MarinTrust Standard V2

By-product Fishery Assessment

Cod in Norway EEZ Subareas 1 & 2

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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Cod (*Gadus morhua*)
	Geographical area:	Norway EEZ Subareas 1 & 2
	Country of origin of the product:	Norway
	Stock:	Norway coastal waters

Date	October 2022
Report Code	NOR10
Assessor	Sam Peacock
Country of origin of the product - PASS	Norway
Country of origin of the product - FAIL	None

| Application details and summary of the assessment outcome			
Company Name(s):			
Country: Norway			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:		LRQA	
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Sam Peacock	Kate Morris	0.25	Surveillance
Assessment Period	October 2022 – October 2023		

Scope Details	
Main Species	Cod (*Gadus morhua*)
Stock	Norway coastal waters
Fishery Location	FAO 27, Norway EEZ Subareas 1 & 2
Management Authority (Country/ State)	Norway
Gear Type(s)	Gillnet, Bottom trawl, Danish seine, Longline/handline
Outcome of Assessment	
Peer Review Evaluation	Pass
Recommendation	Maintain approval

Table 2. Assessment Determination

Assessment Determination

Cod has been categorised by the IUCN as Least Concern and it does not appear in the CITES appendices.

Prior to 2021, Norwegian coastal cod was assessed as a single unit. Since 2021, the stock has been split into a data-rich northern component and a data-limited southern component. This MT assessment covers both stocks.

The Northern Norwegian coastal cod stock has no reference points formally established. A biomass-based reference point, $SSB_{lowerbound}$, has been estimated as part of the rebuilding plan, but ICES notes that it is "used only as the limit above which the management plan is considered precautionary"[1]. In the opinion of the assessor, this renders it inappropriate to use as a limit reference point for the purposes of this byproduct assessment, and the stock was assessed under Category D.

Northern Norwegian coastal cod was awarded a Productivity score of 1.71 and a Susceptibility score of 2.5, leading to a Pass rating against Table D3. Therefore, the Northern cod stock should be approved for use as an MT byproduct.

Similarly, the Southern Norwegian coastal cod stock has no reference points formally established. A proxy for MSY $B_{trigger}$ has been established based on the lowest recorded biomass index and set at 1.4 times this value[2]. As this proxy is used as a reference point for purposes of the ICES advice, the stock was assessed under Category C. Although the stock biomass proxy was estimated in the 2022 stock assessment to be above MSY $B_{treigger}$, there are significant uncertainties in the stock assessment due to data gaps including a lack of recreational catch data, discard data and high uncertainty in a key data series. For this reason, the Southern cod stock failed the Category C assessment, and as per the MT By-product, assessment guidance was subsequently assessed under Category D.

Southern Norwegian coastal cod was awarded a Productivity score of 1.71 and a Susceptibility score of 2.5, leading to a Pass rating against Table D3. For this reason, the Southern cod stock should also be approved for use as an MT byproduct.

Fishery Assessment Peer Review Comments

The by-product fishery under assessment here is the Norwegian coastal cod (*Gadus morhua*) fishery which encompasses a Southern and Northern stock, pursued by Norwegian vessels in FAO fishing area 27. Norwegian Cod is managed by the Norwegian government. For this Marin Trust assessment, the Southern stock is scored as a category C species and the Northern stock is scored as a category D species. The Southern stock failed against the MT requirements for category C but passed under category D.
All species scoring tables have been completed by the auditor with sufficient evidence presented to support their final determination.
The peer review supports the auditor's recommendation to Pass both stocks of the fishery under the Marin Trust IFFO RS v2.0 by-fishery standard for the production of fishmeal and fish oil.

Notes for On-site Auditor

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[1] ICES (2022). Cod (*Gadus morhua*) in Subareas 1 and 2 north of 67°N (Norwegian Sea and Barents Sea), northern Norwegian coastal cod. In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, cod.27.1-2coastN, https://doi.org/10.17895/ices.advice.20071997
[2] ICES (2022). Cod (*Gadus morhua*) in Subarea 2 between 62°N and 67°N (Norwegian Sea), southern Norwegian coastal cod. In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, cod.27.2.coastS, https://doi.org/10.17895/ices.advice.20072021
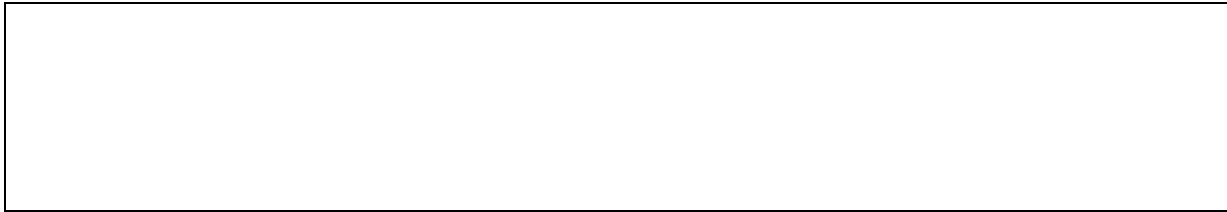
Species Categorisation

