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Global Standard for Responsible Supply of Marine Ingredients

Fishery Assessment Methodology and Template Report V2.0

Fishery Under Assessment	**Capelin (*Mallotus villosus)* ICES subdivisions I & II, excl. IIa west of 5W (Barents sea & Norwegian sea)**
Date	**November 2018**
Assessor	**Jim Daly**

Application details and summary of the assessment outcome				
Name:				
Address:				
Country: Norway		**Zip:**		
Tel. No.:		**Fax. No.:**		
Email address:		**Applicant Code**		
Key Contact:		**Title:**		
Certification Body Details				
Name of Certification Body:		**SAI Global**		
Assessor Name	**Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/Re-approval**	**Whole fish/ By-product**
Jim Daly	Virginia Polonio/ Sam Dignan	5	Surveillance Year 1	Whole fish
Assessment Period	2018			

Scope Details	
Management Authority (Country/State)	Ministry of Trade, Industry and Fisheries (Norway) EU (Denmark)
Main Species	Capelin (*Mallotus villosus)*
Fishery Location	ICES subdivisions I & II, excl. IIa West of 5W (Barents sea)
Gear Type(s)	Pelagic trawl, purse seine
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
Peer Review Evaluation	Agree
Recommendation	Approve

Assessment Determination

Capelin is a key species in the Barents Sea and Norwegian Sea ecosystem, as a prey item for cod. Norway and Russia jointly manage capelin and other important fish species within the framework of the Joint Norwegian-Russian Fisheries Commission (JNRFC). Annual quotas and their distribution between both countries and third countries are agreed. Negotiations are based on ICES recommendations which are usually followed. In recent years the fishery has been closed entirely whenever ICES has advised zero catch.

This is a winter fishery (Jan-April). This fishery is unusual in that the majority of fish die after spawning. All catches are assumed to be landed; ICES consider discarding and slippage to be negligible. Detailed information on bycatch has been limited but is assumed as low. The amount of bycaught capelin in other fisheries is very low.

The latest advice (October 2018) from ICES is that the maturing stock has decreased by 39% from 2017 to 2018. Since this stock is managed by a target escapement strategy, this decrease is expected to cause spawning stock to fall below the limit in the HCR that would allow for a fishery in 2019. Following their October (2018) assessment ICES advised a zero catch for 2019. There have been four major downturns and resulting closures of the fishery since the mid-1980s. The last stock collapse came in 2015-2016.

The JNRFC have announced a zero TAC for 2019. Any removals from the fishery would therefore be illegal and considered an IUU activity (Illegal, Unreported, Unregulated). As the SAI Global assessment team have determined that commercial fishery removals are prohibited when the stock has been estimated to be below limit reference point or proxy, and advice for 2018 is that spawning stock was above Blim, the species passes this current assessment.

The single defined reference point B_{lim}, is itself based on a precautionary doubling of the historical lowest SSB which produced a good year class. Annual quotas are established that allow for a 95% probability that at least 200,000t of capelin (B_{lim}) spawn every year (JNRFC Management Plan, HCR). No reference points for fishing pressure (F) have been defined for this stock as the fishery is conducted on maturing fish before spawning and spawning mortality is practically complete (IMR 2008).

Capelin is a key prey species for cod, herring, seabirds and marine mammals. Currently the harvest control rule does not take directly into account the removal of capelin by predators prior to maturation. ICES have recommended that species predation (especially by herring) should be quantified when determining future harvest control rules. No target biomass reference points have been set as according to ICES a model including multispecies interactions (e.g. capelin, herring, cod) is needed. Future assessments of the fishery should monitor developments in this area bearing in mind a re-evaluation of the harvest control rule is scheduled for 2021 (ICES 2018).

Capelin is listed on the current IUCN Redlist as a species of least concern and is currently not listed on CITES appendices of endangered or threatened species.

The assessment team recommends the use of capelin (Barents and Norwegian Sea) for the production of fishmeal and fish oil under the IFFO-RS v 2.0 whole fish standard.

Peer Review Comments

Notes for On-site Auditor

General Results

General Clause	Outcome (Pass/Fail)
M1 - Management Framework	PASS
M2 - Surveillance, Control and Enforcement	PASS
F1 - Impacts on ETP Species	PASS
F2 - Impacts on Habitats	PASS
F3 - Ecosystem Impacts	PASS

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A	Capelin (*Mallotus villosus)*	99.9%	A1	PASS
			A2	PASS
			A3	PASS
			A4	PASS
Category B				
Category C				
Category D				

[List all Category A and B species. List approximate total %age of landings which are Category C and D species; these do not need to be individually named here]

HOW TO COMPLETE THIS ASSESSMENT REPORT

This assessment template uses a modular approach to assessing fisheries against the IFFO RS standard.

Whole Fish

The process for completing the template for a **whole fish** assessment is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table, to determine which categories of species are present in the fishery.
2. ALL ASSESSMENTS: Complete clauses M1, M2, M3: Management.
3. IF THERE ARE CATEGORY A SPECIES IN THE FISHERY: Complete clauses A1, A2, A3, A4 for **each** Category A species.
4. IF THERE ARE CATEGORY B SPECIES IN THE FISHERY: Complete the Section B risk assessment for **each** Category B species.
5. IF THERE ARE CATEGORY C SPECIES IN THE FISHERY: Complete clause C1 for **each** Category C species.
6. IF THERE ARE CATEGORY D SPECIES IN THE FISHERY: Complete Section D.
7. ALL ASSESSMENTS: Complete clauses F1, F2, F3: Further Impacts.

A fishery must score a pass in **all applicable clauses** before approval may be recommended. To achieve a pass in a clause, the fishery/species must meet **all** of the minimum requirements.

By-products

The process for completing the template for **by-product raw material** is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table with the names of the by-product species and stocks under assessment. The '% landings' column can be left empty; all by-products are considered as Category C and D.
2. IF THERE ARE CATEGORY C BYPRODUCTS UNDER ASSESSMENT: Complete clause C1 for **each** Category C by-product.
3. IF THERE ARE CATEGORY D BYPRODUCTS UNDER ASSESSMENT: Complete Section D.
4. ALL OTHER SECTIONS CAN BE DELETED. Clauses M1 - M3, F1 - F3, and Sections A and B do not need to be completed for a by-product assessment.

