MarinTrust Standard V2

By-product Fishery Assessment

Japanese pilchard in FAO Area 61

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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Japanese pilchard (*Sardinops sagax*)
	Geographical area:	FAO Area 61, Pacific Northwest
	Country of origin of the product:	Thailand
	Stock:	Japanese Pacific Ocean stock and Tsushima Warm Current stock
Date	December 2022	
Report Code	THA28	
Assessor	Sam Peacock	
Country of origin of the product - PASS	Thailand	
Country of origin of the product - FAIL	None	

Application details and summary of the assessment outcome			
Company Name(s): T.C. Union Agrotech Co, Ltd			
Country: Thailand			
Email address: tca@tcunionagrotech.com		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 2
Assessment Period	December 2022 – December 2023		

Scope Details	
Main Species	Japanese pilchard (*Sardinops sagax*)
Stock	Japanese Pacific Ocean stock and Tsushima Warm Current stock
Fishery Location	FAO Area 61, Pacific Northwest
Management Authority (Country/ State)	Japan
Gear Type(s)	Purse seine
Outcome of Assessment	
Peer Review Evaluation	Pass
Recommendation	Approve for use as MT raw material

Table 2. Assessment Determination

Assessment Determination
Note: Japanese pilchard is also known as South American pilchard and is widely referred to via the binomial name *Sardinops sagax*. Japanese pilchard has been categorised by the IUCN as a species of Least Concern and does not appear in the CITES appendices. This assessment covers two stocks: the Japanese Pacific Ocean stock, and the Tsushima Warm Current stock. Both are subject to annual stock assessment and managed relative to established reference points, therefore both stocks were initially assessed under Category C. The most recently available report for a stock assessment of the Japanese Pacific Ocean stock, from 2020, indicates that catch data was incorporated into the assessment process and that stock biomass was above the target and limit reference points at the time the assessment was conducted. The Japanese Pacific Ocean stock therefore passed the Category C assessment and should remain approved for use as a raw material. The Tsushima stock similarly underwent a stock assessment in 2020, which concluded that stock biomass was substantially lower than the target and limit reference points. Therefore, this stock failed the Category C assessment and was subsequently assessed under Category D. In Category D the Tsushima stock was awarded a Productivity score of 1.14 and a Susceptibility score of 2.5, leading to a Pass rating against Table D3. Therefore, the Tsushima stock should also remain approved for use as a raw material.
Fishery Assessment Peer Review Comments
The by-product fishery under assessment here is Japanese pilchard (*Sardinops sagax*) fishery, pursued by Thai fishing vessels in FAO fishing area 61. Japanese pilchard is managed by the Japanese government. For this Marin Trust assessment, the Japanese pilchard is scored as two separate stocks (Pacific Ocean and Tsushima). The Pacific Ocean stock is scored as a category C species as it's managed to species specific reference points whereas the Tsushima stock is scored as Category D having failed to mee the CatA MT requirements. The species scoring table has been completed by the auditor with sufficient evidence presented to support their final determination. The peer review supports the auditor's recommendation to approve the FAO 61 Japanese pilchard stocks pursued by 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]
Japanese pilchard	*Sardinops sagax*	Japanese Pacific Ocean	Yes	C	Least Concern[3]	No
Japanese pilchard	*Sardinops sagax*	Tsushima warm current	Yes	C	Least Concern[3]	No

[1] https://www.iucnredlist.org/
[2] https://cites.org/eng/app/appendices.php
[3] https://www.iucnredlist.org/species/183347/143831586

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.

