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IFFO RS
Global Standard for Responsible Supply
of Marine Ingredients

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Global Standard for Responsible Supply of Marine Ingredients Fishery Assessment Methodology and Template Report V2.0



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Fishery Under Assessment	Cod (<i>Gadus morhua</i>) North East Atlantic (Coastal and Arctic Cod Subareas I and II)
Date	January 2019
Assessor	Jim Daly

Application details and summary of the assessment outcome				
Name: Scanbio Ingredients AS; Vedde AS				
Address:				
Country:		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	0.5	Surveillance 1	By-product
Assessment Period	2018			

Scope Details	
Management Authority (Country/State)	Norway
Main Species	Cod (<i>Gadus morhua</i>)
Fishery Location	North-East Atlantic (Norway Coast, Arctic)
Gear Type(s)	Demersal trawl gear, gill nets and handlines.
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
Peer Review Evaluation	Agree
Recommendation	Do not process coastal cod.

Assessment Determination
<p>Norway and Russia jointly manage cod 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. Two stocks are considered in the assessment area: Norwegian Coastal Cod and Northeast Arctic Cod Stock (Areas I, II) (Figure 1). Fishery removals of the species in the fishery under assessment are included in the stock assessment process; SSB_{target} has been defined and a species specific management plan is in place. The species passes Clause C1.1 of this assessment (both stocks).</p> <p>ICES (2018) strongly recommends the development of a new rebuilding plan for Norwegian coastal cod. Until such a plan is in operation, ICES will continue to provide advice based upon the existing rebuilding plan. ICES estimates of commercial catches of this stock (2017) were 52,887t against an agreed TAC of 21,000t. The agreed TAC (added to the Norwegian TAC of Northeast Arctic Cod) for 2018 was 21,000t. Discarding is assumed to be negligible. For the coastal cod stock ICES cannot assess the stock and exploitation status relative to MSY and PA reference points because reference points are undefined. The survey estimate in 2017 was well below the rebuilding biomass set in the management plan (Figure 3). For this stock removals from the fishery are not considered negligible, the Coastal cod stock therefore does not pass Clause C1.2.</p> <p>A Joint Russian-Norwegian Fisheries Commission (JRNFC) management plan has been in place since 2004 for the Northeast Arctic Cod Stock (Areas I, II). At the 46th meeting of the JRNFC (October 2016) the previously used management plan was amended, and the TAC calculated as the average catch predicted for the coming 3 years, using a target level of exploitation (F_{tr}) calculated according to the SSB in the first year of the forecast. The spawning-stock biomass (SSB) has been above $MSY B_{trigger}$ since 2002. ICES assesses that fishing pressure on the Northeast Arctic Cod stock is at $F_{pa} = F_{MSY}$ and below F_{lim}, while spawning stock size is above $MSY B_{trigger}$, B_{pa}, and B_{lim}. The stock has full reproductive capacity. The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy). This stock passes Clause C1.2.</p>

The quota established by the Joint Russian-Norwegian Fisheries Commission (JNRFC) for 2018 was 775,000t, as JNRFC decided on a gradual implementation of the change from a 10% to a 20% limit on annual TAC change. ICES reported landings of 868,276t in 2017 against an agreed overall TAC of 890,000t.

Cod and Haddock (Barents and Norwegian Sea, FAO 27, various gear types) are currently certified under the MSC Fisheries Standard v 2.0.

Cod in the assessment area has not yet been assessed for the IUCN Red List; Atlantic Cod globally is assessed as vulnerable; Cod is not on the current list of CITES endangered species (websites accessed 18.01.19).

Arctic Cod from the assessment area is approved by the assessment team for the production of fishmeal and fish oil under the IFFO-RS v 2.0 by-product standard. Coastal cod from the assessment area is not approved.

Peer Review Comments

Coastal and Arctic Cod Subareas I and II are evaluated in different stock assessments. The Coastal Cod stock is not in a good shape in the last assessment report (ICES, 2018). According to the catch estimates, the commercial catch of coastal cod in 2015 was the highest since 2002, and the 2016 catch the highest since 1998. To obtain the reductions implied by the Rebuilding Plan, stronger restrictions are required in all areas where coastal cod is distributed. These restriction requirements include coastal cod taken as bycatch in Northeast Arctic cod, haddock, and saithe fisheries.

However the Northeast Arctic cod stock assessment has shown that the stock is above MSY Btrigger and presents full reproductive capacity. F is close to FMSY but well below Flim, therefore the stock is in a good shape.