By-product approval is awarded on a species-by-species basis. Each by-product species scoring a pass under the appropriate section may be approved against the IFFO RS Standard.

SPECIES CATEGORISATION

The following table should be completed as fully as the available information permits. Any species representing more than 0.1% of the annual catch should be listed, along with an estimate of the proportion of the catch each species represents. The species should then be divided into Type 1 and Type 2 as follows:

- **Type 1 Species** can be considered the 'target' or 'main' species in the fishery. They make up the bulk of annual landings and are subjected to a detailed assessment.
- **Type 2 Species** can be considered the 'bycatch' or 'minor' species in the fishery. They make up a small proportion of the annual landings and are subjected to relatively high-level assessment.

Type 1 Species must represent 95% of the total annual catch. Type 2 Species may represent a maximum of 5% of the annual catch (see Appendix B).

Species which make up less than 0.1% of landings do not need to be listed (NOTE: ETP species are considered separately). The table should be extended if more space is needed. Discarded species should be included when known.

The 'stock' column should be used to differentiate when there are multiple biological or management stocks of one species captured by the fishery. The 'management' column should be used to indicate whether there is an adequate management regime specifically aimed at the individual species/stock. In some cases, it will be immediately clear whether there is a species-specific management regime in place (for example, if there is an annual TAC). In less clear circumstances, the rule of thumb should be that if the species meets the minimum requirements of clauses A1-A4, an adequate species-specific management regime is in place.

NOTE: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in the CITES appendices, it **cannot** be approved for use as an IFFO RS raw material. This applied to whole fish as well as by-products.

TYPE 1 SPECIES (Representing 95% of the catch or more)
Category A: Species-specific management regime in place.
Category B: No species-specific management regime in place.

TYPE 2 SPECIES (Representing 5% OF THE CATCH OR LESS)
Category C: Species-specific management regime in place.
Category D: No species-specific management regime in place.

Common name	Latin name	Stock	% of landings	Management	Category
Capelin	*Mallotus villosus*	Barents Sea and Norwegian Sea	99.9%	Ministry of Trade, Industry and Fisheries (Norway) EU (Denmark)	A

MANAGEMENT

The two clauses in this section relate to the general management regime applied to the fishery under assessment. A fishery must meet all the minimum requirements in every clause before it can be recommended for approval.

M1	Management Framework – Minimum Requirements		
	M1.1	There is an organisation responsible for managing the fishery	PASS
	M1.2	There is an organisation responsible for collecting data and assessing the fishery	PASS
	M1.3	Fishery management organisations are publically committed to sustainability	PASS
	M1.4	Fishery management organisations are legally empowered to take management actions	PASS
	M1.5	There is a consultation process through which fishery stakeholders are engaged in decision-making	PASS
	M1.6	The decision-making process is transparent, with processes and results publically available	PASS
		Clause outcome:	**PASS**

Evidence

Norway

M1.1:

The management of fisheries in Norway falls under the jurisdiction of the Ministry of Trade, Industry and Fisheries (Department of Fisheries and Aquaculture). A Directorate of Fisheries and Aquaculture acts as the Ministry's advisory and executive body. The main research body is the Institute of Marine Research (IMR). A map of the Norwegian Economic Zone (NEZ) is provided (**Figure 1**).

Both Ministry and Directorate develop and apply fishery laws and regulations through an ongoing interactive process referred to as the Regulatory Chain **(Figure 2**). Scientific research and advice take key positions within the chain, ensuring understanding of the stock and broader ecosystem are considered. The Ministry is based in Oslo, the Directorate and Institute are located in Bergen.

The Department for Fisheries and Aquaculture is responsible for matters related to fisheries, the fishing fleet and the aquaculture industry. The Department manages:

- Quota negotiations with the European Union and others.
- International fisheries agreements.
- Prevention of IUU fishing.
- Fishing regulations and rights including licensing.
- Aquaculture policy and management.
- Environmental sustainability of the aquaculture industry including fish health and welfare.

The Directorate of Fisheries and Aquaculture's role is:

- To provide analyses, statistics and advice.
- Implement political decisions.
- Process applications and appeals.
- Conduct monitoring and control.
- Actively cooperate with trade and industry, the research community and other public services.
- Knowledge sharing with various stakeholders and the general public.

Figure 1: Norway fishing zones (adapted from FAO Fisheries and Aquaculture-Country Profiles) **R1**

Since 2000 the TAC for capelin has been set precisely in line with ICES advice, which itself has been based on an International Management Plan (IMP) (see below) since that Plan's introduction in November 2002. The fishery has been closed entirely whenever ICES advice has recommended it. Total commercial landings have also generally been within the TAC although in 2014 the quota was exceeded by 736t (around 1%). Additionally, some small catches were taken during the 2004 – 2008 fishery closure for scientific purposes.

A regulatory council with representatives from both parties debate on the distribution of quotas within the fishing industry and provide advice for Norway's Ministry of Fisheries. The Ministry then decides on final management strategies:

Figure 2: Regulatory chain of Norwegian fishery management **R6**

Denmark:
The responsible authority for monitoring and enforcing EU and national conservation policies is the Danish Agrifish Agency, which is a part of the Ministry of Food, Agriculture and Fisheries, under the 1999 Fisheries Act. The Agency carries out inspection at sea and landings, as well as verification of EU marketing standards. The Ministry also works for Danish fisheries and aquaculture through providing:

- Regulation and inspections of the fishing industry
- Support for research in fisheries and aquaculture production
- Support for the development of fisheries, the fish industry, fishery harbours and aquaculture
- Fish management and fishing license arrangements for recreational fisheries

The primary provider of scientific information and advice at the national level within Denmark is the National Institute of Aquatic Resources at the Technical University of Denmark (DTU Aqua). DTU Aqua's stated mission is to conduct research, provide advice, educate at university level and contribute to innovation in sustainable exploitation and management of aquatic resources. DTU Aqua directly advises the Danish Ministry of Food, Agriculture and Fisheries and other public authorities.