NB: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in CITES Appendix 1, it **cannot** be approved for use as an MarinTrust raw material.

IUCN Red list Category

By-product material from a species listed by IUCN (the International Union for Conservation of Nature) under the Red List for the following categories shall immediately fail the assessment;

- EXTINCT (E) AND EXTINCT IN THE WILD (EW)

- CRITICALLY ENDANGERED (CR) facing an extremely high risk of extinction in the wild.

- ENDANGERED (EN) facing a very high risk of extinction in the wild.

By-product material may be used from the following categories provided that all clauses in the MarinTrust standard are passed.

- VULNERABLE (VU) facing a high risk of extinction in the wild.

- NEAR THREATENED (NT) does not qualify for above now, but is close or is likely to qualify for, a threatened category in the near future.

- LEAST CONCERN (LC) Widespread and abundant.

- DATA DEFICIENT (DD) and NOT EVALUATED (NE)

Table 3 Species Categorisation Table

Common name	Latin name	Stock	Management	Category	IUCN Red List Category[3]	CITES Appendix 1[4]
Cod	*Gadus morhua*	Northern Norwegian coastal cod	No	D	Least Concern[5]	No
Cod	*Gadus morhua*	Southern Norwegian coastal cod	Yes	C	Least Concern[5]	No

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[3] https://www.iucnredlist.org/
[4] https://cites.org/eng/app/appendices.php
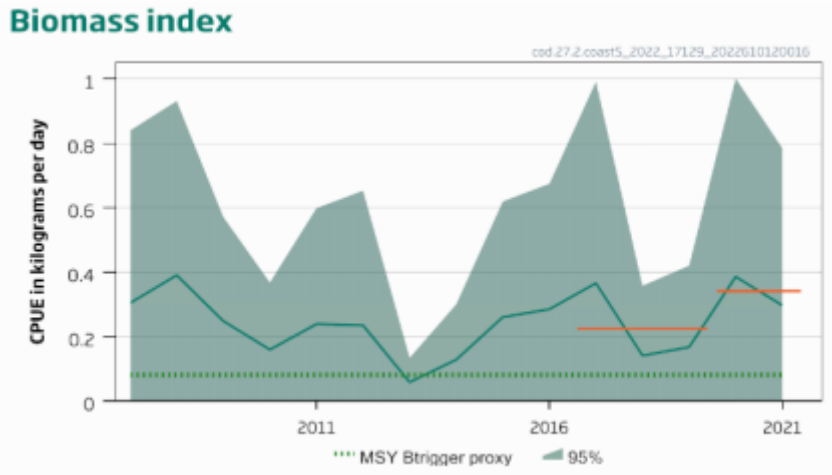[5] https://www.iucnredlist.org/species/8784/45097319

CATEGORY C SPECIES

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. Where a species fails this Clause, it should be assessed as a Category D species instead.

Species Name	Southern Norwegian coastal cod	
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.	FAIL
	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
	Clause outcome:	PASS

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.

A stock assessment is conducted regularly by the ICES Arctic Fisheries Working Group (AFWG), most recently in 2022 (ICES 2022). The assessment was a trends-based assessment based on a standardised CPUE index from the reference fleet. The ICES catch advice states that the assessment "is uncertain due to poorly quantified recreational catch data, high uncertainty of the coastal reference fleet's gillnet CPUE series…and uncertainty in the catch split between Northeast Arctic cod and coastal cod" (ICES 2022). Recreational catches are likely larger than commercial catches, but are unreported and are therefore estimated for the purposes of the stock assessment. Additionally, discarding is known to take place but ICES is unable to quantify the corresponding catch.

Although commercial catch is included in the stock assessment model, there is a high degree of uncertainty in the assessment outcomes and discarding is not included. For these reasons, C1.1 is not met.

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.

