MarinTrust Standard V2

By-product Fishery Assessment, VNM12- *Pacific cod (Gadus macrocephalus) in FAO Area - 67 Aleutian Islands*

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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	*Gadus macrocephalus* - Pacific cod
	Geographical area:	FAO 67, Aleutian islands
	Country of origin of the product:	Vietnam (Flag country: USA)
	Stock:	FAO 67, Aleutian islands
Date	23/08/2024	
Report Code	VNM12	
Assessor	Virginia Polonio	
Country of origin of the product - PASS	Vietnam (Flag country: USA)	
Country of origin of the product - FAIL	N/A	

Application details and summary of the assessment outcome			
Company Name(s): Thien Quynh Co. Ltd			
Country: Vietnam			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:		LQRA	
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Virginia Polonio	Sam Peacock	0.5	Re-approval
Assessment Period	August 2024 - August 2025		

Scope Details	
Main Species	*Gadus macrocephalus* - Pacific cod
Stock	FAO 67, Aleutian islands
Fishery Location	Aleutian islands
Management Authority (Country/ State)	Alaska Department of Fish and Game (ADF&G)
Gear Type(s)	Bottom Trawl, vertical lines, and pots
Outcome of Assessment	
Peer Review Evaluation	Agree with assessor
Recommendation	APPROVE

Table 2. Assessment Determination

Assessment Determination
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. Pacific cod (*Gadus macrocephalus*) is not categorised as Endangered or Critically Endangered on IUCN's Red List and does not appear in CITES appendices; therefore, Pacific cod (*Gadus macrocephalus*) is eligible for approval for use as Marin Trust by-product raw material. The Aleutian islands Pacific Cod stock is certified by Marine Stewardship Council - MSC since 2010, from 2020 onwards, it was assessed together with Bering Sea and Gulf of Alaska. The stock has defined reference points. Fishery removals are included in the stock assessment, and it PASSES Clause C1.1. The stock is considered, in its most recent stock assessment from 2023 showed that the status of female spawning stock biomass (SSB) relative to unexploited stock, it is possible to observe that the projected biomass in 2024 and 2025 are above the point of recruitment impairment (PRI) (20% of SSB0) and close to BMSY proxies. it PASSES Clause C1.2 *Therefore, Pacific cod (Gadus* macrocephalus) in FAO Subarea 67 - Aleutian islands is APPROVED for the production of fishmeal and fish oil under the current MarinTrust v2.3 by-products standard.
Fishery Assessment Peer Review Comments
The peer reviewer agrees that this stock is eligible for MarinTrust approval, and that it should be assessed under Category C. The assessor has demonstrated, with references, that the stock is subject to a regular stock assessment which incorporates fishery removals, and that stock biomass is currently above the limit reference point level. For these reasons, the peer reviewer agrees that this byproduct should be re-approved for use as a raw material.
Notes for On-site Auditor

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[1]	CITES Appendix 1[2]
Pacific cod	*Gadus macrocephalus*	Pacific cod (Gadus macrocephalus) in FAO Subarea 67 – Aleutian Islands	Alaska Department of Fish and Game (ADF&G)	C	Not assessed	No

[1] https://www.iucnredlist.org/
[2] https://cites.org/eng/app/appendices.php

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		**Pacific cod (Gadus macrocephalus) in FAO Subarea 67 – Aleutian Islands**	
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.	Yes
	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.	Yes
		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.

. In Spies et al. (2023), three age-structured models for the AI Pacific cod stock using data from 1991 through 2023 (Model 23.0, 23.1, and 23.2) were presented, along with a Tier 5 harvest specification model. Substantive changes have been made in the AI Pacific cod age-structured assessment relative to the November 2022 assessment (Spies et al., 2022). A version of this age-structured model was presented in 2022, with the following data used in the 2022 model and updated for the most recent year: realized catches for 1991-2022 (through October 20, 2023), as well as a preliminary catch estimate through December 31, 2023; commercial fishery size compositions for 1991-2022, as well as preliminary size composition from the 2023 commercial fisheries; AI trawl survey biomass index and size compositions from 1991-2022 (there was no survey in 2023); and AI trawl survey age composition from 1991-2022. Therefore the stock meets C1.1.

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.

All three age-structured models (Model 23.0, 23.1, and 23.2) fit the survey index and length composition data well, achieved acceptable retrospective patterns, and improved upon the models presented in September 2023 and November 2022. They provided similar estimates of biomass, natural mortality, and reference points. The models had similar AIC values, with Model 23.2 having the lowest, followed by Model 23.1. Model 23.0 had an acceptable Mohn's rho of 0.17, Model 23.1 had a smaller retrospective pattern with a Mohn's rho of 0.14, and Model 23.2 had the best Mohn's rho of 0.06. Although Model 23.1 was preferred by the September 2023 Plan Team meeting due to its lower AIC value and acceptable retrospective pattern, Model 23.2 provided the best fit to the data, the lowest AIC, and the best retrospective pattern. Model 23.2 also assumed increased natural mortality due to higher temperatures, supported by evidence, and retained two-time blocks on growth with a break at 2003, reflecting a documented change in growth. It implemented a time block on natural mortality with a break in 2015, corresponding with the thermal regime shift in 2013/2014. Model 23.2 estimated a total biomass of 54,611 t for 2024, with ABCs of 10,660 t and 10,214 t for 2024 and 2025, and OFLs of 12,732 t and 17,304 t for 2024 and 2025. The Tier 5 ABCs and OFLs for 2024 and 2025 remained the same as estimated in 2022 due to no new survey data. The 2022 and 2023 random effect estimates of biomass represented a 37% decline from the 2018 Aleutian Islands survey estimate. Model 13.4 incorporated this biomass estimate directly in the calculation of reference points, resulting in OFLs of 18,416 t and ABCs of 13,812 t for 2024 and 2025. The catch of Pacific cod as of October 20, 2023, was 7,311 t, with an extrapolated full year's estimate of 7,898 t for 2023, lower than the average catch over the past five years of 15,936 t. All models and detailed results are publicly available. The Tier 3b assessment Model 23.2 is recommended for management quantities with no additional reduction in ABC due to Risk Table concerns. If a different model is accepted, a comparable reduction in management quantities is recommended.

In the MSC assessment, Surveillance audit of 2024 it was concluded that considering the status of female spawning stock biomass (SSB) relative to unexploited stock, it is possible to observe that the projected biomass in 2024 and 2025 are above the point of recruitment impairment (PRI) (20% of SSB0) and close to BMSY proxies (Bostrom at al. 2024).

Therefore C1.2 is met.	
References Jodi Bostrom, Paul Knapman, and Giuseppe Scarcella. DNV Business Assurance. MSC 3rd Surveillance audit. BSAI AND GOA PACIFIC COD. View BSAI and GOA Pacific cod - MSC Fisheries Spies, I., S. Barbeaux, P. Hulson, and I. Ortiz. 2023. Assessment of the Pacific cod stock in the Aleutian Islands. https://www.npfmc.org/wp-content/PDFdocuments/SAFE/2023/AIpcod.pdf.	
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**		
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)		
	Average maximum age (years)		
	Fecundity (eggs/spawning)		
	Average maximum size (cm)		
	Average size at maturity (cm)		
	Reproductive strategy		
	Mean trophic level		
		Average Productivity Score	
	Susceptibility Attribute	**Value**	**Score**
	Availability (area overlap)		
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)		
	Selectivity of gear type		
	Post-capture mortality		
		Average Susceptibility Score	
		PSA Risk Rating (From Table D3)	
		Compliance rating	
	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*		
References			
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

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