



MarinTrust Standard V2

By-product Fishery Assessment Red-eye Round Herring (*Etrumeus acuminatus*) in FAO 87- southeast Pacific Ocean

MarinTrust Programme

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Table 1 Application details and summary of the assessment outcome

Fishery Under Assessment	Species:	Red-eye round herring (<i>Etrumeus acuminatus</i>) [previously considered synonymous to <i>Etrumerus teres</i> and <i>Etrumerus sadina</i>] - "sardina redonda", in Spanish
	Geographical area:	FAO 87- southeast Pacific
	Country of origin of the product:	Ecuador
	Stock:	Red-eye round herring in FAO 87- Southeast Pacific
Date	27 th September 2023	
Report Code	ECU04	
Assessor	Ana Elisa Almeida Ayres	
Country of origin of the product - PASS	Pass (Ecuador)	
Country of origin of the product - FAIL	N/A	

Application details and summary of the assessment outcome			
Company Name(s): URISA S.A.			
Country: Ecuador			
Email address:		Applicant Code:	
Certification Body Details			
Name of Certification Body:		NSF	
Assessor	Peer Reviewer	Assessment Days	Initial/Surveillance/ Re-approval
Ana Elisa Almeida Ayres	Matthew Jew	0.5	Surveillance 1
Assessment Period	October 2023 – October 2024		

Scope Details	
Main Species	Red-eye round herring (<i>Etrumeus acuminatus</i>) [previously considered synonymous to <i>Etrumerus teres</i> and <i>Etrumerus sadina</i>] - “ <i>sardina redonda</i> ”, in Spanish
Stock	Red-eye round herring in FAO 87- Southeast Pacific
Fishery Location	FAO 87- Southeast Pacific
Management Authority (Country/ State)	Vice-ministry of Aquaculture and Fisheries of Ecuador
Gear Type(s)	Purse seine
Outcome of Assessment	
Peer Review Evaluation	Agree with assessor’s recommendation
Recommendation	Approved

