

# MarinTrust Standard V3

# Reduced Whole Fish Assessment (Category C and/or D) - MSC Verification

# Mexico

Southern Gulf of California Thread Herring
FAO 77, southern Gulf of California (Sinaloa and Nayarit)
MSCV19

#### **MarinTrust Programme**

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# Table 1 Application details and summary of the assessment outcome

	Species:	Pacific chub mackerel ( <i>Scomber japonicus</i> ) ["macarela", in Spanish]  Pacific anchoveta/Bocona sardine ( <i>Cetengraulis mysticetus</i> ) ["sardina bocona" or "chuhueco", in Spanish]  Pacific jack mackerel ( <i>Trachurus symmetricus</i> ) ["Charrito", in Spanish]		
Fishery Under Assessment	Geographical area:	Mexican territorial waters in the states of Sinaloa and Nayarit. Fishing occurs between 26° N at Punta Ahome near the northern border of the State of Sinaloa with Sonora and 20.5° N near Cabo Corrientes in the State of Jalisco.		
	Country of origin of the product:	Mexico		
	Stock:	Pacific chub mackerel in Gulf of California Pacific anchoveta/Bocona sardine in Gulf of California Pacific jack mackerel in Gulf of California		
	MSC-certified fishery name:	Southern Gulf of California Thread Herring		
Date	November 2025			
Report Code	MSCV19			
Assessor	Ana Elisa Almeida Ayres			
Country of origin of the product - PASS	Pass (Mexico)			
Country of origin of the product – FAIL	N/A			

Application details and summary of the assessment outcome						
Company Name(s): M	Company Name(s): Maz Industrial SA de CV					
Country: Mexico						
Certification Body Details						
Name of Certification I	Name of Certification Body: NSF / Global Trust Certification Ltd					
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/Re-approval			
Ana Ayres Matthew Jew 0.75 Re-approval						
Assessment Period November 2025 – November 2026						
Assessment Validity November 2026						



Scope Details	Scope Details				
	Pacific chub mackerel (Scomber japonicus) ["macarela"]				
Species	Pacific anchoveta/Bocona sardine ( <i>Cetengraulis mysticetus</i> ) ["sardina bocona" or "chuhueco"]				
	Pacific jack mackerel (Trachurus symmetricus) ["Charrito"]				
Stock	Pacific chub mackerel in Gulf of California Pacific anchoveta/Bocona sardine in Gulf of California Pacific jack mackerel in Gulf of California				
Fishery Location	Mexican territorial waters in the states of Sinaloa and Nayarit. Fishing occurs between 26° N at Punta Ahome near the northern border of the State of Sinaloa with Sonora and 20.5° N near Cabo Corrientes in the State of Jalisco				
Management Authority (Country/ State)	Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food SAGARPA, Mexico				
Gear Type(s)	Purse seine nets				
Outcome of Assessment					
Peer Review Evaluation	Agree with assessor's determination				
Recommendation	Approved				

# Table 2. Assessment Determination

#### **Assessment Determination**

No stock assessments or catch composition was available for this Re-approval report, which remains the same as the published last year.

Pacific anchoveta/Bocona sardine (*Cetengraulis mysticetus*) ["sardina bocona" or "chuhueco"], Pacific jack mackerel (*Trachurus symmetricus*) ["Charrito"] and Pacific chub mackerel (*Scomber japonicus*) ["Macarela"] are secondary minor species of the Southern Gulf of California Thread Herring MSC certified assessment, composing 0.45%, 0.77% and 0.69% of the catches, respectively (MSC, 2022).

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 Marin Trust raw material. Pacific anchoveta/Bocona, Pacific jack mackerel, and Pacific chub mackerel are not categorised as Endangered or Critically Endangered on IUCN's Red List and do not appear in CITES appendices; therefore, they are eligible for approval for use as Marin Trust by-product raw material.

