



MarinTrust Whole fish fishery assessment report

Document TEM-002 (prev. FISH2) - Version 3.0

Issued June 2024 – Effective June 2024

*Anchovy (Engraulis ringens) – Chile – FAO 87, Chilean
EEZ Regions XV-IV*

*Re-approval
WF16*

Table 1: Whole fish fishery assessment scope

Fishery name	Anchovy (<i>Engraulis ringens</i>) – Chile – FAO 87, Chilean EEZ Regions XV-IV
MarinTrust report code	WF16
Type 1 species (common name, Latin name)	<i>Anchovy (Engraulis ringens)</i>
Fishery location	<i>Chile – FAO 87, Chilean EEZ Regions XV-IV</i>
Gear type(s)	<i>Purse seine</i>
Management authority (country/state)	<i>Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA)</i>

Table 2: Applicant and Certification Body details

Application details			
Applicant(s)	Coquimbo (Orizon SA), Alimentos Pesqueros SPA, Pesquera La Portada S.A, Salmonoil SA (Fiordo Austral), Coronel (Camanchaca Pesca Sur SA), Arica Sur, Mejillones (Corpesca SA), Iquique (Compañía Pesquera Camanchaca SA), Iquique Sur (Corpesca SA)		
Applicant country	Chile		
Certification Body details			
Name of Certification Body	LRQA		
Contact Information for CB (e.g. email address/address/telephone number)	E: mt-ca@lrqa.com LRQA, 4-5 Lochside Way, Edinburgh Park, EH12 9DT T: +44 800 092 0452		
Fishery Assessor name	Jose Peiro Crespo		
CB Peer Reviewer name	Sam Peacock		
Number of assessment days	5	Assessment period	10/2024 - 10/2025

Table 3: Assessment outcome

Assessment outcome (See Table 4 for a summary of assessment determination)	Approve	
Approval validity	Valid from: 10/2024	Valid until : 10/2025
CB peer reviewer evaluation	Agree with assessment determination	
Fishery Assessment Peer Review Group external peer reviewer evaluation	Agree with assessment determination	

Table 4: Assessment determination

Assessment determination Summary of assessment and outcome
<p>This report assesses the anchovy (<i>Engraulis ringens</i>) stocks from two fisheries operating in Chilean waters: one in the northern regions (XIV to II) and the other in the north-central regions (III-IV). These are directed fisheries conducted by both the industrial and artisanal sectors. The target species accounts for over 95% of the catch in both sectors. Anchovy is classified as a species of Least Concern by the IUCN, is not listed in any CITES appendix, and is managed by SUBPESCA. As a result, both anchovy stocks are categorized as Category A species.</p> <p>The fisheries also include bycatch species such as jack mackerel (<i>Trachurus murphyi</i>), Pacific chub mackerel (<i>Scomber japonicus</i>), and Pacific bonito (<i>Sarda chilensis chilensis</i>), along with jellyfish to a lesser extent. These bycatch species represent more than 0.1% of the total catch and have been assessed in this report as well.</p> <p>In Chile, a robust management framework governs the anchovy fisheries, led by SUBPESCA for management and supported by IFOP for scientific data collection. Management and science committees, composed of experts and scientists from various institutions, ensure the sustainable exploitation of these resources. Compliance with this framework is monitored by SERNAPESCA, which enforces sanctions when irregularities are detected. Compliance is generally considered adequate, with no substantial evidence of IUU (Illegal, Unreported, and Unregulated) fishing.</p> <p>Fishery-dependent and independent data are collected regularly to update and refine the annual stock assessments. These assessments provide recommendations for precautionary catch quotas based on projections of future recruitment. The evaluation is updated biannually, incorporating data from annual research cruises that estimate the abundance and biomass of recruits for both species. The stock assessment includes a reference framework with proxy values used as reference points, which guide the establishment of a biologically acceptable quota (CBA).</p> <p>The stock assessment report conducted by IFOP for the year 2023 for the northern anchovy stock does not seem to be available. However, according to the most recent management committee report (SESIÓN N° 01/2024), the status of the anchovy is at $BD_{2023}/BDRMS=0.82$, which is 18% below the target reference point.</p> <p>The spawning stock reduction index ($BD/BDRMSY$) for anchovy in the north-central zone indicated that by 2023, the stock condition was healthy in terms of biomass ($BD_{2023}/BDRMSY=1.1$) and without overfishing ($F_{2023}/FMSY=0.32$). For the year 2024, the results indicate a certain probability $p(BD_{2024}<BDRMSY)=1$ that the anchovy in the north-central zone is overexploited but slightly above the limit reference point.</p> <p>For jack mackerel, classified as a Category C species, the latest stock assessment conducted in 2022 during the 10th annual SPRFMO Scientific Committee meeting indicated that the stock status has remained relatively stable since the 2022 benchmark assessment. Furthermore, the population trend shows signs of increase, with biomass projected to be above BMSY by 2024, with a high level of confidence.</p> <p>Based on data from the IFOP observer program, three species, Pacific chub mackerel, Pacific bonito and jellyfish have been identified as category D species (no management in place for them). A PSA has been conducted for each one. All species passed against Table D(b), indicating that they are not vulnerable to the assessed fisheries.</p>