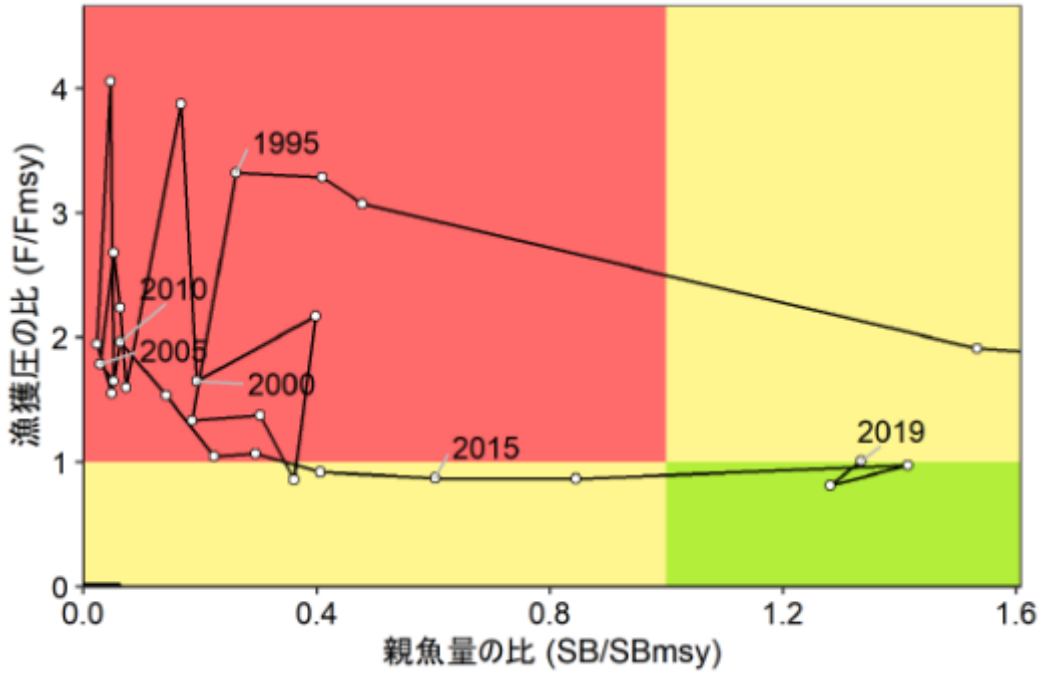
Species Name	**Japanese Pilchard – Japanese Pacific Ocean stock**	
C1	**Category C Stock Status - Minimum Requirements**	
	C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
	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.

Japanese pilchard in the Japanese Pacific Ocean is subject to annual stock assessment by the Japan Fisheries Research and Education Agency (FRA). The most recently available stock assessment publication appears to be from 2020 (FRA 2020). The stock assessment utilises catch data to perform an analytical assessment, and includes length, weight and age samples from the catch. The stock assessment report does not indicate any concerns in relation to completeness of data. Fishery removals are included in the stock assessment process and 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 2020 stock assessment report includes an indication of the status of the stock relative to established reference points at that time. The target reference point SB_{MSY} was estimated to be 1.187 million tons, and the report states that "the spawning biomass in 2019 was 1.33 times larger than SB_{MSY}" (FRA 2020). The proposed limit reference point for the stock, SB_{limit}, is 487,000t. Therefore, biomass in the most recent stock assessment was estimated to be above the limit reference point and C1.2 is met.



Kobe plot for the Japanese Pacific Ocean stock of Japanese pilchard, plotting SB/SB_{MSY} (x=axis) against F/F_{MSY} (y-axis) (FRA 2020)

References

FRA (2020). Stock Assessment of Japanese Sardine Pacific Stock in 2020, Japan Fisheries Research and Education Agency (FRA). http://www.fra.affrc.go.jp/shigen_hyoka/peer_review/2020/23.pdf

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

Species Name	**Japanese Pilchard – Tsushima stock**	
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.	FAIL
	Clause outcome:	FAIL

The byproduct failed the Category C assessment, and therefore as per the MT byproduct assessment guidance was subsequently assessed under Category D.

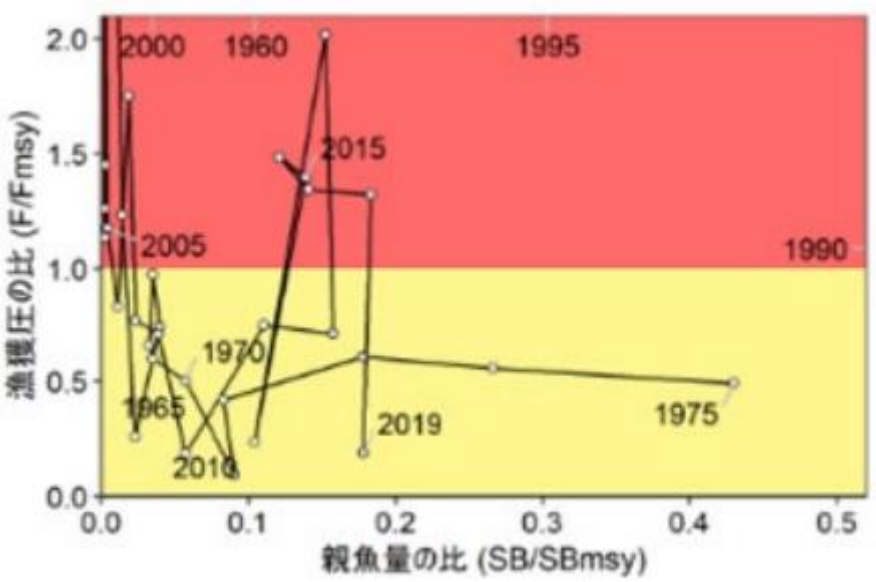
C1.1 Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.