Pacific anchoveta/Bocona sardine and Pacific jack mackerel are managed passively, while Pacific chub mackerel is managed actively according to the Mexican Management Plan. The active management requires a formal stock assessment with reference points and control rules, as opposed to the passive management that only requires monitoring landings with a maximum percentage of fish smaller than the legal minimum size. Although it is under the passive management status, reference points were available for Pacific anchoveta/Bocona sardine, thus, this species, together with Pacific chub mackerel were assessed under category C and Pacific jack mackerel, under the category D.

Fishery removals of the Pacific chub mackerel and Pacific anchoveta/bocona sardine are included in the stock assessment process, thus the species passed C.1.1. Its biomass is above the Maximum Sustainable Yield; thus, it passed C.1.2.



Pacific jack mackerel was awarded a Productivity score of 1.29 and a Susceptibility score of 2.5, leading to a "Pass" rating against Table D3 of the Productivity-Susceptibility Analysis – PSA.

Therefore, Pacific anchoveta/Bocona (*Cetengraulis mysticetus*), Pacific jack mackerel, and Pacific chub mackerel in Mexican territorial waters in the states of Sinaloa and Nayarit. Fishing occurs between 26° N at Punta Ahome near the northern border of the State of Sinaloa with Sonora and 20.5° N near Cabo Corrientes in the State of Jalisco are APPROVED for the production of fishmeal and fish oil under the current MarinTrust v3 by-products standard.

#### Reference

MSC. 2022. Southern Gulf of California Thread Herring Fishery, Sinaloa & Nayarit, Mexico. MSC Fishery Assessment Report. Public Certification Report. <a href="https://fisheries.msc.org/en/fisheries/southern-gulf-of-california-thread-herring/@@view">https://fisheries.msc.org/en/fisheries/southern-gulf-of-california-thread-herring/@@view</a>

### **Fishery Assessment Peer Review Comments**

The assessor correctly classified Pacific anchoveta/Bocona (*Cetengraulis mysticetus*), Pacific jack mackerel (*Trachurus symmetricus*), and Pacific chub mackerel (*Scomber* japonicus) appropriately. The category C stocks is subject to a specific management regime. The category D species does not and is assessed as such.

Fishery removals are considered in the stock assessment process for both Pacific anchoveta and Pacific chub mackerel. The most recent stock assessment shows that both stocks are not overfished and overfishing is not occuring. Therefore, the stock is considered to have biomass above the limit reference point (or proxy). They passes Category C.

Therefore, this fishery passes their respective categories as a reduced WF assessment/MSCV and therefore should be approved under the MarinTrust Standard v3.

#### **Notes for On-site Auditor**

N/A

**Note:** This assessment is only allowed through the MarinTrust MSC Verification Tool, which accepts assessments of "by-catch" species from MSC-certified fisheries from applicants holding valid MSC Chain of Custody Certificates.

This reduced whole fish assessment recognises the equivalence between the MarinTrust, the Management, Ecosystem and Category A species against the MSC Fisheries Standard through the MarinTrust recognition process.



# **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**

Raw 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.

Raw 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**

Note: Category A species are approved through recognition of MSC certified fisheries through the MarinTrust MSC verification tool.

Common name	Latin name	Stock	Management	Category	IUCN Red List Category <sup>1</sup>	CITES Appendix 1 <sup>2</sup>
Pacific chub mackerel ["macarela", in Spanish]	Scomber japonicus	Pacific chub mackerel in Gulf of California, Pacific	Yes	С	LC <sup>3</sup>	No
Pacific anchoveta/Bocona sardine ["sardina bocona", in Spanish]	Cetengraulis mysticetus	Pacific anchoveta/Bocona sardine in Gulf of California	Yes	С	LC <sup>4</sup>	No
Pacific jack mackerel ["charrito" in Spanish]	Trachurus symmetricus	Pacific jack mackerel in Gulf of California	Yes	D	LC⁵	No

<sup>&</sup>lt;sup>1</sup> https://www.iucnredlist.org/

<sup>&</sup>lt;sup>2</sup> https://cites.org/eng/app/appendices.php

<sup>&</sup>lt;sup>3</sup> https://www.iucnredlist.org/species/170306/170083106

<sup>&</sup>lt;sup>4</sup> https://www.iucnredlist.org/species/183878/102902497

<sup>&</sup>lt;sup>5</sup> https://www.iucnredlist.org/species/183729/8166054



# **CATEGORY C SPECIES**

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 should be marked as 'N/A'. Where a species fails this Clause, it should be assessed as a Category D species instead.