Management measures to address the impact of the assessed fisheries on the ecosystem are in place, including seasonal closures, Total Allowable Catches (TACs), and discard management plans. Consequently, the impact of these fisheries on various ecosystem components is considered low for ETP species (mortality levels attributed to this fishery are estimated at 0.004% for the sooty shearwater and 0.025% for the guanay cormorant) and non-existent for habitats, due to the pelagic nature of the fishery. Overall, the current fisheries management framework in Chile adopts an ecosystem-based approach, ensuring the long-term conservation and sustainable use of resources while safeguarding the marine environment.

The anchovy fishery in the FAO 87, Chilean Northern and Northern-Central areas (Regions XIV-II and III-IV), passed all the Marin Trust requirements in this assessment, therefore its re-approval is recommended to be used as a raw material in Marine Trust certified products.

Last data accessed on October 1st, 2024.

Summary of CB peer review	This report is a thorough analysis of the status of the Chilean anchovy fishery, covering two distinct anchovy stocks in the Northern and Northern-Central areas. Sufficient evidence has been provided to support the conclusion that the fishery meets the requirements of the Version 3 MarinTrust whole fish assessment.
Summary of external peer review (see Appendix 1 for the full peer review report)	<i>The report is well documented, the author used the most recent available information. There has been much progress in Chile (and Peru) in effectively managing the by catch of ETP species, also discards are not considered a problem anymore. The report contain a detailed description of Type A and D species, all the scores including PSA seems to be correctly assigned.</i>
Notes for on-site auditor	<i>Note to assessor: Notes for on-site auditor should be included where there may be reason to validate the findings of the assessment during the on-site audit. For example, if a marine mammal or ETP shark is allowed to be landed by the fishery, the auditor on site can review evidence to ensure this species is not used for reduction purposes.</i>

Table 5: General results

Section	Outcome (Pass/Fail)
M1 - Management Framework	Pass
M2 - Surveillance, Control and Enforcement	Pass
E1 - Impacts on ETP Species	Pass
E2 - Impacts on Habitats	Pass
E3 - Ecosystem Impacts	Pass

Table 6: Species-specific results

See Table 7 for further details of species categorisation.