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 Marin Trust raw material. Red-eye round herring (<i>Etrumeus acuminatus</i>) is not categorised as Endangered or Critically Endangered on IUCN’s Red List and does not appear in CITES appendices; therefore, red-eye round herring (<i>Etrumeus acuminatus</i>) is eligible for approval for use as Marin Trust by-product raw material. In IPIAP website, stock assessments of Red-eye round herring (“<i>sardina redonda</i>”, in Spanish) from 2020-2022 referred to this fish as <i>Etrumerus teres</i>, but in the last stock assessment, in 2023, the name used was <i>Etrumeus acuminatus</i>. MarinTrust by-products assessments from 2020-2022 used the name <i>Etrumerus sadina</i>, as it was the one provided by the client, but used the data of <i>Etrumerus teres</i> provided by IPIAP for the evaluations. This year, under request, IPIAP explained that previously <i>Etrumerus teres</i>, <i>Etrumeus acuminatus</i> and <i>Etrumerus sadina</i> were considered synonymous, but now, considering the geography distribution of red-eye round herring (<i>sardina redonda</i>) and recent studies, the species attributed to this fish in Ecuador is <i>Etrumeus acuminatus</i>. Fishery removals are included in the stock assessment and it PASSES Clause C1.1. Red-eye round herring has presented a biomass above the limit reference point from 2019 and onwards, thus it PASSES Clause C1.2. Therefore, red-eye round herring (<i>Etrumeus acuminatus</i>) in FAO 87- southeast Pacific 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 internal peer determined that the assessor correctly classified red-eye round herring (<i>Etrumeus acuminatus</i>) in FAO 87 as category C, the stock is subject to a management regime and reference points (or proxy) are defined. Fishery removals are considered in the stock assessment process. The most recent stock assessment shows that the stock is above $0.5 \times B_{MSY}$. Therefore, the stock is considered to have biomass above the limit reference point. Therefore, red-eye round herring in FAO 87 passes both clauses (C1.1 and C1.2) and therefore should be approved under the MarinTrust Standard v2.3
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 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
Red-eye round herring – <i>sardina redonda</i>	<i>Etrumeus acuminatus</i> (previously considered synonymous of <i>Etrumerus teres</i> and <i>Etrumerus sadina</i>)	Red-eye round herring in FAO 87- Southeast Pacific	FAO 87- Southeast Pacific	C	LC	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		Red-eye round herring (<i>Etrumeus acuminatus</i>) [previously considered synonymous of <i>Etrumerus teres</i> and <i>Etrumerus sadina</i>] “ <i>sardina redonda</i> ”, in Spanish	
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 IPIAP website, stock assessments of red-eye round herring (<i>sardina redonda</i>) from 2020-2022 referred to this fish as <i>Etrumerus teres</i>, but in the last stock assessment, in 2023, the name used was <i>Etrumeus acuminatus</i>. MarinTrust by-products assessments from 2020-2022 used the name <i>Etrumerus sadina</i>, as it was the one provided by the client, but used the data of <i>Etrumerus teres</i> provided by IPIAP for the evaluations. This year, under request, IPIAP explained that previously <i>Etrumerus teres</i>, <i>Etrumeus acuminatus</i> and <i>Etrumerus sadina</i> were considered synonymous, but now, considering the geography distribution of red-eye round herring (<i>sardina redonda</i>) and recent studies, the species attributed to this fish in Ecuador is <i>Etrumeus acuminatus</i>: “Taxonomic criteria of <i>sardina redonda</i> (<i>Etrumeus acuminatus</i> Gilbert 1890) <i>E. acuminatus</i> known in Ecuador commonly as <i>sardina redonda</i> is a species of the family <i>Dussumieriidae</i> of the order <i>Clupeiformes</i>, it is distributed from California in the USA to the south of Chile including the Islands Galapagos; it was previously classified as a synonym for <i>Etrumerus teres</i>, subsequent studies have identified <i>E. acuminatus</i> as a valid and distributed species for the eastern Pacific Ocean and therefore <i>part E. teres</i> has been relegated to a synonym of <i>Etrumeus sadina</i> which is restricted to the Atlantic Ocean. Source: Fricke, R., Eschmeyer, W. N. & Van der Laan, R. (eds) 2023. ESCHMEYER'S CATALOG OF FISHES: GENERA, SPECIES, REFERENCES (http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp). Electronic version accessed 11 sep 2023.” Landings data from 1981 and onwards are available in IPIAP website and have been used for stock assessments of small pelagics fishes: https://institutopesca.gob.ec/peces-pelagicos-pequenos/ A complied graph of the landings from 1975-2022 is provided in Figure 1. For building this graph, different sources were used. For the 1980s, data were obtained from the validation and recalculation of catch data reported by Fuentes (1989), Patterson et al. (1990), and Patterson and Santos (1990). For the 1990s to 2022, data were obtained from the factory landing database, which is generated from daily fishing reports from processing companies, as well as from the monthly field sampling database. Additionally, from 2016 and onwards, data from the fishing database of the herring purse seine fleet observer program were incorporated. According to Canales and Jurado (2023): “It is estimated that the development of the fishery and its maximum records have been very linked to fluctuations in recruitment, with positive anomalies dominating much part of the 80s and 90s (Figure SR7) followed by a downward trend related probably due to a change in the productivity regime since 1997. The apparent recovery of recruitment towards more recent years is uncertain due to the method of estimation and should be verified with the development of the next fishing seasons.”			