<b>Species Na</b>	Species Name  Pacific chub mackerel (Scomber japonicus)  ["Macarela"]		japonicus)	
C1	Category C Stock Status - Minimum Requirements			
CI	C1.1	Fishery removals of	the species in the fishery under	Pass
		assessment are inclu	uded in the stock assessment process, OR	
	are considered by scientific authorities to be negligible.			
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference		Pass
		· ·		
		point (or proxy), OR		
			sidered by scientific authorities to be	
		negligible.		
			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 the Mexican Pacific, there are two sub-populations, one in the Gulf of California and the other on the northwestern coast of the Baja California peninsula, with an overlapping area in Bahia Magdalena (Gluyas-Millán and Quiñónez-Velázquez, 1996). The status of Pacific chub mackerel in Gulf of California was determined by a surplus production dynamic model (Schaefer) with a CMSY++ method using historical catch data in the last stock assessment available (MSC, 2023). The values of the parameters of the Schaefer model and the reference points obtained with the dynamic biomass model for chub mackerel in the northern Gulf of California, are shown in table 3.



Table 3. Parameters and reference point obtained from the fitted Schaefer model of chub mackerel from the northern Gulf of California [INAPESCA (2022), adapted by MSC (2023)].

Parameter	Chub mackerel	
r	0.800	
K	336	
Q	0.292	
MSY	67,200	
BMSY	168,00	
FMSY	0.400	
F last year	0.120	
B last year	252,000	
B/BMSY	1.500	
F/FMSY	0.300	

Catches of Pacific chub mackerel are represented in Figure 1.

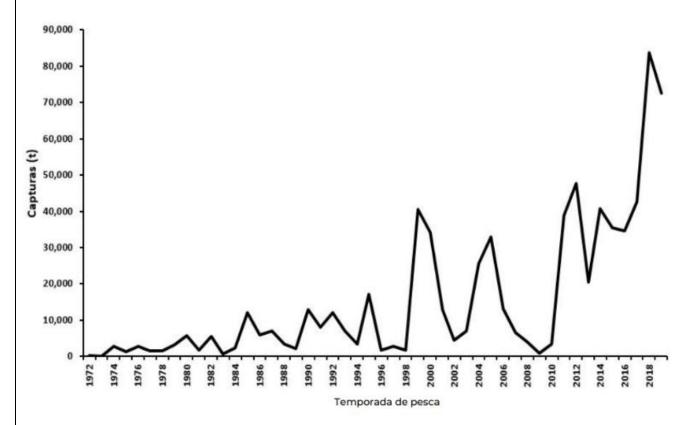


Figure 1. Catches of Pacific chub mackerel in the nothern Gulf of California [Nevárez-Martínez et al., 2020, adapted by MSC (2023)].



Fishery removals of the species in the fishery under assessment are included in the stock assessment process. C.1.1 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.

According to MSC (2023), the relative biomass ratio (Bt/ BMSY) of chub mackerel in the northern Gulf of California is between 1.5 and 2.0, which corresponds to a relative fishing mortality of Ft / FMSY  $\leq$  0.3. The chub mackerel stock in the Gulf of California is healthy and exploitation rates have been lower than MSY, therefore, there is no overfishing (Figure 2).

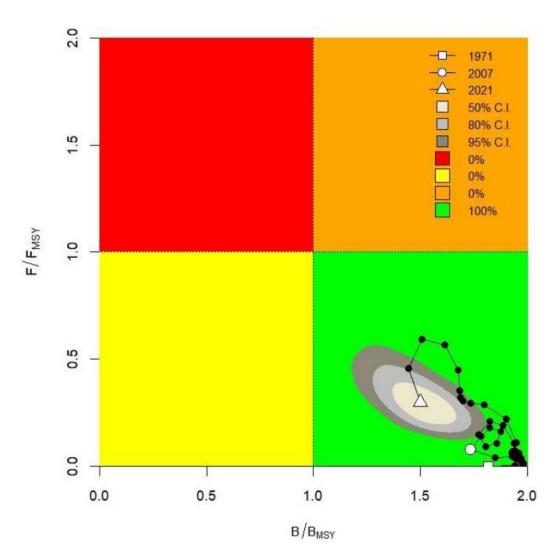


Figure 2. Kobe chart showing Anchovy biomass trajectory and its current status in the Gulf of California [INAPESCA (2022) adapted by MSC (2023).