For all together I would recommend to pass the byproducts from the catch coming from the Northeast Arctic stock but not from the Coastal Cod.

Notes for On-site Auditor

Ensure no coastal cod is processed and labelled during production or processing.

Note: This table should be completed for whole fish assessments only.

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C	Artic COD (<i>Gadhus morhua</i>)	N/A	PASS	
Category C	Coastal COD (<i>Gadhus morhua</i>)	N/A	FAIL	
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
COD	<i>Gadus morhua</i>	ICES I,II	N/A	JNFRC, Norway	C

CATEGORY C SPECIES

In a whole fish assessment, Category C species are those which make up less than 5% of landings, but which are subject to a species-specific management regime. In most cases this will be because they are a commercial target in a fishery other than the one under assessment. In a by-product assessment, Category C species are those which are subject to a species-specific management regime, and are usually targeted species in fisheries for human consumption.

Clause C1 should be completed for **each** Category C species. If there are no Category C species in the fishery under assessment, this section can be deleted. A Category C species does not meet the minimum requirements of clause C1 should be re-assessed as a Category D species.

Species Name		COD (<i>Gadus morhua</i>)	
C1	Category C Stock Status - Minimum Requirements		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	PASS/ FAIL
Clause outcome:			PASS
Evidence			
C1.1:			
Norway and Russia jointly manage cod 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.			
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).			
Stock assessments are carried out both by IMR and the Artic Fisheries Working Group (AFWG) which produce annual advice. For both Coastal Cod and Artic Cod stocks benchmark surveys were undertaken in 2015 and 2017 respectively:			
			
Figure 1: Norway fishing zones (adapted from FAO Fisheries and Aquaculture-Country Profiles) R1			

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 taken into account. 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 (Indigenous People), Parliament, local authorities, environmental organisations and other stakeholders. Assessments are subject to internal or external peer review and are made publicly available:



Figure 2: Regulatory chain of Norwegian fishery management **R5**

The current assessment (ICES 2018 Coastal Cod Stock) is based on survey SSB index and estimates of F from an exploratory VPA assessment. Input data (Coastal Cod) includes catch-at-age and an acoustic survey; commercial catches (landings, age and length frequencies from catch sampling); one survey index (coastal survey, NOcoast-Aco-4Q); annual maturity data from surveys; natural mortalities assumed, $M = 0.2$. Estimated recreational catch is considered to be highly uncertain. Discarding is considered to be negligible. Bycatch is included. The last benchmark survey was in 2015.

The current assessment (ICES 2018 Northeast Arctic Cod) is an age-based analytical assessment (SAM; ICES, 2018) that uses catches in the model and in the forecast. Commercial catches (international landings, ages and length frequencies from catch sampling); four survey indices (Joint bottom trawl survey Barents Sea, Feb-Mar (BS-NoRu-Q1 (BTr)); Joint acoustic survey Barents Sea and Lofoten, Feb-Mar (BS-NoRu-Q1 (Aco)); Russian bottom trawl survey, October-December (RU-BTr-Q4)); Joint Ecosystem survey (Eco-NoRu-Q3 (Btr)); annual maturity data from the four surveys; natural mortalities from annual stomach sampling. Discarding is considered negligible in recent years (below 5%). Bycatch is included. The fishery was last benchmarked in April 2017.

Fishery removals of the species in the fishery under assessment are included in the stock assessment process **R2-R8**

C1.2:

Coastal Stock (Subareas I,II):

For the Norwegian Coastal Stock B_{lim} is undefined but a management plan is in place. The plan (put in place in 2011) specifies reductions in fishing mortality relative to F_{2009} . Step 1 of the plan was initiated in 2011. The regulation in 2011 was aimed at a 15% reduction of F relative to F_{2009} . The 2011 survey gave a higher SSB index than in 2010, allowing the regulation for step 1 to continue into 2012. The 2012 survey resulted in a lower SSB index compared to 2011; accordingly step 2 (**Table 1**) was set in motion in 2013, with regulations aiming for an F at least 30% below F_{2009} ; new steps are initiated when the annual SSB survey index is lower than the index in the previous year:

Table 1: Reduction of F^* relative to F_{2009} (Norwegian Rebuilding Plan for Cod Coastal Stock). Action Steps R7

Action step*	1	2	3	4	5	6 and later
Reduction of F relative to F_{2009}	15%	30%	45%	60%	75%	Keep F at or below 0.1

* A new step is initiated when the most recent survey index for SSB is lower than the index in the previous year (and at the same time the most recent estimate of F is above 0.10).