The 2022 ICES catch advice includes an indication of the current status of the southern Norwegian coastal cod stock relative to proxy reference points. MSY $B_{trigger}$ proxy has been established as 0.081, calculated as I_{loss} x 1.4, where I_{loss} is the lowest biomass index value. The biomass index value itself is a composite standardised CPUE index from the coastal reference fleet. The 2022 stock assessment concluded that "stock size is above the MSY $B_{trigger}$ proxy ($I_{trigger}$)" (ICES 2022), and therefore above any potential limit reference point proxy. For this reason, C1.2 is met.

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Biomass index

Southern Norwegian coastal cod, biomass index. The biomass index is a composite standardized CPUE index from the coastal reference fleet (9–15 m vessel length) in areas 6 and 7 during quarters 3 and 4, 2007–2021. The horizontal orange lines indicate the average of the most recent two years and the previous three years (ICES 2022).

References
ICES (2022). Cod (*Gadus morhua*) in Subarea 2 between 62°N and 67°N (Norwegian Sea), southern Norwegian coastal cod. In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, cod.27.2.coastS, https://doi.org/10.17895/ices.advice.20072021

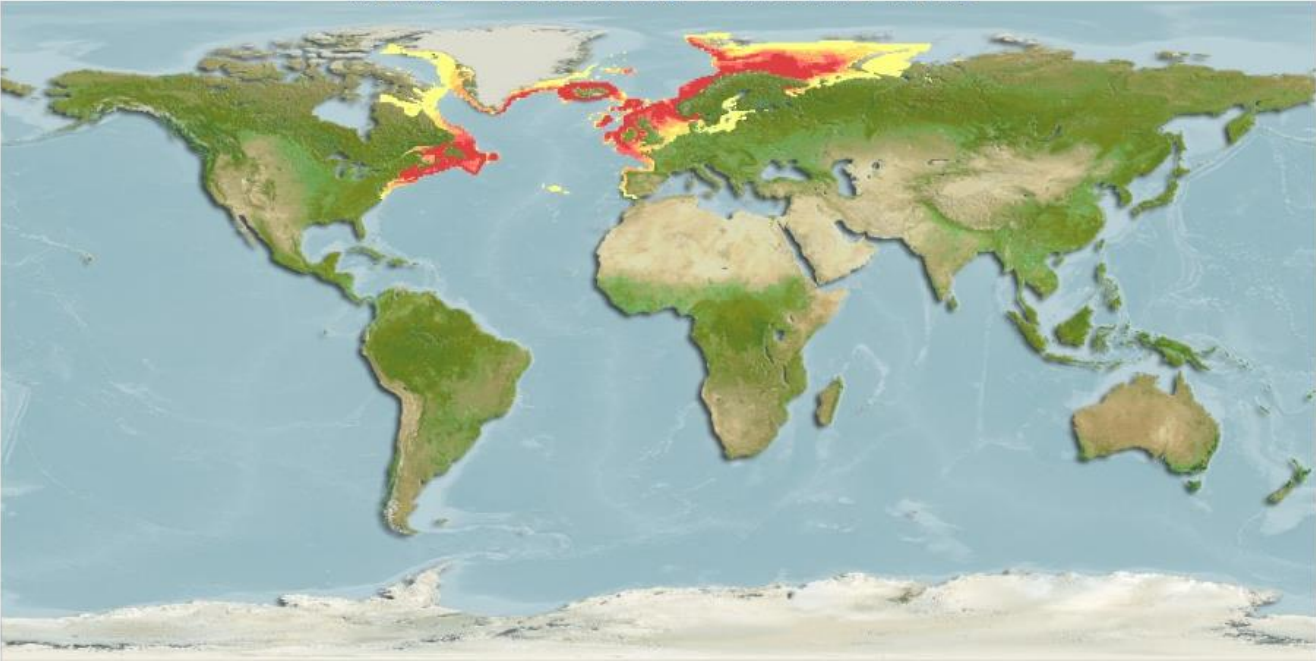| Links	
MarinTrust Standard clause	1.3.2.2
FAO CCRF	7.5.3
GSSI	D.3.04, D5.01

CATEGORY D SPECIES

Category D species are those which are not subject to a species-specific management regime. In the case of mixed trawl fisheries, Category D species may make up the majority of landings. The comparative lack of scientific information on the status of the population of the species means that a risk-assessment style approach must be taken.