Norwegian-Russian Fisheries Commission (JNRFC):
During the late 1970s, cooperation on management of shared fish stocks was instituted through the Joint Norwegian-Russian Fisheries Commission (JNRFC), formally established in 1975. Its responsibilities include deciding: management strategies; levels of total allowable catch (TAC); TAC allocation between Russia and Norway; and technical measures regulating use of fishing gears in addition to implementing systems ensuring that the fishing industry adheres to regulatory decisions. JNRFC stipulates reciprocal access to fisheries within national zones, and quota exchanges for shared and national stocks; it also decides on catch quotas for third party fisheries conducted by non-coastal states.

International Management Plan:

In 2002 the JNRFC adopted the following harvest control rule (HCR) for Barents Sea capelin: '***The TAC for the following year should be set so that, with 95% probability, at least 200, 000t of capelin (B_{lim}) will be allowed to spawn.'***

ICES evaluated this HCR as well as alternative HCRs suggested by JNRFC in 2016; only the existing HCR was found to be precautionary. Following ICES evaluation, the JNRFC decided to maintain the existing HCR but decided that the harvest control rule should be re-evaluated again in 2021.

There is an organisation responsible for managing the fishery **R2-R3; R6; R15**

M1.2:
Norway:
The main research body is the Institute of Marine Research (IMR) with 1,000 employees. The main activities are research, advisory work and monitoring. In January 2018, the IMR was merged with NIFES (National Institute of Nutrition and Seafood Research). IMR have an office in Tromsø and research stations in Matre, Austevoll and Flødevigen. IMR have several laboratories that analyse samples taken through its monitoring and research programmes.

Ecosystem research surveys are conducted by IMR and international partners. Survey activities cover a substantial part of the Nordic Seas at different seasons. Regular data collection from transects, located at the inflow and outflow regions of ocean basins serve as indicators for the biological and physical state of the basins (Gimsøy, Svinøy, Fugløy).

The following surveys are conducted (multiple vessels, several nations):

- Ecosystem survey North Sea
- Ecosystem survey Norwegian Sea
- Ecosystem survey Barents Sea
- Winter survey Barents Sea
- Strategic Initiative Arctic

The following variables are collected:

- Juveniles and larvae of commercial species.
- Abundance of commercial demersal and pelagic fish species.
- Plankton
- Benthic organisms.
- Marine mammals and birds.
- Physical conditions and pollution.

Biomass and other data collected from regular ecosystem research surveys and transects are collated and added to fishery-dependent data generated for stock assessment purposes. A precautionary approach is adopted, only a marginal percentage is allowed for the fishery.

International science:
Science-based fishery management advice at the international level is provided by the International Council for the Exploration of the Sea (ICES). Scientists working through ICES gather information about the marine ecosystem. Besides filling gaps in existing knowledge, this information is developed into unbiased, non-political fishery management advice. The 20-member countries that fund and support ICES use this advice to help them manage the North Atlantic Ocean and adjacent seas.

ICES provide annual stock assessment and management advice in relation to the Capelin fishery where it is defined in the Barents Sea as a single biological stock and managed according to an international management plan agreed between Norway and Russia in 2002. Both ICES and IMR advice are factored heavily into management decisions.

There is an organisation responsible for collecting data and assessing the fishery **R5, R10**, **R15**

M1.3:
Norway:
A 2009 Report outlined strategies in place to ensure sustainable harvesting of all marine resources. Sustainable management and harvesting are based on best available understanding and scientific advice from ICES and the IMR. Norway has committed to international agreements on sustainable management for all fish stocks under its management; entailing defined exploitation rates and minimum limit for spawning stocks.

Section 1 (purpose) of the Marine Resources Act (MRA) outlines the Norwegian Government's commitment to sustainability:

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

Section 7 (Principle for management of wild living marine resources and fundamental considerations) of the MRA gives power to the Ministry to evaluate which types of management measures are necessary to ensure sustainable management of wild living marine resources including the use of the precautionary and ecosystem approaches. This Section also ensures management measures help to maintain the material basis for Sami culture (indigenous, used to be considered a nomadic people, living above the Arctic Circle).

Denmark (EU):
The Common Fisheries Policy (CFP) is the primary instrument for sustainable fisheries management. As such it addresses the impacts of fishing on target stocks as well as impacts on other ecosystem components. Implementing an (Ecosystem Approach to Fisheries Management) EAFM has been set as one of the objectives of the Common Fisheries Policy (Regulation (EU) No1380/2013):

"…to ensure that negative impacts of fishing activities on the marine ecosystem are minimized..." and "…that aquaculture and fisheries activities avoid the degradation of the marine environment." (Article 2.3).

The CFP, specifically after the 2013 reform, presents some specific measures which should expedite the implementation of EAFM within European Fisheries. Among these measures are a) fishing at Maximum Sustainable Yield (MSY); b) avoiding and reducing unwanted catches; and c) managing stocks by means of multi-annual plans. Specifically, for these plans, multiple stocks should be covered when those stocks are jointly exploited.

Fishery management organisations are publically committed to sustainability **R8; R11-R12**
M1.4 - M1.5:
Norway:
In Norway the main legal instrument is the 2008 Marine Resources Act (MRA). This law details, among other things, the structure of the management system, the obligation for sustainable, science-based

management, and ecosystem considerations. The Act contains overarching technical regulations for commercial and recreational fisheries and is the overarching legal document for fisheries in Norway.

The "utøvelsesforskriften" is a living document where the Directorate of Fisheries may pass regulations in real time as conditions change in the fishery. However, it is still a fairly stable general document of the technical regulations.

Chapter 3 of the MRA (Catch quantities and quotas) allows the Ministry to prescribe maximum permitted quantities (national quotas) of marine resources that may be harvested, expressed in terms of weight, volume, number of individuals, the number of days harvesting is permitted, or in other terms.