The Tsushima stock of Japanese pilchard is subject to annual stock assessment by the Japan Fisheries Research and Education Agency (FRA). The most recently available stock assessment publication appears to be from 2020 (FRA 2020). The stock assessment utilises catch data to perform an analytical assessment, and includes length, weight and age samples from the catch.

The stock assessment report does not indicate any concerns in relation to completeness of data. Fishery removals are included in the stock assessment process and 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 2020 stock assessment report includes an indication of the status of the stock relative to established reference points at that time. Stock biomass in 2019 was estimated to be 194,000t, relative to a target reference point (SB_{MSY}) of 1.1 million tons and a limit reference point (SB_{limit}) of 465,000t (FRA 2020). Stock biomass was therefore estimated to be substantially below the limit reference point in 2019 and C1.2 is not met.



Kobe plot for the Tsushima stock of Japanese pilchard, plotting SB/SB_{MSY} (x=axis) against F/F_{MSY} (y-axis) (FRA 2020)

References

FRA (2020). Stock Assessment of Japanese Sardine Tsushima Stock in 2020, Japan Fisheries Research and Education Agency (FRA). http://www.fra.affrc.go.jp/shigen_hyoka/peer_review/2020/27.pdf

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

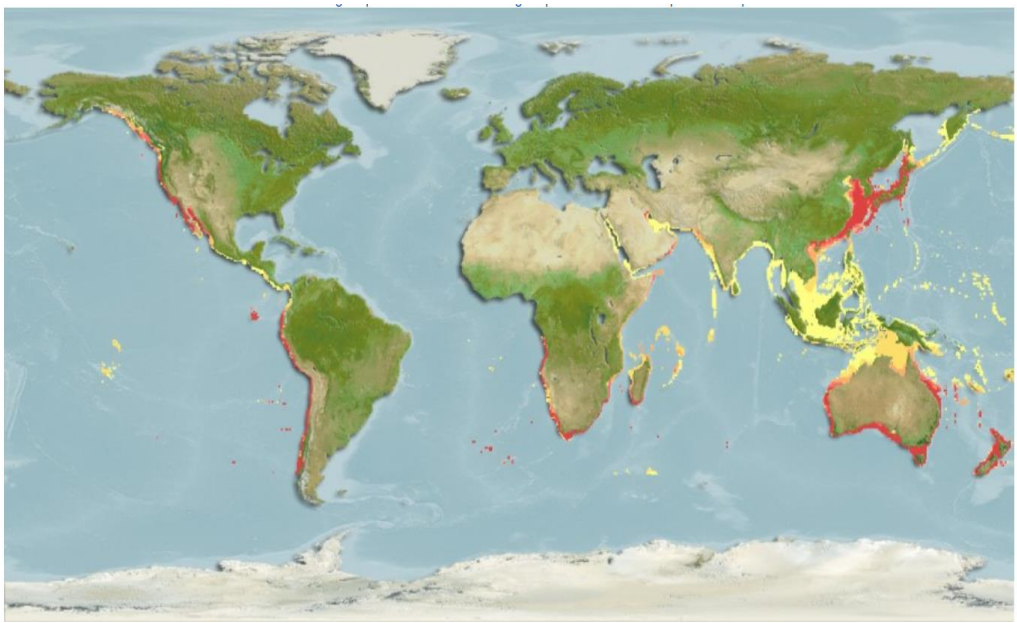
CATEGORY D SPECIES

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	Japanese Pilchard, Tsushima stock	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	2.2 years	1
	Average maximum age (years)	8.6 years	1
	Fecundity (eggs/spawning)	25,495	1
	Average maximum size (cm)	39.5cm	1
	Average size at maturity (cm)	2.2 years	1
	Reproductive strategy	Broadcast spawning	1
	Mean trophic level	2.8	2
		Average Productivity Score	**1.14**
	Susceptibility Attribute	**Value**	**Score**
	Availability (area overlap)	<10%	1
	Encounterability (the position of the stock/species within the water column relative to the fishing gear)	Targeted	3
	Selectivity of gear type	Targeted	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



Japanese pilchard global distribution map (computer generated). From Fishbase (https://www.fishbase.se/summary/Sardinops-melanostictus.html)

References
Fishbase, *Sardinops sagax*: https://www.fishbase.se/summary/Sardinops-melanostictus.html
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