The rebuilding plan, as communicated to ICES (2010) by the Norwegian Ministry of Fisheries states that the stock complex will only be regarded as restored when the survey index of spawning stock in two successive years is observed to be above 60,000t SSB_{target}. This rebuilding target will be redefined on the basis of relevant scientific information.

If the 2018 SSB index (data was available December 2018) is below the 2017 index, application of the rebuilding plan implies that the regulations should ensure that catches in 2019 are consistent with no less than a 75% reduction in F relative to the 2009 value. If the 2018 SSB index is above the 2017 index, then the required reduction in F remains at 60% relative to the 2009 value.

Stock development (Coastal Cod):

The survey estimate in 2017 was well below the rebuilding biomass set in the plan (**Figure 3**). Both SSB and recruitment have been stable overall in the last two decades. Fishing pressure (F) increased in 2015, 2016, and 2017, after a declining trend over the period 2000–2014.

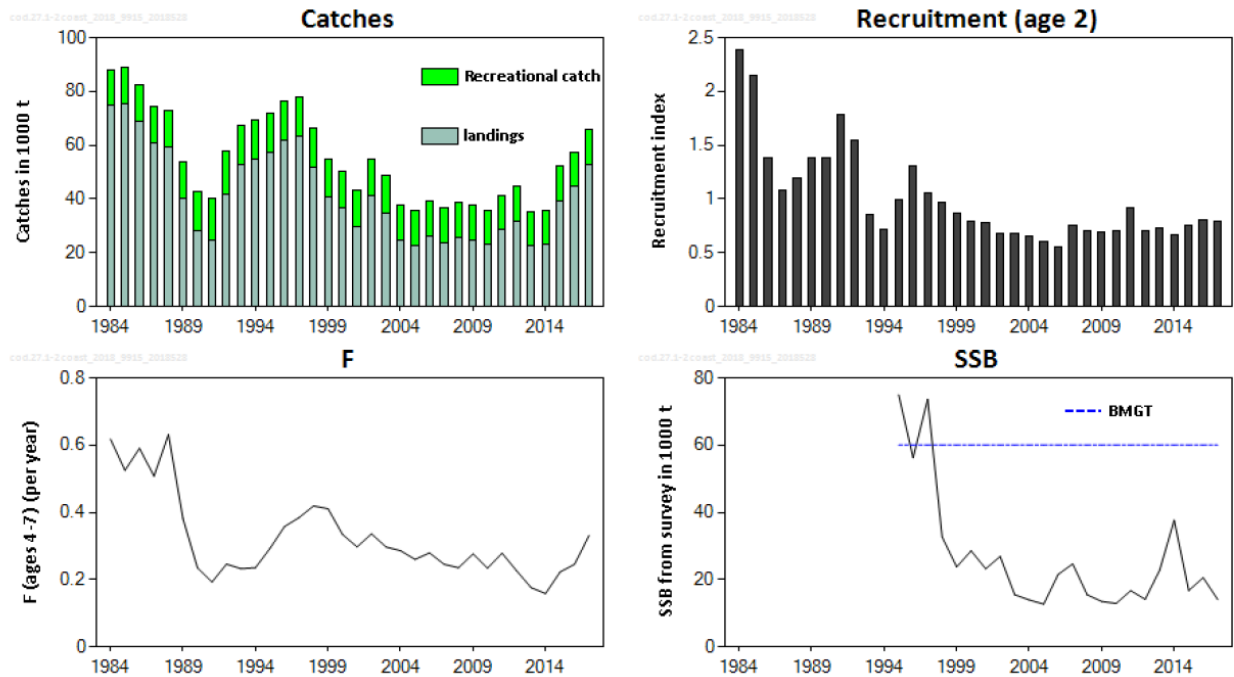


Figure 3: Cod in subareas 1 and 2 (Norwegian coastal waters cod). Catches (recreational catches fixed at 12, 700t), the relative recruitment index (long-term average = 1) and F estimate from the exploratory VPA assessment. SSB index includes the rebuilding biomass of 60, 000t in the rebuilding plan). **R7**

ICES cannot assess the stock and exploitation status relative to MSY and PA reference points because reference points are undefined:

Table 2: Cod in subareas 1 and 2 (Norwegian coastal waters cod). State of the stock and fishery relative to reference points **R7**