Chapter 4 of the MRA (Conduct of harvesting operations and other utilisation of wild living marine resources) specifies that all catches of fish shall be landed (discard ban). The Ministry also may by regulations grant exemptions from the obligation to land catches and may also prohibit discarding of biological waste.

Chapters 6 & 7 of the MRA specifies arrangements for control and enforcement including facilitating vessel inspections, use of logbooks to record catches and powers of the Directorate of Fisheries Inspectors to issue orders to stop a vessel, haul in gear, seal gear and obtain documents, relevant information and objects if they suspect infringements of the fisheries legislation have occurred.

Representatives of the fishing industry and governmental authorities cooperate in the formulation of the regulatory chain (**Figure 2**). Scientific research and advice take key positions within the chain, ensuring understanding of the stock and broader ecosystem are considered.

The involvement of stakeholders in management decisions is achieved through the Advisory Meeting for Fisheries Regulations representing fishermen's associations, fishing industries, trade unions, the Sami Parliament, local authorities, environmental organisations and other stakeholders.

Both ICES (when available) and IMR advice are factored heavily into management decisions, and in turn direction and specifics of future research are guided by experiences within the fishery throughout the year.

Denmark (EU):
Denmark is a Member State of the European Union, and therefore in Community waters implements the Common Fisheries Policy (CFP). The most recent CFP reform process was completed in 2013. Key changes include:

- The introduction of an objective to 'ensure high long-term fishing yields for all stocks by 2015 where possible, and at the latest by 2020' (movement towards an MSY-based approach).
- The gradual (2015-2019) introduction on a fishery-by-fishery basis of a 'landing obligation', which effectively bans discarding.
- An overhaul of management structure, including increased regionalisation and more extensive stakeholder consultation.

There is a consultation process through which fishery stakeholders are engaged in decision-making. Fishery management organisations are legally empowered to take management actions

Joint Norwegian-Russian Fisheries Commission (JNRFC):
Its responsibilities include deciding: management strategies; levels of total allowable catch (TAC); TAC allocation between Russia and Norway; and technical measures regulating use of fishing gears in addition to implementing systems ensuring that the fishing industry adheres to regulatory decisions. JNRFC stipulates

reciprocal access to fisheries within national zones, and quota exchanges for shared and national stocks; it also decides on catch quotas for third party fisheries conducted by non-coastal states. **R7; R12-R13; R15**

M1.6:

Norway:

The Directorate's communications office is organised directly under the Directorate. This office has overall responsibility for all external and internal information, including continuous development of strategic communication within the Directorate. Other main areas of responsibility are the maintenance and development of the Directorate's Internet and intranet pages, presentation of information material for the public and tourists visiting Norway and providing advice of a professional nature within the organisation. The Communication Office is also on the editorial board of the English-language website www.fisheries.no through which authorities provide information about Norwegian fisheries and aquaculture management.

Denmark (EU):

Science-based fishery management advice at the international level is provided by ICES. ICES is a network of more than 1,600 scientists from 200 institutes (including DTU Aqua), linked by an intergovernmental agreement (the ICES Convention) to add value to national research efforts. Scientists working through ICES gather information about marine ecosystems. ICES provide annual stock assessment and management advice in relation to the Barents Sea and Norwegian Sea capelin fishery. Results are published annually.

Joint Norwegian-Russian Fisheries Commission (JNRFC):

A website is maintained. Agreements on fishing quotas and access rights, citing ICES assessments, are published regularly.

The decision-making process is transparent, with processes and results publically available. **R8, R10, R12, R15**

References

R1: Norway fishing zones (adapted from FAO Fisheries and Aquaculture-Country Profiles) http://www.fao.org/fishery/facp/NOR/en#CountrySector-LegalFrameworkOverview

R2: ICES advice 2017 Capelin (Mallotus villosus) in subareas 1 and 2 (Northeast Arctic), excluding Division 2.a west of 5°W (Barents Sea capelin http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/cap.27.1-2.pdf

R3: Directorate of Fisheries: Norwegian-Fisheries-Management https://www.fiskeridir.no/English/Fisheries/Norwegian-Fisheries-Management (accessed 16.10.18)

R4: Ministry of Trade Industry and Fisheries https://www.regjeringen.no/en/id4/ (accessed 16.10.18)

R5: Institute of Marine Research (IMR**)** http://www.imr.no/en

R6: Norwegian Fisheries Management pdf 20pp www.fisheries.no (EN)

R7: EU Common Fisheries Policy reform: http://ec.europa.eu/fisheries/reform/index_en.htm

R8: DTU Aqua, "Mission, vision and tasks": http://www.aqua.dtu.dk/english/About/Mission_vision

R9: The Danish Agrifish Agency http://agrifish.dk/about-us/

R10: ICES Advice Capelin (2017): 7pp http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/cap.27.1-2.pdf

R11: Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013R1380

R12: Department for Fisheries and Aquaculture (2010): Act relating to the management of wild living marine resources (Marine Resources Act) 17pp https://www.regjeringen.no/globalassets/upload/fkd/vedlegg/diverse/2010/marineresourcesact.pdf

R13: Utøvelsesforskriften Norway Fisheries Legislation: http://www.fiskeridir.no/Yrkesfiske/Regelverk-og-reguleringer/J-meldinger/Gjeldende-J-meldinger/J-125-2016	
Standard clauses 1.3.1.1, 1.3.1.2	

M2	**Surveillance, Control and Enforcement - Minimum Requirements**		
	M2.1	There is an organisation responsible for monitoring compliance with fishery laws and regulations	PASS
	M2.2	There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken	PASS
	M2.3	There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing	PASS
	M2.4	Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS.	PASS
		Clause outcome:	**PASS**

Evidence

M2.1:

Norway:

Enforcement is split into three branches:

- The Directorate of Fisheries (Control Section): monitors and controls the entire value chain through quayside controls, sales inspections, post landing audits and inspections at sea. Quota control and compliance to regulations are the main focus areas. Controls are conducted within Norwegian Economical Zone (NEZ) and the Fisheries Zones surrounding Svalbard and Jan Mayen (**Figure 1).** A Fisheries Monitoring Centre (FMC) ensures 24/7 monitoring of fishing activities. Inspectors may board vessels at any time when at sea.
- The Coast Guard (Ministry of Defence) conducts control of both Norwegian and foreign flagged vessels, performing more than 1,800 vessel inspections annually. Main areas of control are for resource, quota, and customs violations and to verify adherence to technical fishery regulations.
- Sales organisations (e.g. *Norges Sildesalgslag*, a pelagic sales organization) is a legal intermediary for settlement between buyer and seller for all first-hand landings. These organisations also perform landing controls, comply statistics and cooperate closely with the Directorate.