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy). C.1.2 is met.

#### References

Gluyas-Millán, M., & Quiñonez-Velázquez, C. 1996. Evidence of different stocks of mackerel Scomber japonicus. Ciencias Marinas, 22(3), 377–395. <a href="https://doi.org/10.7773/cm.v22i3.858">https://doi.org/10.7773/cm.v22i3.858</a>

MSC. 2023. Small Pelagic Fishery in Sonora, Gulf of California. MSC Fishery Assessment Report. Public Certification Report. <a href="https://fisheries.msc.org/en/fisheries/small-pelagics-fishery-in-sonora-gulf-of-california/@@assessments">https://fisheries.msc.org/en/fisheries/small-pelagics-fishery-in-sonora-gulf-of-california/@@assessments</a>

Marine Ingredients Certifications Ltd (09357209) | Doc TEM-025 - Issued November 2023 – Version 1.0 | Approved by Francisco Aldon Controlled Copy- No unauthorised copying or alteration permitted



Nevárez-Martínez, M.O., M.A. Martínez-Zavala, J.P. Santos-Molina, V.E. González-Maynez, A.E. López-Lagunas and A. Valdez-Pelayo. 2020a. Evaluación pesquera de sardina bocona (*Cetengraulis mysticetus*) y anchoveta norteña (*Engraulis mordax*) en el Golfo de California, México. Periodo 1985/86 – 2018/19. Informe Técnico. Instituto Nacional de Pesca, Centro Regional de Investigación Pesquera - Guaymas, 18 p.

INAPESCA. 2022. Plan de Manejo pesquero para la pesquería de pelágicos menores (sardinas, anchovetas, macarela y afines) del Noreste de México. 12 de Agosto 2021.

https://www.gob.mx/cms/uploads/attachment/file/848506/DOF - Diario Oficial de la Federaci n.pdf

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

Spe	Species Name Pacific anchoveta/bocona sardine (Cetengraulis mysticetus) ["Sardina bocona"]				
C1	Catego	ory C Stock Sta	atus - Minimum Requirements		
CI	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.				
	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.				
	•	•	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.

The status of Pacific anchoveta/bocona sardine in Gulf of California was determined by a surplus production dynamic model (Schaefer) with a CMSY++ method using historical catch data (MSC, 2023). The values of the parameters of the Schaefer model and the reference points obtained with the dynamic biomass model for chub mackerel in the northern Gulf of California, are shown in table 4.

Table 4. Parameters and reference point obtained from the fitted Schaefer model of Pacific anchoveta/bocona sardine from the northern Gulf of California [INAPESCA (2022), adapted by MSC (2023)].

Parameter	Pacific anchoveta	
r	0.951	
K	500	
Q	0.301	
MSY	120,00	
BMSY	250,10	
FMSY	0.475	
F last year	0.132	
B last year	432,00	
B/BMSY	1.730	
F/FMSY	0.277	