		Fishing pressure				Stock size			
		2015	2016	2017		2015	2016	2017	
Maximum Sustainable Yield	F_{MSY}	?	?	?	Undefined	$MSY B_{Trigger}$?	?	?
Precautionary Approach	F_{pa}, F_{lim}	?	?	?	Undefined	B_{pa}, B_{lim}	?	?	?
Management plan	F_{MGT}	?	?	?	Undefined	B_{MGT}	✗	✗	✗
Qualitative evaluation	-	↗	↗	↗	Increasing	-	↘	↗	Decreasing

The assessment (Coastal Cod) is rather uncertain. The reasons for this include:

- (a) uncertainty in the catch split between Northeast Arctic cod and coastal cod, where coastal cod is the minor fraction of the overall cod catch,
- (b) highly uncertain data for the recreational catch,
- (c) uncertainty regarding stock identity among coastal cod sub-stocks, and
- (d) the survey is considered uncertain since it does not cover the shallow parts of the stock distribution area.

The rebuilding plan has now been in operation for eight years. The plan implies that the fishing mortality in 2018 should be at least 60% lower than the 2009 value. The 2017 data indicate increasing fishing mortality, and the estimated catch in 2017 is well above the catch in 2009. The regulations have therefore not been

sufficient to constrain coastal cod catches in 2015, 2016, and 2017, and the most recent estimate of F is above the F in 2009.

ICES estimates of commercial catches (2017) were 52, 887t; the TAC (2017) was 21,000t. The agreed TAC (added to the Norwegian TAC of Northeast Arctic Cod) for 2018 was 21,000t. Discarding is assumed to be negligible. ICES (2018) now strongly recommends the development of a new rebuilding plan for Norwegian coastal cod. Until such a plan is in operation, ICES will continue to provide advice based upon the existing rebuilding plan.

Northeast Arctic Stock (I,II):

ICES advises that when the Joint Russian-Norwegian Fisheries Commission management plan is applied, catches in 2019 should be no more than 674,678t. Bycatch of coastal cod and golden redfish (*Sebastes norvegicus*) should be kept as low as possible.

The spawning-stock biomass (SSB) has been above $MSY B_{trigger}$ since 2002. The SSB reached a peak in 2013 and now shows a downward trend. Fishing mortality (F) was reduced from well above F_{lim} in 1997 to below F_{MSY} in 2008. It remained below F_{MSY} until 2017 when it became equal to F_{MSY} . There has been no strong recruitment since the 2004 and 2005 year classes (**Figure 4**):