Denmark (EU):

To ensure that fishing rules are applied in the same way in all member countries, and to harmonise the way infringements are sanctioned, the EU has established a list of serious infringements of the rules of the common fisheries policy. EU countries must include in their legislation effective, proportionate and dissuasive sanctions, and ensure that the rules are respected.

Since 1 January 2012, EU countries have been required to have a point system for serious infringements. Under the scheme, national authorities:

- Assess alleged infringements involving vessels registered under its flag, using standard EU definitions;
- Impose a pre-set number of penalty points on vessels involved in serious infringements (points are recorded in the national registry of fisheries offences);
- Suspend the vessel's license for 2, 4, 8 or 12 months when a pre-set number of points have been accumulated in a 3-year period.

The Danish Agrifish Agency is the competent authority with responsibility of enforcement of sanctions and penalties with respect to the prosecution of fishery rules.

JNRFC:

During the 33rd session in 2004, the JNRFC concluded that there was a significant level of unregistered cod fishing in the Barents Sea, and that all possible measures should be taken to detect and prevent such illegal

fishing. This resulted in several initiatives being introduced to tighten requirements regarding reporting and control for transhipment at sea, such as an obligation to report all transhipment operations, an obligation for receiving vessels to carry satellite tracking equipment, a prohibition on transhipment for vessels sailing under a flag of convenience and the establishment of mobile inspection groups from both countries. The JNRFC contains a Working Group which assesses information regarding overfishing and violations of individual vessels of fisheries regulations.

There is an organisation responsible for monitoring compliance with fishery laws and regulations **R3, R9, R14-R16**

M2.2-M2.3:
Norway:
Norway has a landing obligation and to avoid discarding, small quota overshoots are landed. The value of the catch is then administratively withdrawn from the vessel and counted against the TAC. If more serious quota infractions occur, the Directorate can administer fines, withdraw quota or submit a police report, which will hand the issue over to the criminal system. Fishing license and a license to purchase fish may also be withdrawn as can the value of the catch.

Chapter 11 (Coercive and infringement fines**)** of the MRA empowers the Ministry to impose fines to ensure compliance with provisions made in or under the Act. A coercive fine is a continuous fine that becomes effective from a specified deadline for complying with an order. The Ministry may in special cases reduce or waive a coercive fine that has accrued. The Ministry may order any person that wilfully or through negligence contravenes provisions made in or under this Act to pay an infringement fine.

Chapter 12 of the MRA (Criminal Liability) notes that any person that wilfully or through negligence contravenes provisions laid down in specific Sections of the Act are liable to fines or to a term of imprisonment not exceeding one year, unless more severe penal provisions apply. Norway adopted a black list of vessels engaged in IUU activities in Northeast Atlantic waters in 1994 and banned such vessels from fishing in Norwegian waters. The concept of a black list was later adopted by several Regional Fisheries Management Organizations (RFMO's).

Denmark (EU):
Controls are carried out through physical inspections at sea, the landing of fish in ports, during transport, the purchase of fish, administrative checks and systematic monitoring. The Danish Fisheries Authority has assessed in the light of inspections carried out both at sea and on landing that there are indications of non-compliance with the rules on landing obligations as indicated by a significant difference in catch composition when the catches are inspected at sea in relation to what the fishermen report in the logbook when no checks are carried out.

In 2017, checks were carried out on 3,269 fishing trips (103 fewer than in 2016). A total of 2, 725 control operations were carried out at landing in port, corresponding to a control frequency of 4.0% of landings.
At sea 544 inspections were carried out; 637 observations of fishing vessels at sea were undertaken (no controls carried out). Around 1,196,124t of fish were landed in 2017.

In accordance with its mandate, the European Fisheries Control Agency (EFCA) assists Member States to fulfill their obligations by organizing workshops and seminars for national administrations on the implementation of the IUU Regulation. Through EU Fishery Policy and Regulations, Member States must apply effective, proportionate and dissuasive sanctions against natural or legal persons engaged in IUU activities.

There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing R**12, R13, R14, R16**

M2.4:

Norway:

Chapter 7 (Control and enforcement) Section 47 (Placing inspectors and observers on board vessels) of the MRA obliges vessel owners, when requested, to provide board and lodging at the vessel's expense and use of communication equipment without charge. The Ministry may adopt regulations relating to:

- The duties of an observer.
- Which vessel groups and how many vessels are to carry an inspector or observer on board.
- How these vessels are to be selected.

VMS transmitters on Norwegian vessels have to be approved by the Directorate and installed only by those authorized by the Directorate. Norwegian vessels involved in fishing operations 15m and above are required to comply with position reporting. This also includes vessels of 12m (Norway and EU) when operating in the Skagerrak area. Foreign vessels of 24m or more (15m or more in the case of EU vessels) are subject to position reporting when operating in Norwegian waters outside Skagerrak. By January 2014 approximately 575 Norwegian vessels were subject to position reporting.

Denmark (EU):

In practice, CFP control as carried out by the Member States' control authorities can be broken down into three broad areas: conservation, structures, and markets:

- Conservation measures cover issues such as quota management or the implementation of technical measures (e.g. mesh sizes). Inspections are used to ensure that the fishing gear on board vessels meets official norms and that the information entered in log-books.
- Structural policy plays a key role in the search for a balance between the fishing capacity of Member States, the fishing effort deployed, and the available fish resources. Checks are therefore necessary to establish that allocated days-at-sea have not been exceeded.
- Finally, national inspections are not limited to the catching sector, but also include all operations from landing and marketing to storage and transportation. Operators must, always, be in possession of proper documentation detailing the origin, nature, quantity and quality of fish involved in transactions, so that it can be cross-checked with data in log-books and from other sources, such as fish auctions.

