



MarinTrust Standard V2

By-product Fishery Assessment *Norway silvery cod (Gadiculus thori)* *in Norway EEZ*

MarinTrust Programme

Unit C, Printworks

22 Amelia Street

London

SE17 3BZ

E: standards@marin-trust.com

T: +44 2039 780 819

Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Norway silvery cod (<i>Gadiculus thori</i>)
	Geographical area:	FAO Area 27 Northeast Atlantic
	Country of origin of the product:	Norway
	Stock:	Norwegian silvery cod stock
Date	18 January 2024	
Report Code	NOR11	
Assessor	Ana Elisa Almeida Ayres	
Country of origin of the product - PASS	Pass	
Country of origin of the product - FAIL	N/A	

Application details and summary of the assessment outcome			
Company Name(s): Pelagia Karmsund Fiskemel, Pelagia Bodø Sildoljefabrikk, Grøntvedt Nutri, Pelagia Måløy Sildoljefabrikk, Scanbio Ingredients AS, Prima Protein AS, Pelagia Karmsund Protein AS, TripleNine Vedde AS, Pelagia Egersund Sildoljefabrikk			
Country: Norway			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:		Global Certification Trust/NSF	
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/Re-approval
Ana Elisa Almeida Ayres	Matthew Jew	0.5	Initial
Assessment Period	January 2024 – January 2025		

Scope Details	
Main Species	Norway silvery cod (<i>Gadiculus thori</i>)
Stock	Norwegian silvery cod stock
Fishery Location	FAO Area 27 Northeast Atlantic
Management Authority (Country/ State)	Norway Department of Fisheries
Gear Type(s)	Bottom Trawl
Outcome of Assessment	
Peer Review Evaluation	Agree with assessor's recommendation
Recommendation	APPROVED

Table 2. Assessment Determination

Assessment Determination
<p>For nearly seven decades, <i>Gadiculus thori</i> and <i>Gadiculus argenteus</i> were considered subspecies, inhabiting the Northeast Atlantic Ocean and the Mediterranean. Recent findings, supported by distinct adult otoliths and molecular data, unequivocally confirm the existence of two separate <i>G.</i> species, aligning with larval morphotypes. Presently, <i>G. thori</i>, the cold-water species, extends its range to Southeast Greenland, thriving in cold-temperate and subarctic latitudes, while <i>G. argenteus</i>, adapted to warmer waters, is distributed in the warm-temperate East Atlantic and Mediterranean (MDI, 2017). Thus, this assessment is based on Norway silvery cod (<i>G. thori</i>) in FAO Area 27 Northeast Atlantic.</p> <p>If any species is categorised as Endangered or Critically Endangered on Union for Conservation of Nature's Red List of Threatened Species - IUCN's Red List, or if it appears in the Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES appendices, it cannot be approved for use as MarinTrust raw material. Norway silvery cod (<i>G. thori</i>) is not categorised as Endangered or Critically Endangered on IUCN's Red List and does not appear in CITES appendices; therefore, Norway silvery cod (<i>G. thori</i>) is eligible for approval for use as Marin Trust by-product raw material.</p> <p>Norway silvery cod is managed by the Norwegian Department of Fisheries which does not provide stock assessments for the species nor limit/ target reference points. Thus, the stock was assessed under Category D in accordance with MarinTrust v 2.3 criteria.</p> <p>Table D1 (PSA) shows that the stock as an average productivity score of 1.33 and an average susceptibility score of 3. The PSA risk rating results (Table D3) determined that the species passes.</p> <p>Therefore, Norway silvery cod (<i>Gadiculus thori</i>) in FAO Area 27 Northeast Atlantic is APPROVED for the production of fishmeal and fish oil under the current MarinTrust v2.3 by-products standard.</p>
Fishery Assessment Peer Review Comments
<p>The assessor correctly classified Norway silvery cod (<i>Gadiculus thori</i>) in the Norwegian EEZ as Category D, the stock is not assessed by an analytical stock assessment and there are no reference points defined.</p> <p>The assessor correctly applied attribute scores as par to the PSA and the total average scores were calculated properly. The species passes per Table D3.</p> <p>Norway silvery cod (<i>Gadiculus thori</i>) in the Norwegian EEZ should be approved under the MarinTrust Standard v.2.3.</p>
Notes for On-site Auditor
N/A

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 a 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 ¹	CITES Appendix 1 ²
Norway silvery cod	<i>Gadiculus thori</i>	in FAO Area 27 Northeast Atlantic	Norway Department of Fisheries	D	NE	ND