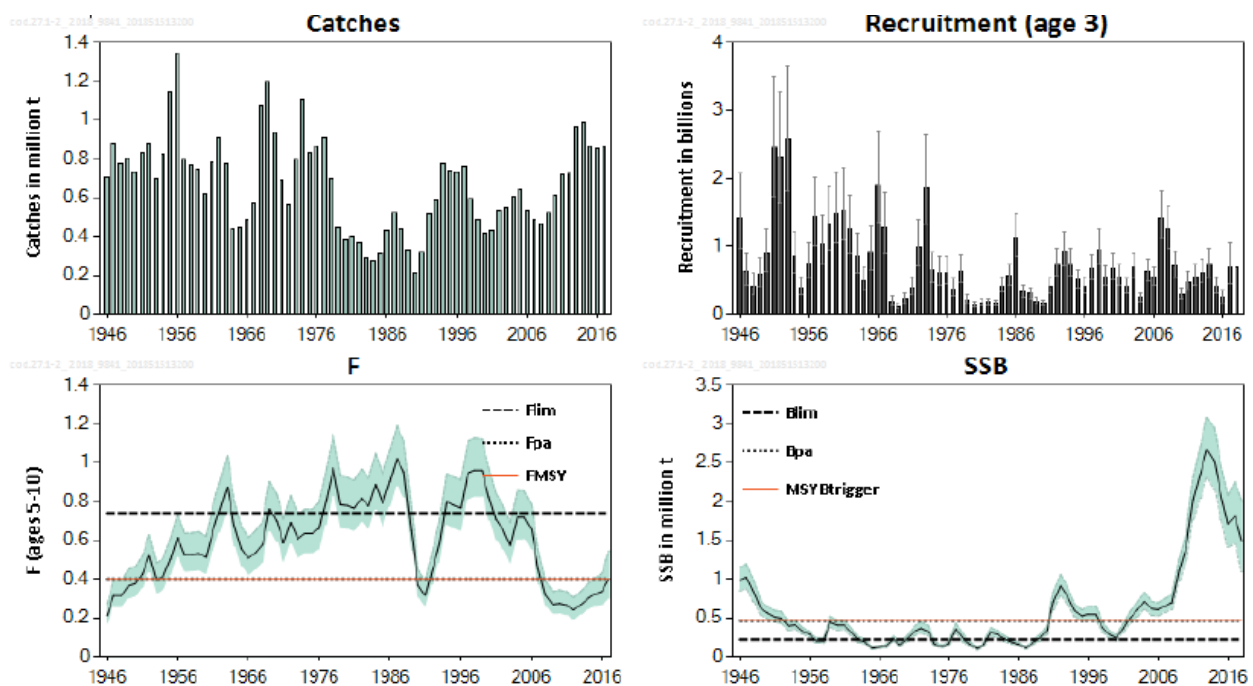


Figure 4: Cod in subareas 1 and 2 (Northeast Arctic). Catch, recruitment, F , and SSB. Recruitment, F , and SSB have confidence intervals (95%) in the plot. For this stock, $FMGT = F_{MSY}$ and $SSBMGT = MSY B_{trigger} = B_{pa}$. **R8**

This stock has been subject to a Joint Russian-Norwegian Fisheries Commission plan since 2004. ICES assesses that fishing pressure on the stock is at $F_{pa} = F_{MSY}$ and below F_{lim} , while the spawning stock size is above $MSY B_{trigger}$, B_{pa} , and B_{lim} . The stock has full reproductive capacity:

Table 3: Cod in subareas 1 and 2 (Northeast Arctic). State of the stock and fishery relative to reference points **R8**

		Fishing pressure			Stock size					
		2015	2016	2017		2016	2017	2018		
Maximum sustainable yield	F_{MSY}	✓	✓	✓	At target	MSY $B_{trigger}$	✓	✓	✓	Above trigger
Precautionary approach	F_{pa} F_{lim}	✓	✓	✓	Harvested sustainably	B_{pa} B_{lim}	✓	✓	✓	Full reproductive capacity
Management plan	F_{MGT}	✓	✓	✓	Below	B_{MGT}	✓	✓	✓	Above

The advice for 2018 given by ACOM in 2017 was 712, 000t, based on the agreed harvest control rule with the clause of having catch corresponding to a –20% change compared to the 2017 TAC. The quota established by the Joint Russian–Norwegian Fisheries Commission (JNRFC) for 2018 was 775, 000t, as JNRFC decided on a gradual implementation of the change from a 10% to a 20% limit on annual TAC change.

ICES reported landings of 868,276t in 2017, against an agreed TAC of 890,000t. A TAC of 775,000t was agreed for the 2018 fishery.

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy) **R8-R10**

References

- R1:** Norway fishing zones (adapted from FAO Fisheries and Aquaculture-Country Profiles)
<http://www.fao.org/fishery/facp/NOR/en#CountrySector-LegalFrameworkOverview>
- R2:** The Joint Norwegian-Russian Fisheries Commission: <http://www.jointfish.com/eng/THE-FISHERIES-COMMISSION/STRUCTURE.html>
- R3:** Ministry of Trade Industry and Fisheries
<https://www.regjeringen.no/en/id4/> (accessed 18.01.19)
- R4:** Institute of Marine Research (IMR) <http://www.imr.no/en>
- R5:** Directorate of Fisheries: Norwegian-Fisheries-Management
<https://www.fiskeridir.no/English/Fisheries/Norwegian-Fisheries-Management>
- R6:** ICES. 2018. Report of the Arctic Fisheries Working Group (AFWG), 18–24 April 2018, JRC, Ispra, Italy. ICES CM 2018/ACOM:06.
- R7:** ICES advice (June) 2018. Cod (*Gadus morhua*) in subareas 1 and 2 (Norwegian coastal waters cod)
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/cod.27.1-2coast.pdf>
- R8** ICES Advice (2018) Northeast Arctic Stock (I,II):
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/cod.27.1-2.pdf>
- R9** ICES. 2010. Request by the Norwegian ministry of fisheries and coastal affairs: Evaluation of a rebuilding plan for coastal cod. In Report of the ICES Advisory Committee, 2010. ICES Advice 2010, Book 3, Section 3.3.3.1. 3 pp.
- R10** ICES. 2017a. Report of the Arctic Fisheries Working Group (AFWG), 19–25 April 2017, ICES HQ, Copenhagen, Denmark. ICES CM 2017/ACOM:06. 493 pp.
- R11** IUCN Red List <https://www.iucnredlist.org>
- R12** CITES <http://checklist.cites.org/#/en>

Standard clauses 1.3.2.2