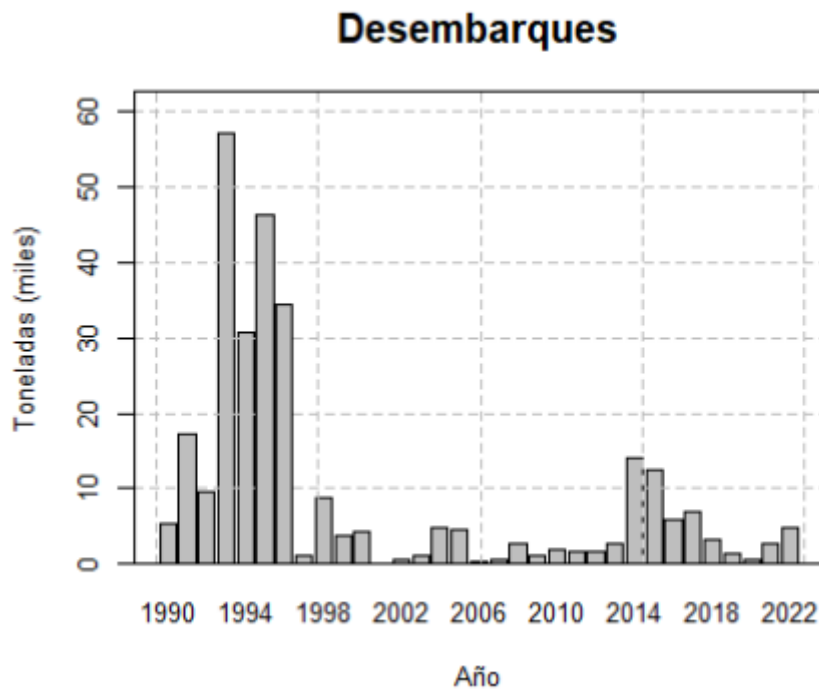


Figure 1. Landings from 1975-2022 of round herring (Canales and Jurado, 2023).

The latest data of catches available in IPIAP website covers 2015-2022 (Figure 2). In 2022, 4,906.11 tons of round herring were landed (IPIAP, 2023).

FLOTA CERQUERA COSTERA CAPTURA DE PELÁGICOS PEQUEÑOS

(Toneladas)



INSTITUTO PÚBLICO DE
INVESTIGACIÓN DE ACUICULTURA Y PESCA
ECUADOR

Especie	2015	2016	2017	2018	2019	2020	2021	2022
MACARELA	103.602,17	96.717,80	69.013,29	31.932,54	30.952,67	65.461,70	164.706,63	158.121,40
BOTELLA	65.006,70	54.601,37	58.457,70	64.096,93	63.896,56	56.693,60	30.972,26	40.133,10
PICUDILLO	21.551,55	60.960,97	45.804,51	13.375,25	9.041,50	8.612,59	15.587,28	12.348,40
PINCHAGUA	37.865,55	13.392,47	16.654,30	17.382,67	23.370,83	10.444,62	7.127,05	22.064,42
CHUHUECO	18.058,52	45.836,16	33.371,33	9.170,05	12.196,72	3.195,60	6.184,04	9.249,85
SARDINA REDONDA	12.559,98	5.315,65	5.637,97	3.737,89	5.968,09	508,54	2.678,95	4.906,11
ROLLIZO	12,47	87,15	19,74	193,86	312,63	50,22	163,55	66,45
JUREL	301,05	24,32	76,85	51,70	2,36	13,91	0,63	27,00
ANCHOVETA						187,05	13,26	54,91
SARDINA DEL SUR	1,54							119,16
ANCHOA					12,49	1,73	2,60	4,84
Total	258.959,53	276.935,89	229.035,69	139.940,89	145.753,86	145.169,58	227.436,25	247.095,63

Figure 2. Catches in tons of small pelagic fishes from the coastal purse-seine fleet during 2015-2019 (IPIAP, 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.

The target reference point for this fishery is represented by a proxy of Maximum Sustainable Yield (MSY), which is set as 40% of the virgin spawning biomass (B_0) ($B_{msy} \sim 0.4 B_0$) and its respective fishing mortality ($F_{msy} \sim F_{40\%}$). The limit reference point for

this fishery is 50% of the target reference point, which is equivalent to 20% of B_0 ($B_{lim}=20\%B_0$) and its fishing mortality ($F_{lim}=F_{20\%}$) [Canales and Jurado, 2023]. Therefore, in summary:

$B_{target} = B_{msy} = 40\%B_0$
 $F_{target} = F_{msy} = 40\%F$
 $B_{lim} = 50\%B_{msy} = 20\%B_0$
 $F_{lim} = 50\%F_{msy} = 20\%F$

Considering the 2017-2022 period, round herring has presented a biomass above the limit reference point of 50% B_{msy} from 2019 and onwards, while the fishing mortality has been below the target reference point (Figure 3).