Category	Species name (common & Latin name)	Outcome (Pass/Fail/n/a)	
Category A	Anchovy (<i>Engraulis ringens</i>) (North stock)	A1	Pass
		A2	Pass

	Anchovy (<i>Engraulis ringens</i>) (Central – North tock)	A3	Pass
		A4	Pass
		A1	Pass
		A2	Pass
		A3	Pass
		A4	Pass
Category B	No species identified	-	
Category C	Jack mackerel (<i>Trachurus murphyi</i>)	Pass	
Category D	Pacific chub mackerel (<i>Scomber japonicus</i>)	Pass	
	Pacific bonito (<i>Sarda chiliensis chiliensis</i>)	Pass	
	Jellyfish (<i>Scyphozoa</i>)	Pass	

Table 7: Species categorisation table

List of all the species assessed. Type 1 species are assessed against Category A or Category B. Type 1 species must represent 95% of the total annual catch. Type 2 species are assessed against Category C or Category D. Type 2 species may represent a maximum of 5% of the annual catch. Species that comprise less than 0.1% of the catch are not required to be assessed or listed here.

Species name (common & Latin name)	Stock	CITES listed yes/no	IUCN Red list Category	% catch composition	Management (Y/N)	Category (A, B, C or D)
Anchovy (<i>Engraulis ringens</i>)	XIV-II	No	LC	94.3%	Y	A
Anchovy (<i>Engraulis ringens</i>)	III-IV	No	LC	95.7 - 98.6%	Y	A
Jack mackerel (<i>Trachurus murphyi</i>)	South Pacific stock	No	DD	0.9 – 4.3% (depending on the area)	Y	C
Pacific chub mackerel (<i>Scomber japonicus</i>)	South Pacific stock	No	LC	2.4%	N	D
Bonito (<i>Sarda chiliensis chiliensis</i>)		No	LC	0.13%	N	D
Jellyfish	-	No	-	0.1%	N	D

Rationale

Data from the Chilean observer programme has been used for categorization (IFOP 2023). According to the most recent report (IFOP 2023), the observer programme covered a 20.4% and between 4.3 and 9.6% of the industrial and artisanal fisheries in the Northern (Chilean Zones XV-II, from Arica y Parinacota to Antofagasta) and North-Central stock (Zones III and IV, which are the Atacama and Coquimbo regions) areas respectively.

In the industrial fishery, four species were recorded by the observers. Anchovy represented 94.3% of the total catch, followed by the Jack mackerel and mackerel with a 3.1% and 2.4% respectively.

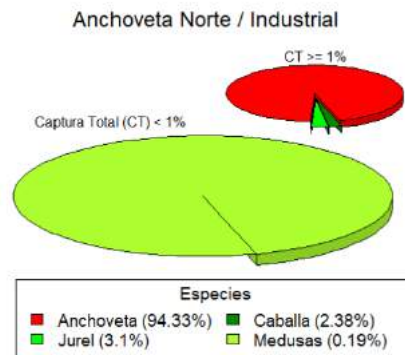


Figure 1 Catch composition of the industrial anchovy fishery operating in the Northern Chilean area (IFOP 2023).

In the artisanal fishery, anchovy represented between 95.7 and 98.6% of the catch, followed by jack mackerel (between 0.9 and 4.3% of the catch depending on the area), mackerel (0.13%) and bonito (0.13%).

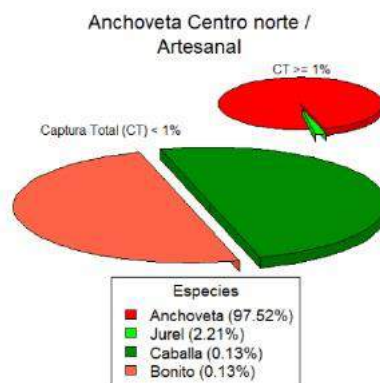


Figure 2 Catch composition of the artisanal anchovy fleet operating in the Northern-Central regions (IFOP 2023).

Both anchovy stocks are managed relative to reference points using annual quotas, and have therefore been assessed under Category A. Jack mackerel is subject to an international management regime coordinated by the South Pacific Regional Fisheries Management Organisation (SPRFMO), and has therefore been assessed under Category C.

Pacific chub mackerel and Pacific bonito are not managed in Chilean waters. Therefore, they are assessed as Category D species. Up to 93 species of jellyfish (Clase Scyphozoa) are found in Chilean waters (<https://www.latercera.com/noticia/primer-censo-medusas-identifica-93-especies-las-costas-chilenas/>). The group is not managed and it is assessed under category D. As in previous assessments of the fishery, for the productivity susceptibility analysis, biological treats of the South American sea nettle (*Chrysaora plocamia*), a common jellyfish species found in Chile (and the biggest one found in the area), have been used.

