vessels are members, have an open condition to improve their partial strategy by implementing lighter gear, to explore potentials for more closed areas and better data collection through observer coverage. It is not clear in the rationale how these changes or equivalent measures have been implented in this fishery under assessment to justify a SG 80 score.		
455	3943	165	Minor	CR-27.10.6.1 v1.3	SG 100, scoring issue c) This is considered met, but there is no strategy in place as defined in SG 100 a, therefore scoring issue c. cannot be met. Overall socre for this P1 was 80, so team may not have considered this met to begin with, but it should be clarified.	2.4.2	Amended accordingly.
455	3944	75-80	Minor	CR-CI3.2.3.3 v1.3	This comment is in relation to the harmonization procedure outlined in section 4.1 and the associated table starting on pg 76. There are many instances, where the rationale for the differences in scores is listed as " Within Main range", eventhough there are fisheries that for those PIs have scored below 80. MSC suggests that this rationale needs to be expanded in cases where there is a material difference in scoring, i.e. in regards to setting of conditions. In cases where all scores are above 80, the argument that scores for the UoC are within main range could perhaps be applicable, but not in cases where there is a material difference to the outcome between fisheries. Guidance for Annex CI on harmonization also clearly states that the MSC expects that the outcome of		In the section on Harmonisation the assessment team has discussed where the client fishery has scored in relation to other assessments and explained why the scores have been given, especially where they differ from those of some other assessments. We understand that harmonisation is intended to ensure that there are no unexplained differences between assessments of similar

					any given assessment, particularly in terms of pass or fails and the setting conditions, will be consistent between overlapping fisheries.		fisheries, but also that each fishery assessment will have different levels of information that is relevant to the UoC's operation and fishing area, which may differ within the overall fishery (in this case Barents Sea cod and haddock trawl). We however amended the harmonization section and expended the rationales provided.

WWF Russian Federation

31.01.2013 assessment team received a submission from WWF in Russian which presented in full below. Assessment team has carefully considered the information provided, revised the final report accordingly and allocated the additional recommendation to PI 2.4.2. The responses of the assessment team to the WWF's comment letter are presented below.

Comments to the MSC certification draft assessment report on the Barents Sea cod and haddock bottom trawl fisheries by "Eurofish" Group (companies ZAO "Strelets" and ZAO "Eridan")

Judging by this report and information available to us, these companies have responsible attitude to cod and haddock fishery in the Barents Sea; they comply with the requirements of the Fisheries Regulations and actively cooperate with PINRO by providing their vessels for work of scientific observers. Their vessels, "Strelets" and "Korund", have the most modern equipment onboard, including the "Autotrawl ", which can significantly reduce the area of trawl contact with the bottom and the OLEX system, whereby they map coral reefs and sponge aggregations.
In addition, the companies prepared a cooperation agreement with WWF Russia and Action Plan aimed at reducing the bottom trawling impact on benthic communities. In accordance with this plan, these companies take voluntary commitment not to trawl in VME areas and introduce low impact trawling equipment. They signed a contract to purchase pelagic doors for bottom trawls, which do not touch the ground, and it will soon be tested at sea.
It is well known (A. Vold ea. Report from a cruise onboard RV G. O. Sars 22.11 – 03.12.2008: Comparing the impact of two bottom trawls., http://www.imr.no/filarkiv/2009/11/toktrapport_07_09.pdf/nb-no, of according to the WWF RU's publications, for example, Denisenko S. ea., Impact of trawl fishery on benthic ecosystems of the Barents Sea and opportunities to reduce negative consequences. - Murmansk. WWF. 2013. 53 pp., http://wwf.ru/resources/publ/book/868), the bottom trawl with a ground-rope (rock-hopper) has a negative impact on the benthic communities of the Barents Sea, and its impact is significantly higher than the impact of pelagic trawls, longlines, traps, and other passive gears. The coral reefs are the most vulnerable and hard recoverable (Christiansen S., Sustainability of MSC certified NE Arctic cod trawl fisheries. Impacts of demersal trawling on benthic habitats – 2013.); other vulnerable representatives of the key bottom epifauna components are sponges, for which the conditions for reproduction and distribution should be developed.
Taking into account the current distribution of these megabentos groups, as well as other representatives of vulnerable megafauna, the most important areas to establish no-go zones for bottom trawling are the south-western parts of the Barents Sea shelf slope. By analogy with the VME map drawn with MAREANO data, these areas should be recommended to MSC-certified vessels as «no-go» areas. Such maps can be supplemented with the information from fishing vessels, which marked undesirable by-catch areas in their maps. The use of the OLEX mapping system (which they already use) is quite effective.

