MarinTrust Standard V2

By-product Fishery Assessment

Pacific Cod in the Eastern Bering Sea

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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Pacific Cod (*Gadus macrocephalus*)
	Geographical area:	FAO Area 67, Pacific Northeast
	Country of origin of the product:	Vietnam
	Stock:	Eastern Bering Sea Cod
Date	November 2022	
Report Code	VNM10	
Assessor	Sam Peacock	
Country of origin of the product - PASS	Vietnam	
Country of origin of the product - FAIL	NONE	

Application details and summary of the assessment outcome			
Company Name(s):			
Country: Vietnam			
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	0.2	Surveillance
Assessment Period	November 2022 – November 2023		

Scope Details	
Main Species	Pacific Cod (*Gadus macrocephalus*)
Stock	Eastern Bering Sea Cod
Fishery Location	FAO Area 67, Pacific Northeast
Management Authority (Country/ State)	Alaska Department of Fish and Game (ADFG), North Pacific Fishery Management Council (NPFMC)
Gear Type(s)	Demersal trawls, longlines, pots
Outcome of Assessment	
Peer Review Evaluation	Pass
Recommendation	Maintain approval

Table 2. Assessment Determination

Assessment Determination
Pacific cod has not been evaluated for the IUCN Red List and does not appear in the CITES Appendices. It is managed in the Eastern Bering Sea by the Alaska and US Federal Governments, with stock assessments conducted by NOAA Fisheries. Reference points and annual quotas are established, therefore the stock was assessed under Category C. The most recent stock assessment was published in December 2021 and incorporated all catch data and survey indices. Stock biomass was estimated to be above the target reference point, and therefore also above any possible limit reference point. For this reason, the by-product should remain approved against the MT standard.
Fishery Assessment Peer Review Comments
The by-product fishery under assessment here is Pacific Cod (*Gadus macrocephalus*) fishery, pursued by Vietnam vessels in FAO fishing area 67. Pacific Cod is managed by the Alaska Department of Fish and Game (ADFG) and the North Pacific Fishery Management Council (NPFMC). For this Marin Trust assessment, the Pacific Cod stock is scored as a category C species. 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

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*	Eastern Bering Sea	Yes	C	Not Evaluated[3]	No

[1] https://www.iucnredlist.org/
[2] https://cites.org/eng/app/appendices.php
[3] https://www.fishbase.se/summary/Gadus-macrocephalus.html

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**	
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
		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.

Regular stock assessments are conducted by the National Oceanic and Atmospheric Administration's Fisheries Division (NOAA Fisheries). The most recently published stock assessment was conducted in 2021 and utilised all available catch data, including catch biomass, size composition and CPUE, plus survey abundance, size composition and age composition data. There is no indication in the stock assessment documentation that the information used in the assessment was considered incomplete, and indeed several substantial updates have been made since the previous stock assessment, conducted in 2020 (Thompson *et al* 2021). C1.1 is 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 2021 stock assessment concluded that the stock is not subject to overfishing and is not overfished nor approaching overfished (where "overfished" is defined as below the target reference point). Female spawning biomass was estimated to be 26% larger in 2021 than 2020 (Thompson *et al* 2021). As stock biomass is estimated to be above the target reference point, and therefore above any potential limit reference point, C1.2 is met.

Quantity	As estimated or *specified last* year for: 2021	2022	As estimated or *recommended this* year for: 2022*	2023*
M (natural mortality rate)	0.35	0.35	0.34	0.34
Tier	3b	3b	3b	3b
Projected total (age 0+) biomass (t)	754,000	786,566	879,978	848,615
Projected female spawning biomass (t)	228,219	205,906	259,789	254,585
$B_{100\%}$	659,545	659,545	686,761	686,761
$B_{40\%}$	263,818	263,818	274,704	274,704
$B_{35\%}$	230,841	230,841	240,366	240,366
F_{OFL}	0.37	0.33	0.38	0.37
$maxF_{ABC}$	0.30	0.27	0.31	0.31
F_{ABC}	0.30	0.27	0.31	0.31
OFL (t)	147,949	128,340	183,012	180,909
maxABC (t)	123,805	106,852	153,383	151,709
ABC (t)	123,805	106,852	153,383	151,709
Status	As determined *last* year for: 2019	2020	As determined *this* year for: 2020	2021
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

*Projections are based on assumed catches of 123,805 t, and 153,383 t in 2021 and 2022, respectively.

Summary of EBS Pacific Cod stock assessment assumptions and outcomes from 2020 ("last year") and 2021 ("this year") (Thompson *et al* 2021).

References

Thompson, GG, Barbeaux, S, Conner, J, Fissel, B, Hurst, T, Laurel, B, O'Leary, CA, Rogers, L, Shotwell, SK, Siddon, E, Spies, I, Thorson, JT, and Tyrell, A (2021). Assessment of the Pacific Cod Stock in the Eastern Bering Sea. https://apps-afsc.fisheries.noaa.gov/refm/docs/2021/EBSpcod.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