References

IFOP (2023). INFORME FINAL. Convenio de Desempeño 2021. Programa de observadores científicos: Programa de investigación y monitoreo del descarte y de la captura de pesca incidental en pesquerías pelágicas, año 2022-2023. Available at: <https://www.ifop.cl/busqueda-de-informes/>

Management requirements

This section, or module, assesses the general management regime applied to the fishery under assessment. It comprises two parts, M1, which evaluates the management framework, and M2, which evaluates surveillance, control and enforcement within the fishery.

- 1.6. All management criteria must be met (pass) for a fishery to pass the Management requirements.
 - 1.6.1. The sub-criteria offer a structured evidence base to demonstrate that the fishery sufficiently meets the management criteria. It is not expected that sub-criteria are assessed independently of the main criterion.

M1 Management framework

M1.1	M1.1 There is an organisation responsible for managing the fishery.
	<i>In reaching a determination for M1.1, the assessor should consider if the following is in place:</i>
	M1.1.1 The management and administration organisations within the fishery are clearly identified.
	M1.1.2 The functions and responsibilities of the management organisations include the overall regulation, administration, science and data collection and enforcement roles, and are documented and publicly available.
	M1.1.3 Fishers have access to information and/or training materials through nationally recognised organisations.
Outcome	<i>Pass</i>
Rationale	
<p>The management of fisheries in Chilean waters is overseen by the Undersecretariat of Fisheries (SUBPESCA), which operates under the Ministry of Economy, Development and Tourism (MINECON) (SUBPESCA 2024). SUBPESCA is responsible for formulating and coordinating fisheries policies, regulations, and management plans to ensure the sustainable use of marine resources.</p> <p>Supporting SUBPESCA in policy implementation and regulatory enforcement is the National Fisheries Service (SERNAPESCA). SERNAPESCA monitors fishing activities, ensures compliance with regulations, and conducts inspections to maintain the integrity of the sector (SERNAPESCA 2024).</p> <p>The Fisheries Development Institute (IFOP) serves as the scientific research arm of the Chilean fisheries management framework. It provides crucial scientific data and advice to SUBPESCA, guiding evidence-based decision-making and policy development for sustainable fisheries management.</p> <p>Anchovy fisheries are managed in Chile at the national level. Management plans have been approved for the two anchoveta fisheries assessed in this report. The management plan for the anchovy fishery in the Northern Region was approved in 2018 (Res. Ex. No 1197/2018) whereas the management plan for the anchovy fishery in the Northern-Central region was approved in 2017</p>	

(Res. Ex. 3893/2017).

In the case of the jack mackerel fishery, which is also included in this report, the management of that fishery falls under the jurisdiction of the South Pacific Regional Fisheries Management Organisation (SPRFMO), which coordinates conservation and sustainable use of fishery resources in the South Pacific Ocean.

SUBPESCA has established Technical Scientific Committees that serve as advisory bodies on scientific matters pertinent to the administration of fisheries. These committees include representatives from various institutions, organizations, and sectors, ensuring a comprehensive approach to fisheries management. Their responsibilities include updating stock status and catch projections and issuing official recommendations to the authorities. To maintain transparency, all acts, reports, and news resulting from the committees' work are published on the SUBPESCA website (SUBPESCA, 2024a). Other relevant information (stock assessments, bycatch reports) is also available on the IFOP website. The status of each managed stock is published annually in the report titled "Estado de situación de las principales pesquerías Chilenas." (SUBPESCA 2024).

Finally, the SPFRMO also regularly publishes stock assessments and other relevant information.

There is an organisation (SUBPESCA) responsible for managing the fishery.