As with the application of sanctions, the bodies responsible for control and enforcement are set up by the individual EU states. The European Fisheries Control Agency (EFCA) mission is to promote the highest common standards for control, inspection and surveillance under the Common Fisheries Policy (CFP). Its primary role is to organize coordination and cooperation between national control and inspection activities so that the rules of the CFP are respected and applied effectively. In the North East Atlantic EFCA cooperate with the Regional RFMO (NEAFC) on all matters pertaining to fisheries control.

Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS **R12**; **R14-R16**

References

R14: Ministry of Environment and Food (Denmark) Fisheries Control 2017 Business and recreational Control and results pdf (Danish) 24pp

R15: The Joint Norwegian-Russian Fisheries Commission: http://www.jointfish.com/eng/THE-FISHERIES-COMMISSION/STRUCTURE.html

R16: CFP control and enforcement overview: http://ec.europa.eu/fisheries/cfp/control/index_en.htm

R17: ICES AFWG (October 2018) Barents Sea Capelin pdf 16pp
http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2018/AFWG/11-AFWG%20Report%202018%20Section%2009%20Barents%20Sea%20Capelin.pdf
R18: ICES Advice CAP 27.1-2 (October 2018) (7pp)
http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/cap.27.1-2.pdf

Standard clause 1.3.1.3

CATEGORY A SPECIES

The four clauses in this section apply to Category A species. Clauses A1 - A4 should be completed for **each** Category A species. If there are no Category A species in the fishery under assessment, this section can be deleted. A Category A species must meet the minimum requirements of all four clauses before it can be recommended for approval. If the species fails any of these clauses it should be re-assessed as a Category B species.

Species Name		**Capelin (*Mallotus villosus*)**	
A1	**Data Collection - Minimum Requirements**		
	A1.1	Landings data are collected such that the fishery-wide removals of this species are known.	PASS
	A1.2	Sufficient additional information is collected to enable an indication of stock status to be estimated.	PASS
		Clause outcome:	**PASS**

Evidence

A 1.1 - A 1.2:

The Norwegian Directorate of Fisheries (Control Section) monitors and controls the entire value chain through quayside controls, sales inspections, post landing audits and inspections at sea. Quota control and compliance to regulations are the main focus areas. Controls are conducted within the Norwegian Economical Zone (NEZ) (**Figure 1**). Landings data are utilised by both ICES and the IMR in their annual stock assessments, including total landings, age and length frequencies, and CPUE. Norwegian catches are sampled either from landing sites or from on-board samples where individuals in a haul are frozen and sent to IMR. A Fisheries Monitoring Centre (FMC) ensures 24/7 monitoring of fishing activities. Inspectors may board Norwegian vessels at any time when at sea.

Most of the Norwegian catch is taken by purse seiners, whereas the Russian catch is taken by trawlers. The ICES Artic Fisheries Working Group (AFWG) is supplied with catch in numbers and age by length, and also the location of catches. ICES consider discarding and slippage to be negligible. All catches are assumed to be landed. The amount of bycaught capelin in other fisheries is very low.

A joint Russian-Norwegian trawl-acoustic survey has been conducted in September annually since 1972. The abundance estimate resulting from this survey cruise is considered by ICES to be an absolute estimate of the size of the stock. However, it is recognised that migration during the survey may introduce uncertainty into the results. Natural mortality is estimated using a multi-species model and historical survey estimates. The level of uncertainty in the outputs of the stock assessment appear to be well understood by ICES, which does not report any specific, urgent improvements to data collection efforts that are required. ICES consider the current HCR to be precautionary; JNRFC agree with this and have decided that the HACR should be re-evaluated again in 2021.

Sufficient additional information is collected to enable an indication of stock status to be estimated. **R17-R18**

References

Standard clause 1.3.2.1.1

A2	Stock Assessment - Minimum Requirements		
	A2.1	A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock) and considers all fishery removals and the biological characteristics of the species.	PASS
	A2.2	The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.	PASS
	A2.3	The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.	PASS
	A2.4	The assessment is subject to internal or external peer review.	PASS
	A2.5	The assessment is made publically available.	PASS
		Clause outcome:	**PASS**

Evidence

A2.1:

Stock assessments are carried out both by IMR and the AFWG which produce annual capelin advice. The assessment is based on an annual acoustic survey, and according to ICES the survey coverage in 2017 was good and considered to include almost the entire distribution of the stock. The 2018 survey was also good in the area where maturing capelin is normally found and is considered to include almost the entire distribution of the maturing stock. The survey estimates of abundance at age in 2018 corresponds well to the 2017 estimate, and the mortality from age 1 to 2 seems reasonable, according to ICES. It has been suggested that the 2016 estimate was a considerable underestimate, and this year's estimate strengthens that hypothesis (ICES, 2017).

A stock assessment is conducted at least once every 3 years **R17-R18**

A2.2:

The stock estimate from the area covered by the 2018 survey was 1.60 million tonnes. About 66% (1.06 million tonnes) of the estimated stock biomass consisted of maturing fish (>14.0 cm). ICES assess that the estimate of spawning stock was above B_{lim} in 2018. No reference points for fishing pressure (F) have been defined for this stock as the fishery is conducted on maturing fish before spawning and spawning mortality is practically complete (IMR 2008).