Thus, the practice of voluntary commitments can significantly preserve the most vulnerable and unique benthic communities of the Barents Sea. Regarding traditional

trawling areas where such restrictions are difficult to achieve and are not advisable, it is necessary to improve the fishing operations i.e. to reduce the impact on benthic communities. Given the negative effects of bottom trawling, reduction of such impacts can be achieved by at least two ways:
1. Shift to pelagic trawl doors that do not touch the ground.
2. Modernize a ground rope (in this case, rock-hopper) and implement those developments in practice.
To achieve the second way, it is necessary to develop fundamentally new design of a ground-rope which would not cede rock-hopper at least in catch ability and reliability but has less impact on the ground. Ideally, the ground-rope should not even touch the ground but at the same time not let the fish go under the groundrope. To solve this problem, implementation of non-contact fishing equipment, such as electro-magnetic, acoustic, air-acoustic, and light impulses, which would scare off the fish from the ground and effectively deter it from the groundrope, seems to be the most promising.
There were a number of Russian technical developments at various stages of readiness, which were not used due to certain reasons. Now, however, they can be adapted to the current demands of industrial fisheries.
This is a very serious task, and its solution will dramatically improve the ecological compatibility of a bottom trawl, bringing it to a new level. To solve it, WWF Russia's Research Program is developed; this is where fishing companies' technical and financial support is extremely needed.
Taking into account the volume of the trawl fishery in the Barents Sea and the scale of its impact on the benthic community, one needs to do everything possible to minimize the negative impact of the fishing gear. This is one of the primary tasks of MSC certification of the Barents Sea cod and haddock fisheries. WWF Russia suggests to put the following conditions for "Strelets" and "Eridan" certification:

1. To map a VME using OLEX and to provide the data to the certification company (to PINRO as well).
2. Not to carry out trawling operations in the known VME areas of the Barents Sea (MAREANO maps (www.mareano.no) and companies' data).
3. Participate (including financing) in research works of new models of trawls and their elements which have a milder impact on benthos.
4. Introduce new models of trawls and their elements which have a milder impact on the benthos.
As practice shows, such conditions will encourage the management of these companies to make their fishing operations greener and to bring step by step reduction of the negative impact on the benthic communities of the Barents Sea.

Sustainable Fishery Program Coordinator
WWF-Russia
Barents Sea Regional Office A. Golenkevich

Assessment team comment: Assessment team agrees that from a precautionary perspective more could be done in terms of improved monitoring of the extent of trawl damage to benthic habitats and understanding the function of these habitats in the wider ecosystem. Adoption of less impacting gear types (e.g. semi-pelagic trawls) might also be considered (PI 2.4.2 SG100a). For this reason, the assessment team has placed a recommendation on the client to invest in testing of lighter gears and to completely avoid areas with sponges and corals. This recommendation will also apply to all potential certificate sharers.

See recommendation below:

Recommendation 1.

Performance Indicator 2.4.2	**There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.**
Score	80
Rationale	Bottom trawl gear has the potential to cause habitat damage. Though the available information suggests that this is 'highly unlikely' in this fishery, due mainly to the way in which the fishery operates, management and mitigation efforts should be tailored accordingly.
Recommendation	There are a number of potential approaches to further reduce the likelihood of serious or irreversible harm to habitats, and the clients are encouraged to actively pursue: » the possibility to switch to lighter / less impacting fishing gears, such as semi-pelagic gears for targeting demersal species or other models of trawls/parts of gear which can reduce the impact on benthos. » collect information on fishing patterns relative to habitat areas to help explore potential for further strategic closed areas – or fishing areas where lighter gears are possible. » continue using the navigation systems in order to completely avoid areas with sponges and corals

Assessment team has also amended harmonisation section 4.1 and justifications provided in the scoring table under PI 2.4.1 and 2.4.2 to make it clear why the assessment team considers that the score of 80 is justified.

Appendix 3.4 Submission made by MSC at the Final report submission

MSC

26.03.2014 assessment team has received a second submission from the MSC, MSC Review and Report on Compliance with the scheme requirements. The report was provided for action by the CAB and ASI in order to improve consistency with the MSC scheme requirements. Results of the MSC's review in full and responses of the assessment team are presented in the table below.

Ref	Type	Page	Requirement	Reference	Details	PI	CAB Comment
4005	Major	167-174	CR-CI3.2.3.2c v.1.2	3.2.3 CABs shall coordinate their assessments where a fishery under assessment overlaps with a certified fishery to make sure that key assessment products and outcomes are harmonised. 3.2.3.2 To achieve harmonisation, CABs shall undertake the following key activities:c. The achievement of consistent conclusions with	The Ocean Trawler group have an open condition on 2.4.1 and 2.4.2. The CAB's response to this TO at the PCDR stage seems to suggest that they think that the vessels were only part of Ocean Trawlers through certificate sharing and were therefore not certified. However, the open conditions on 2.4.1. and 2.4.2 apply to all vessels within the Ocean Trawler UoC (i.e.,other eligible fishers) not just the client members. Further, as DNV clarified, other eligible fishers included in the UoC under assessment include all Russian registered trawl vessels targeting cod and haddock. This includes all members of the Ocean Trawler group, not only the client group vessels. Therefore, the entire Ocean Trawler group are already part of the UoC at this time. The scores for all PIs in P2 therefore have to be harmonised with the Ocean Trawler group, which includes the harmonisation of these open conditions. MSC's intent is that although CI 3.2.3.3 requires the team to explain and justify any differences in the scores between	2.4.1, 2.4.2	Assessment team has carefully considered MSC's interpretation of harmonisation requirements and that although CI 3.2.3.3 requires the team to explain and justify any differences in the scores between harmonised fisheries, such differences should not be so great as to conflict with the expectation in CI 3.2.3.2c that consistent conclusions are reached in relation to conditions. As the client fishery has no possibility to cover costs connected to such an extensive harmonisation activities and there are no other companies willing to share clients certificate and share these costs, it was concluded by the assessment team (in consultation with the