D1	Species Name		Northern Norwegian Coastal Cod	
	Productivity Attribute		**Value**	**Score**
	Average age at maturity (years)		3.6 years	1
	Average maximum age (years)		16.9 years	2
	Fecundity (eggs/spawning)		1,610,435	1
	Average maximum size (cm)		200cm	2
	Average size at maturity (cm)		55cm	2
	Reproductive strategy		Broadcast spawner	1
	Mean trophic level		4.1	3
			Average Productivity Score	**1.71**
	Susceptibility Attribute		**Value**	**Score**
	Availability (area overlap)		<10% overlap	1
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)		Targeted	3
	Selectivity of gear type		Retained	3
	Post-capture mortality		Retained	3
			Average Susceptibility Score	**2.5**
			PSA Risk Rating (From Table D3)	**PASS**
			Compliance rating	**PASS**

Further justification for susceptibility scoring (where relevant)
For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision

Cod, computer-generated distribution map. From Fishbase, https://www.fishbase.se/summary/69

Standard clauses 1.3.2.2

D1	Species Name		Southern Norwegian Coastal Cod	
	Productivity Attribute		**Value**	**Score**
	Average age at maturity (years)		3.6 years	1
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	Fecundity (eggs/spawning)		1,610,435	1
	Average maximum size (cm)		200cm	2
	Average size at maturity (cm)		55cm	2
	Reproductive strategy		Broadcast spawner	1
	Mean trophic level		4.1	3
			Average Productivity Score	**1.71**
	Susceptibility Attribute		**Value**	**Score**
	Availability (area overlap)		<10% overlap	1
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)		Targeted	3
	Selectivity of gear type		Retained	3
	Post-capture mortality		Retained	3
			Average Susceptibility Score	**2.5**
			PSA Risk Rating (From Table D3)	**PASS**
			Compliance rating	**PASS**

Further justification for susceptibility scoring (where relevant)

For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision

Cod, computer-generated distribution map. From Fishbase, https://www.fishbase.se/summary/69

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References
Fishbase, cod. https://www.fishbase.se/summary/69
Standard clauses 1.3.2.2

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Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	High productivity (Low risk, score = 1)	Medium productivity (medium risk, score = 2)	Low productivity (high risk, score = 3)
Average age at maturity	<5 years	5-15 years	>15 years
Average maximum age	<10 years	10-25 years	>25 years
Fecundity	>20,000 eggs per year	100-20,000 eggs per year	<100 eggs per year
Average maximum size	<100 cm	100-300 cm	>300 cm
Average size at maturity	<40 cm	40-200 cm	>200 cm
Reproductive strategy	Broadcast spawner	Demersal egg layer	Live bearer
Mean Trophic Level	<2.75	2.75-3.25	>3.25

Susceptibility attributes	Low susceptibility (Low risk, score = 1)		Medium susceptibility (medium risk, score = 2)		High susceptibility (high risk, score = 3)	
Areal overlap (availability) Overlap of the fishing effort with the species range	<10% overlap		10-30% overlap		>30% overlap	
Encounterability The position of the stock/species within the water column relative to the fishing gear, and the position of the stock/species within the habitat relative to the position of the gear	Low overlap with fishing gear (low encounterability).		Medium overlap with fishing gear.		High overlap with fishing gear (high encounterability). Default score for target species	
Selectivity of gear type Potential of the gear to retain species	a	Individuals < size at maturity are rarely caught	a	Individuals < size at maturity are regularly caught.	a	Individuals < size at maturity are frequently caught
	b	Individuals < size at maturity can escape or avoid gear.	b	Individuals < half the size at maturity can escape or avoid gear.	b	Individuals < half the size at maturity are retained by gear.
Post-capture mortality (PCM) The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	Evidence of majority released post-capture and survival.		Evidence of some released post-capture and survival.		Retained species or majority dead when released.	

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D3		Average Susceptibility Score		
		1 - 1.75	1.76 - 2.24	2.25 - 3
Average Productivity Score	1 - 1.75	PASS	PASS	PASS
	1.76 - 2.24	PASS	PASS	TABLE D4
	2.25 - 3	PASS	TABLE D4	TABLE D4

D4	Species Name	
	Impacts On Species Categorised as Vulnerable by D1-D3 - Minimum Requirements	
	D4.1	The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.	
	D4.2	There is no substantial evidence that the fishery has a significant negative impact on the species.	

	Outcome:	

Evidence

D4.1: The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.

D4.2 There is no substantial evidence that the fishery has a significant negative impact on the species.

References

Links

MarinTrust Standard clause	1.3.2.2, 4.1.4
FAO CCRF	7.5.1
GSSI	D.5.01