¹ <https://www.iucnredlist.org/>

² <https://cites.org/eng/app/appendices.php>

CATEGORY D SPECIES

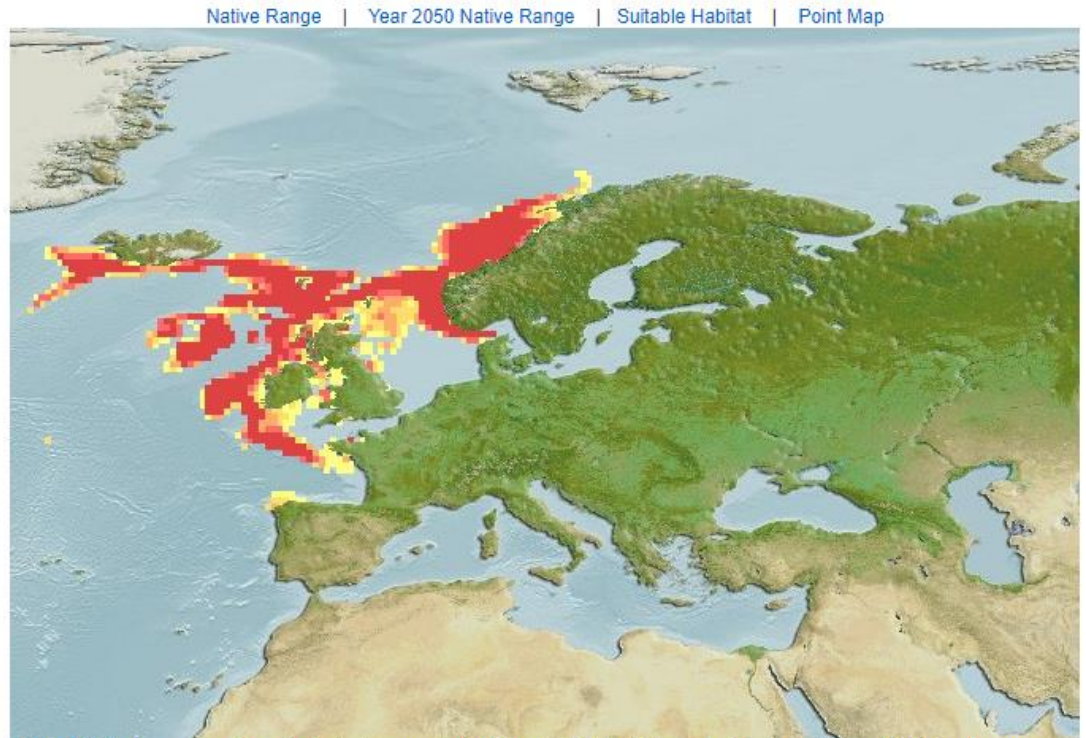
Category D species are those which are not subject to a species-specific management regime. In the case of mixed trawl fisheries, Category D species may make up the majority of landings. The comparative lack of scientific information on the status of the population of the species means that a risk-assessment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

D1	Species Name	Norway silvery cod (<i>Gadiculus thori</i>)	
	Productivity Attribute	Value	Score
	Average age at maturity (years)	1.2	1
	Average maximum age (years)	4.1	1
	Fecundity (eggs/spawning)	-	-
	Average maximum size (cm)	15.5	1
	Average size at maturity (cm)	9.8	1
	Reproductive strategy	Broadcast spawner	1
	Mean trophic level	3.5	3
	Average Productivity Score		1.33
	Susceptibility Attribute	Value	Score
	Availability (area overlap)	>30%	3
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)	High	3
	Selectivity of gear type	Precautionary	3
	Post-capture mortality	Retained	3
	Average Susceptibility Score		3
	PSA Risk Rating (From Table D3)		Pass
	Compliance rating		Pass
	<p>Further justification for susceptibility scoring (where relevant) <i>For susceptibility attributes, please provide a brief rationale for scoring of parameters where there may be uncertainty affecting your decision</i></p> <p>For nearly seven decades, <i>Gadiculus thori</i> and <i>Gadiculus argenteus</i> were considered subspecies, inhabiting the Northeast Atlantic Ocean and the Mediterranean. Recent findings, supported by distinct adult otoliths and molecular data, unequivocally confirm the existence of two separate <i>Gadiculus</i> species, aligning with larval morphotypes. Presently, <i>Gadiculus thori</i>, the cold-water species, extends its range to Southeast Greenland, thriving in cold-temperate and subarctic latitudes, while <i>Gadiculus argenteus</i>, adapted to warmer waters, is distributed in the warm-temperate East Atlantic and Mediterranean (MDI, 2017). No fecundity data was found for this species; thus, this attribute was not evaluated.</p> <p>The species is a species that is found over muddy bottoms feeding on small crustaceans and worms (Froese and Pauly, 2023). The fishing gears used are mainly bottom trawls, which indicates there is high encounterability with the species.</p> <p>Due lack of specific data of the selectivity of gear type, a precautionary score of 3 was given for this attribute.</p>		



Computer Generated Native Distribution Map for *Gadiculus thori*, with modelled year 2050 native range map based on IPCC RCP8.5 emissions scenario

Currently known distribution: Northeast Atlantic: North Cape, Skagerrak to Bay of Biscay.



Note: Distribution range colours indicate degree of suitability of habitat which can be interpreted as probabilities of occurrence.

Figure 1. Distribution of *Gadiculus thori*.

References

Froese, R. and D. Pauly. Editors. 2023. *Gadiculus thori*. Silvery cod. FishBase. World Wide Web electronic publication. <https://fishbase.mnhn.fr/summary/citation.php>

MDI. 2017. Recognition and Distribution of Two North Atlantic *Gadiculus* Species, *G. argenteus* and *G. thori* (Gadidae), Based on Otolith Morphology, Larval Pigmentation, Molecular Evidence, Morphometrics and Meristics. <https://www.mdpi.com/2410-3888/2/3/15>

AquaMaps. 2019. Computer generated distribution maps for *Gadiculus thori*, with modelled year 2050 native range map based on IPCC RCP8.5 emissions scenario. https://www.aquamaps.org/receive.php?type_of_map=regular&map=cached

Standard clauses 1.3.2.2

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.

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