				respect to evaluation, scoring and conditions.	harmonised fisheries, such differences should not be so great as to conflict with the expectation in CI 3.2.3.2c that consistent conclusions are reached in relation to conditions.		client) to limit this assessment to the clients fleet. OT group is therefore not eligible to share client's certificate and their operations are now not accounted for in this assessment. Section 3.1.7 of this report is amended accordingly. Harmonisation section 4.1 is also amended accordingly to make it clear why the assessment team considers that the score of 80 is justified for this assessment both for PI 2.4.1 and 2.4.2.
4006	Major	155-156, 164-166, 175-176	CR-27.10.6.1 v.1.3	Rationale shall be presented to support the team's conclusion	All Russian registered vessels are part of the UoC (through other eligible fishers) so the vast majority of vessels in the UoC have in fact not previously completed MSC logbooks under another certifcate. It is only the 3 members of the client group that have previously completed MSC logbooks to determine their impact. This means that only about 1% of the impact of the UoC is monitored by logbook data (if UoC is 250 vessels). Further, the existence of those logbooks is often the only source of information to justify the score for these PIs. Rationale is insufficient to justify how information on impacts on Bycatch species, ETP species and Habitats is monitored in the absence of	2.2.3, 2.3.3, 2.4.3	Although it was not apparent at the time of the site visit that there are other fishers who would like to share the client's certificate, this possibility was not excluded. In relation to scoring within the assessment, it was concluded by the assessment team that there are no material difference between the client vessels' operations or any other Russian operators using demersal trawl to catch cod and haddock in the Barents Sea. All fishing operators retain the same

					logbooks to justify the score for the entire UoC. PI 2.2.3 SG80a and d: The existence of logbook data is given as part of the justification that SG80 is met. More detail is needed on how information is collected for the vast majority of vessels that are not using logbooks. PI2.3.3 SG80b: The report states that the information and analyses described under SG80a and the data collected through MSC logbooks are considered sufficient to determine whether the fishery may be a threat to protection and recovery of ETP species. However, logbook data only exist for a very small subset of the UoC. Insufficient rationale is given to justify the score. PI2.4.3 SG80b: Reference is made to logbook data; however as stated above, these data only cover 3 vessels out of 250.		species and are all subject to the same discard ban, and fish under the same rules and legislation. Since any eligible vessels are already operating in this manner, their impacts were considered to be the same as for the client fleet. Additional reservations were implemented to ensure full-compliance with the scores assigned and included following: • Full compliance with MSC certification requirements, including any conditions and/or recommendations set for MSC certification and associated plans of corrective action to address such conditions. • Companies using different navigation systems were not allowed to share the certificate unless it can be demonstrated that such systems comply with the requirements to avoid vulnerable habitats. • Any vessels that would

							join the certificate were required to be the subject to the same registration systems (e.g. MSC logbooks). • Black-listed vessels were not allowed to join the certificate. As the client fishery has no possibility to cover costs connected to data collection from all eligible fishers and there are no other companies willing to share clients certificate and share these costs, it was concluded by the assessment team (in consultation with the client) to limit this assessment to clients fleet. This assessment is therefore, as of 02.04.2014, is limited exclusively to the client's fishery and their affiliated companies as specified in the section 3.2.2 of this report. Section 3.1.7 of this report is amended accordingly. PI 3.2.3 is also amended and score is raised to 100.

APPENDIX 4.SURVEILLANCE FREQUENCY

(REQUIRED FOR THE PCR ONLY)

1. The report shall include a rationale for determining the surveillance score.

2. The report shall include a completed fishery surveillance plan table using the results from assessments described in CR 27.22.1

Table A4: Fishery Surveillance Plan

Score from CRTable C3	Surveillance Category	Year 1	Year 2	Year 3	Year 4
[e.g. 2 or more]	[e.g Normal Surveillance]	[e.g. On-site surveillance audit]	[e.g. On-site surveillance audit]	[e.g. On-site surveillance audit]	[e.g. On-site surveillance audit & recertification site visit]

MSC FISHERY ASSESSMENT REPORT

APPENDIX 5.CLIENT AGREEMENT

(REQUIRED FOR PCR)

The report shall include confirmation from the CAB that the Client has accepted the PCR. This may be a statement from the CAB, or a signature or statement from the client.

(Reference: CR: 27.19.2)