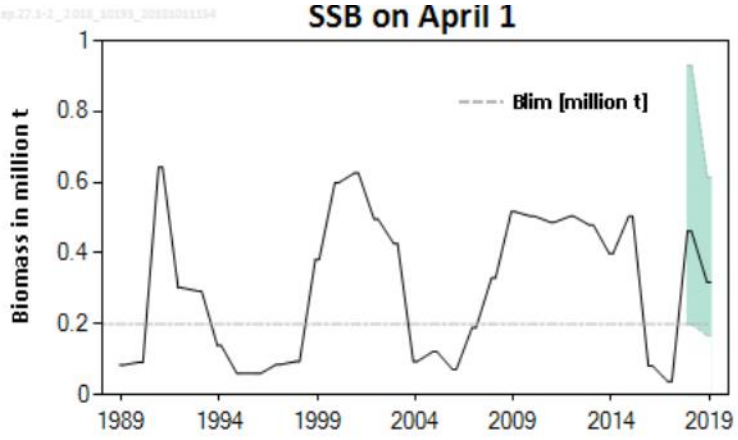

Figure 3: Capelin in subareas 1 and 2, excluding Division 2.a west of 5°W. Summary of stock assessment (October 2018) **R18**

Spawning-stock biomass has declined from 2018 to 2019 (**Figure 3**); the estimate of recruitment (age 1) has declined since 2013 (**Figure 4**) and has remained low:

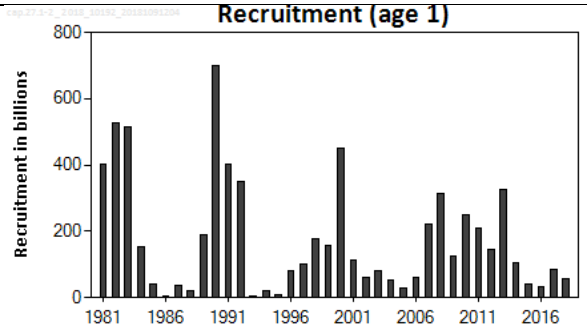

Figure 4: Capelin recruitment in subareas 1 and 2, excluding Division 2.a west of 5°W. **R18**

Table 1 Capelin in subareas 1 and 2, excluding Division 2.a west of 5°W. State of the stock and fishery relative to reference points. Stock size status is based on population size calculated for 1 April. **R18**

		Fishing pressure					Stock size			
		2016	2017	2018			2017	2018	2019	
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined		MSY $B_{trigger}$	?	?	? Undefined
Precautionary approach	F_{pa},F_{lim}	?	?	?	Undefined		B_{lim}	✗	✓	✓ Above
Management plan	F_{MGT}	?	?	?	Undefined		B_{MGT}*	✗	✓	✗ Not above with 95% probability

The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy. **R17-R18**

A2.3:

ICES advise that when the management plan of the Joint Norwegian–Russian Fisheries Commission (JNRFC) is applied, there should be zero catch in 2019. The JNRFC have followed this advice and have announced a zero TAC for 2019.

The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status **R17-R18**

A2.4-A2.5:

Science-based fishery management advice at the international level is provided by ICES, a network of more than 1,600 scientists from 200 institutes linked by an intergovernmental agreement (the ICES Convention) to add value to national research efforts. All ICES assessments are subject to peer review. As an EU Member State Denmark contributes to stock assessments of all commercial species in the assessment area.

In Norway representatives of the fishing industry and governmental authorities cooperate in the formulation of the regulatory chain (**Figure 2**). Scientific research and advice take key positions within the chain, ensuring understanding of the stock and broader ecosystem are considered. The involvement of stakeholders in management decisions in Norway is achieved through the Advisory Meeting for Fisheries Regulations representing fishermen's associations, fishing industries, trade unions, the Sami Parliament, local authorities, environmental organisations and other stakeholders. Assessments are subject to internal or external peer review and are made publicly available.

During the late 1970s, cooperation on management of shared fish stocks was instituted through the Joint Norwegian-Russian Fisheries Commission (JNRFC), formally established in 1975. Its responsibilities include deciding: management strategies; levels of total allowable catch (TAC) and TAC allocation between Russia and Norway. The JNRFC usually follows ICES stock assessment advice when managing the capelin fishery.

The assessment is subject to internal or external peer review and is made publicly available **R17-R19, R20**

References

R19: JNFRC 2016. Protocol of the 46th Session of the Joint Norwegian‑Russian Fisheries Commission, Annex 12. www.jointfish.com.
R20: Fishsource Barents Sea Capelin https://www.fishsource.org/stock_page/1830
R21: IMR, 2008. Stock assessment methodology for the Barents Sea capelin. Institute of Marine Research, Norway. Http

Standard clause 1.3.2.2, 1.3.2.1.2, 1.3.2.1.4

A3	**Harvest Strategy - Minimum Requirements**		
	A3.1	There is a mechanism in place by which total fishing mortality of this species is restricted.	PASS
	A3.2	Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.	PASS
	A3.3	Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).	PASS
		Clause outcome:	**PASS**

Evidence

A 3.1 – A 3.2:

Calculations of catch scenarios are based on a forward projection from the autumn acoustic survey, taking predation by immature cod, other natural mortality, and fishery options into account to calculate an SSB estimate for April 2019. The B_{MGT} used in the harvest control rule (Table 1) corresponds to 95% probability of the spawning stock being above B_{lim} on 1 April 2019. This was not achieved, according to results of the 2018 ICES forecast.

The maturing stock has decreased by 39% from 2017 to 2018. Since this stock is managed by a target escapement strategy, this decrease is expected to cause the spawning stock to fall below the limit in the HCR that would allow for a fishery in 2019. The change in ICES advice (closure of fishery) is thus greater than the decrease in stock abundance.

With no catch, the estimated median spawning stock size at 1 April 2019 is 317, 000t; the probability for the spawning stock to be below Blim (200, 000t) is 11%. For the 2019 fishery stock status is projected to be below B_{lim}.

Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment.

R18.

A 3.3:

There have been four major downturns and resulting closures of the fishery since the mid-1980s. The last stock collapse came in 2015-2016.

Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy **R17-R18**

References R17-R18

Standard clause 1.3.2.1.3

A4	Stock Status - Minimum Requirements		
	A4.1	The stock is at or above the target reference point, OR IF NOT: The stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure OR IF NOT: The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.	PASS
		Clause outcome:	**PASS**

Evidence

A 4.1:

The maturing stock has decreased by 39% from 2017 to 2018. Since this stock is managed by a target escapement strategy, this decrease is expected to cause the spawning stock to fall below the limit in the HCR that would allow for a fishery in 2019. The change in ICES advice (closure of fishery) is thus greater than the decrease in stock abundance**.**

Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy. **R17-R18**

References

Standard clause 1.3.2.1.4

FURTHER IMPACTS

The three clauses in this section relate to impacts the fishery may have in other areas. A fishery must meet the minimum requirements of all three clauses before it can be recommended for approval.