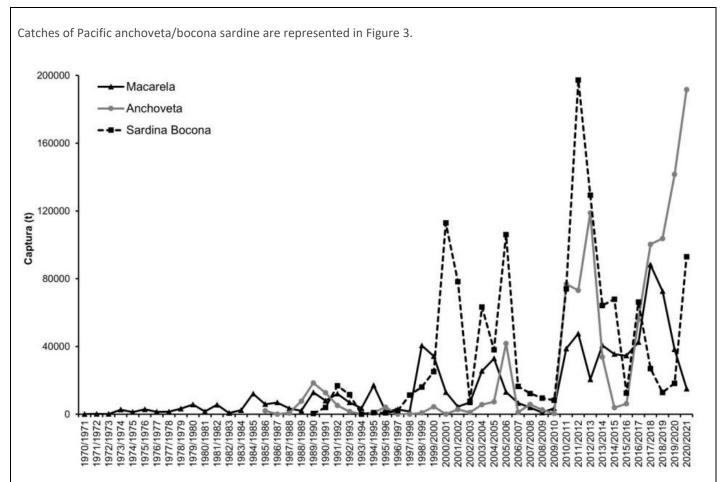


Figure 3. Catches of Pacific anchoveta/bocona sardine in Gulf of California [Nevárez-Martínez et al., (2022), adapted by MSC (2023)].

Fishery removals of the species in the fishery under assessment are included in the stock assessment process. C.1.1 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.

According to MSC (2023), the lowest relative biomass ratio (Bt/BMSY) of Pacific anchoveta/bocona sardine in the northern Gulf of California over the history was 1.2 in the fishing season 2013/2014, but it is still above the limit reference point Bt / BMSY = 1.0. The stock has been healthy (Figure 4).



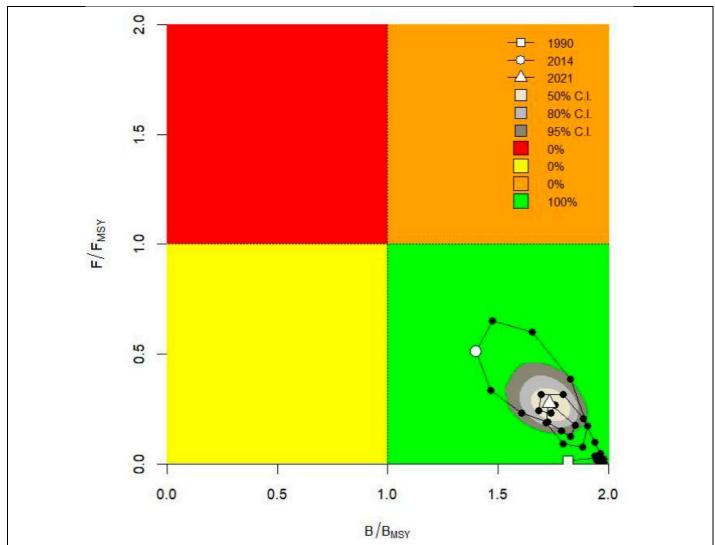


Figure 4. Temporal trend for catch, B/BMSY, F/FMSY, and Kobe plot for Pacific anchoveta/bocona sardine; trajectory (black line), MSY (dashed line) [INAPESCA (2022) adapted by MSC (2023).

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy). C.1.2 is met.

#### References

MSC. 2023. Small Pelagic Fishery in Sonora, Gulf of California. MSC Fishery Assessment Report. Public Certification Report. <a href="https://fisheries.msc.org/en/fisheries/small-pelagics-fishery-in-sonora-gulf-of-california/@@assessments">https://fisheries.msc.org/en/fisheries/small-pelagics-fishery-in-sonora-gulf-of-california/@@assessments</a>

Nevárez Martínez M.O. et al. 2022. Evaluación pesquera de macarela (*Scomber japonicus*), anchoveta norteña (*Engraulis mordax*) y sardina Pacific anchoveta (*Cetengraulis mysticetus*) del Golfo de California, México. Inf Tec INAPESCA / CRIAP-GUAYMAS ix-2021. 25 p.

INAPESCA. 2022. Plan de Manejo pesquero para la pesquería de pelágicos menores (sardinas, anchovetas, macarela y afines) del Noreste de México. 12 de Agosto 2021.

https://www.gob.mx/cms/uploads/attachment/file/848506/DOF - Diario Oficial de la Federaci n.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.