Tabla A. Cuadro comparativo de los indicadores de diagnóstico de los stocks de pelágicos pequeños del Ecuador 2017-2022.

Año		Botella	Macarela	Picudillo	Chuhueco	Sardina	Pinchagua	Promedio
2017	$B/B_{R_{MS}}$	0.28	0.58	0.15	0.43	0.08	0.80	0.38
	$F/F_{R_{MS}}$	4.25	1.84	0.20	0.56	0.07	1.57	1.42
	S							
2019	$B/B_{R_{MS}}$	1.15	0.73	0.35	0.35	0.68	1.03	0.71
	$F/F_{R_{MS}}$	0.69	0.24	0.76	0.95	0.67	0.38	0.62
	S							
2020	$B/B_{R_{MS}}$	0.95	0.78	0.23	1.38	0.58	1.10	0.83
	$F/F_{R_{MS}}$	2.04	1.03	2.45	0.14	0.27	0.16	1.02
	S							
2021	$B/B_{R_{MS}}$	0.99	0.91	0.88	1.28	0.98	0.98	1.00
	$F/F_{R_{MS}}$	1.10	1.22	0.45	0.31	0.27	0.35	0.62
	S							
2022	$B/B_{R_{MS}}$	0.34	0.91	1.14	1.31	1.90	1.27	1.15
	$F/F_{R_{MS}}$	3.82	1.17	0.25	0.46	0.44	0.31	1.08
	S							

Figure 3. Comparative table of diagnostic indicators of pelagic stocks (Canales and Jurado, 2023).

The risk of overfishing is low and the risk of overexploitation is zero (Canales and Jurado, 2023) [Figure 4].

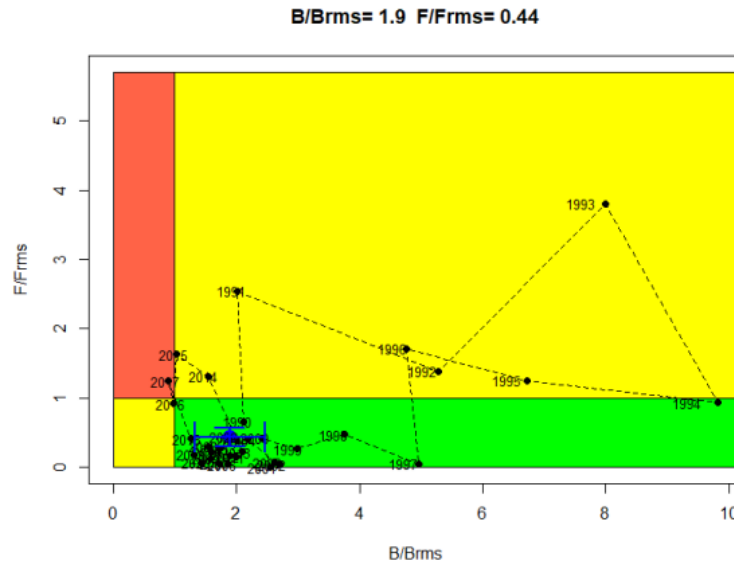


Figura SR11. Diagrama de Kobe (abajo). El círculo azul y barras de error representa la condición actual. Recurso **SARDINA REDONDA**.

Figure 4. Kobe diagram. The blue circle and error bars represent the current condition of round herring (Canales and Jurado, 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

Canales C. M., V. Jurado, 2023. Evaluación del stock de recursos pelágicos pequeños del Ecuador 2022. Informe Técnico IPIAP. Guayaquil, marzo 2023. 154p. <https://institutopesca.gob.ec/wp-content/uploads/2023/05/Informe-Evaluacio%CC%81n-2023final.pdf>

IPIAP. 2023. Captura de Peces Pelágicos Pequeños 2015-2022. <https://institutopesca.gob.ec/wp-content/uploads/2023/05/Capturas-pela%CC%81gicos-pequen%CC%83os-2015-2022.pdf>

Fricke, R., Eschmeyer, W. N. & Van der Laan, R. (eds) 2023. ESCHMEYER'S CATALOG OF FISHES: GENERA, SPECIES. <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>
Electronic version accessed 11 sep 2023."

Links

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