F1	Impacts on ETP Species - Minimum Requirements		
	F1.1	Interactions with ETP species are recorded.	PASS
	F1.2	There is no substantial evidence that the fishery has a significant negative effect on ETP species.	PASS
	F1.3	If the fishery is known to interact with ETP species, measures are in place to minimise mortality.	PASS
		Clause outcome:	**PASS**

Evidence

F 1.1 – F 1.3:

Norway:

Traditional marine monitoring programmes have generally focused on individual elements of the ecosystem, such as a single fish species or a single environmental factor. The IMR now takes a holistic approach to marine ecology, using modern research vessels and facilities to monitor and study the whole marine ecosystem.

The 2010 Norwegian red list classifies ten species of marine mammals and seventeen of seabirds in the region as Regionally Extinct, Critically Endangered, Endangered or Near Threatened (ETP). Blue whale (*Balaenoptera musculus*) and fin whale (*Balaenoptera physalus*) are classified as endangered in the region, although blue whale numbers are increasing; beluga (*Delphinapterus leucas*) and narwhal (*Monodon monoceros*) are considered to be near threatened and polar bear (*Ursus maritimus*) to be vulnerable and decreasing. Many top predators including harp seals and minke and humpback whales are important capelin feeders. Both harp seal and seabird populations have in the past been affected by low capelin abundances. There is however no reported evidence of significant direct impacts of the capelin fishery on any protected species, but available information is limited. **R20**

References

Standard clause 1.3.3.1

F2	Impacts on Habitats - Minimum Requirements		
	F2.1	Potential habitat interactions are considered in the management decision-making process.	PASS
	F2.2	There is no substantial evidence that the fishery has a significant negative impact on physical habitats.	PASS
	F2.3	If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts.	PASS
		Clause outcome:	**PASS**

Evidence

F 2.1-F2.3:

Given that this fishery uses pelagic gear (purse seines and midwater trawls) bottom interactions are not thought to be problematic. A similar finding for the adjacent capelin fishery in Iceland has been made (SAI Global 2017). Detailed habitat and biotope maps are readily available. Some management measures are in effect for both Norway and the EU.

Trawling has been banned in grounds of pre-spawning Capelin aggregations (ICES, 2009a). Areas may further be closed based on increased bycatch of herring or cod. Several Norwegian marine protected areas exist in the area of capelin's distribution, notably Forlandet National Park and Bjørnøya and Hopen Nature Reserves, but it is unknown if any special fishing regulations are in place.

Thirty-six areas are proposed for protection under Norway's marine conservation plan, and other areas where the environment and natural resources are considered valuable or vulnerable are part of a proposed Integrated Management Plan for the Barents Sea−Lofoten Area. These are selected based on the importance of their biological production and biodiversity, in terms of endangered, vulnerable or important species or habitats. Key spawning and egg and larval drift areas for important fish stocks; breeding, moulting and wintering areas for important seabirds and critical benthic fauna habitats are included.

To date, eight cold-water reef marine protected areas off the Norwegian coast have been created, in order to mitigate the impact of fisheries on the seabed habitats in the Barents Sea. Eighty seven percent of the territorial waters around Svalbard are protected through under the Svalbard Environmental Protection Act (UNESCO, 2014). The Norwegian Government has set a target for at least 10 % of coastal and marine areas to be protected by 2020.

In Russian waters specifically, coastal waters (<12 nm) from Varanger Fjord to 37^{o} We are closed to purse seining (and bottom trawling) in order to specifically protect benthic habitats. Although not part of the OSPAR Convention, a considerable part of the Russian EEZ within the Barents Sea is covered by the OSPAR Region 1 - Arctic waters.

If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts. **R23**

References

R22: SAI Global. 2017. Marine Stewardship Council Full Assessment Final Report for The ISF Iceland Capelin Fishery. 252 pp. SAI Global.
https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=JOxzDE07OLB0uPnAmhuOQHMN4jDnTeblDD4VhGZtPmGeK4LK7NQHDc53eiJiogem

R23: ICES, 2009a. Report of the Arctic Fisheries Working Group (AFWG), 21 -27 April 2009, San-Sebastian, Spain. Diane Lindemann. 579 579pp.
http://www.ices.dk/sites/pub/Publication%20Reports/Conference%20and%20Meeting%20(CM)%20documents/CM-2009/ACOM/ACOM0209.pdf

Standard clause 1.3.3.2

F3	**Ecosystem Impacts - Minimum Requirements**		
	F3.1	The broader ecosystem within which the fishery occurs is considered during the management decision-making process.	PASS
	F3.2	There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.	PASS
	F3.3	If one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals.	PASS
		Clause outcome:	**PASS**

Evidence

F 3.1-F3.3:

Trawling has been banned in grounds of pre-spawning Capelin aggregations (ICES, 2009a). Areas may further be closed based on increased bycatch of herring or cod. The number of young herrings in the Barents Sea can be an important factor that affects capelin recruitment. It is not currently considered in the assessment model.

The 2015 benchmark study for capelin stocks in the Barents Sea (ICES C.M. 2015/ACOM:31) noted the need for further study of this effect as well as better monitoring of young herring abundance. The amount of other food than capelin for cod and other predators may also have changed in recent years. This may also indirectly have affected predation pressure on capelin.

Oscillations in the Barents Sea ecosystem are mainly driven by changes in the ocean climate. Capelin is an important prey of distinct top predators and was recently identified as the most important prey for Atlantic cod which is at an historical high of abundance. All these dynamics and interactions should be clearly understood and included in the ecosystem-approach to properly manage all Barents Sea important species.

There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem. **R24**

References

R24 ICES WKARCT report 2015, Barents Sea Capelin chapter:
http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2015/WKARCT/01r

Standard clause 1.3.3.3