Species Name	Pacific jack mackerel (Trachurus symmetricus) ["Charrito",]			
Productivity Attribute	Value	Score		
Average age at maturity (years)	1.01	1		
Average maximum age (years)	4.11	1		
Fecundity (eggs/spawning)	>20,000 <sup>1,3</sup>	1		
Average maximum size (cm)	55.7 <sup>1</sup>	1		
Average size at maturity (cm)	30.9 <sup>1</sup>	1		
Reproductive strategy	Broadcast spawner <sup>1</sup>	1		
Mean trophic level	3.6 <sup>1</sup>	3		
	Average Productivity Score			
Susceptibility Attribute	te Value			
Availability (area overlap)	Availability (area overlap) <10			
Encounterability (the position of the stock/species with	the stock/species within High			
the water column relative to the fishing gear)		3		
Selectivity of gear type	Precautionary	3		
Post-capture mortality	Retained	3		
	Average Susceptibility Score	2.5		
	Pass			
	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.

Pacific jack mackerel is found in a depth range of 0 - 400 m and distributed along the eastern Pacific: southeastern Alaska to southern Baja California, Mexico and the Gulf of California; reported from Acapulco in Mexico and the Galapagos Islands<sup>1</sup> (Figure 5). Fishbase provides only an estimate of the maximum fecundity for this species (53,000)<sup>1</sup>, while there are reports of 31,572-171,466 of batch fecundity in California<sup>3</sup>. Thus, the fecundity is estimated to be > 20,000 eggs.

Due lack of specific data of the selectivity of gear type, a precautionary score of 3 was given for this attribute.





Computer Generated Native Distribution Map for Trachurus symmetricus (Pacific jack mackerel), with modelled year 2050 native range map based on IPCC RCP8.5 emissions scenario

Currently known distribution: Eastern Pacific: southeastern Alaska to southern Baja California, Mexico and the Gulf of California; reported from Acapulco in Mexico and the Galapagos Islands.

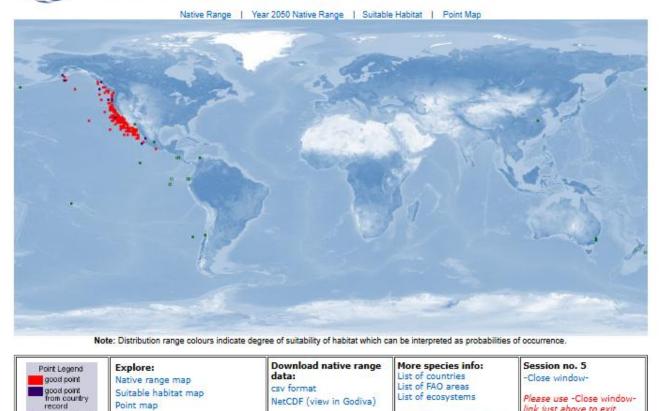


Figure 5. Distribution of Pacific jack mackerel.<sup>2</sup>

Point map

non-good point

non-good point

from country record

#### References

<sup>1</sup>Froese, R. and D. Pauly. Editors. 2024.FishBase. World Wide Web electronic publication.

Show mapping parameters

Create your own map

https://fishbase.mnhn.fr/summary/trachurus-symmetricus.html

<sup>2</sup>AquaMaps. 2019. Computer generated distribution maps for *Trachurus symmetricus* (Pacific jack mackerel), with modelled year 2050 native range map based on IPCC RCP8.5 emissions scenario.

About AquaMaps

https://www.aquamaps.org/receive.php?type of map=regular&map=cached

<sup>3</sup>Macewicz, B.J. and Hunter, J.R. 1993. Spawning frequency and batch fecundity of jack mackerel, *Trachurus symmetricus*, off California During 1991. California Cooperative Oceanic Fisheries Investigations Reports 34: 112-121.

https://www.semanticscholar.org/paper/SPAWNING-FREQUENCY-AND-BATCH-FECUNDITY-OF-JACK-Mackerel/66dc90feddd6d57a4a12e31e814790df04087a95

Standard clauses 1.3.2.2

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Comments & Corrections

instead of the browser's X



# 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		>3	>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	fis	ow overlap with hing gear (low ecounterability).	Medium overlap with fishing gear.		fis er De	High overlap with fishing gear (high encounterability). Default score for target species	
Selectivity of gear type Potential of the gear to retain species	а	Individuals < size at maturity are rarely caught	а	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.		m	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			