References

LGPA (2023). Ley General de Pesca y Acuicultura. https://www.subpesca.cl/portal/615/articles-88020_documento.pdf

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

M1.2	M1.2 Fishery management organisations are legally empowered to take management actions.
	<i>In reaching a determination for M1.2, the assessor should consider if the following is in place:</i>
	M1.2.1 There are legal instruments in place to give authority to the management organisation(s) which can include policies, regulations, acts or other legal mechanisms.
	M1.2.2 Vessels wishing to participate in the fishery must be authorised by the management organisation(s).
	M1.2.3 The management system has a mechanism in place for the resolution of legal disputes.
	M1.2.4 There is evidence of the legal rights of people dependent on fishing for food or livelihood.
Outcome	<i>Pass</i>
Rationale	
The General Fisheries and Aquaculture Law (Ley General de Pesca y Acuicultura, LGPA), originally	

created in 1976 and updated in 2013, serves as the primary legal framework for fisheries management in Chile. The LGPA represents a modification of previous fisheries legislation, emphasizing commitments to the sustainable use and conservation of marine resources and prioritizing scientific information in decision-making processes. The recommendations of the Scientific and Technical Committees (CCT-PP) are now mandatory for all stakeholders, ensuring that conservation measures are based on scientific evidence above all other considerations.

Under the LGPA, SUBPESCA (the Undersecretariat of Fisheries) is tasked with several key responsibilities. As outlined in Article 5, SUBPESCA must establish Biological Reference Points (BRPs) for all targeted stocks. It is also required to develop management plans for fisheries with restricted access, which must be reviewed and updated every five years. Article 9 mandates the implementation of Biologically Acceptable Catches (BACs) and resource recovery plans. In compliance with SUBPESCA resolution No. 291/2015, all fish stocks must be exploited around the Maximum Sustainable Yield (MSY) level, making the MSY the primary objective when establishing quotas.

Article 4.2 of the LGPA (as amended in 2023) empowers SUBPESCA to take specific management actions. In addition to setting BRPs and BACs, SUBPESCA provides authorizations for extractive fishing activities, which are conditional upon compliance with obligations specified in the relevant resolutions. Details on the authorization process are available on the SUBPESCA website, enhancing transparency and accessibility.

In December 2023, a proposal for a new General Fishing Law was submitted to the Chilean Congress (NLP 2024). The new legislation aims to establish a modern, transparent, sustainable, and equitable regulatory framework for Chilean fishing activities. Key aspects of the law include the sustainable development of fisheries, equity within the sector, social protection for artisanal fishers, a scientific-technical approach to management, and incentives for human consumption of fish.

Fishery management organisations (SUBPESCA) are legally empowered (LGPA) to take management actions.

References

LGPA (2023). Ley General de Pesca y Acuicultura. https://www.subpesca.cl/portal/615/articles-88020_documento.pdf

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

M1.3	M1.3 There is an organisation responsible for collecting data and (scientifically) assessing the fishery.
	<i>In reaching a determination for M1.3, the assessor should consider if the following is in place:</i>
	M1.3.1 The organisation(s) responsible for collecting data and assessing the fishery is/are clearly identified.
	M1.3.2 The management system receives scientific advice regarding stock, non-target species and ecosystem status.
	M1.3.3 Scientific advice is independent from the management organisation(s) and transparent in its formulation through a clearly defined process.

Clause outcome	<i>Pass</i>
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Rationale

As indicated previously, the Fisheries Development Institute (Instituto de Fomento Pesquero, IFOP), established in 1964 through a joint agreement between the Chilean government, the Food and Agriculture Organization (FAO), and the United Nations Development Program (UNDP), is a non-profit organization dedicated to supporting the sustainable development of Chile's fishing sector (IFOP 2024). IFOP is responsible for sampling fish stocks, conducting annual acoustic surveys, and collecting biological data, ensuring science-based fisheries management. It also collaborates with Chilean universities and various national and international institutions to strengthen data management and research efforts in the sector.

IFOP plays a crucial role within the Scientific and Technical Committee for Small Pelagic Fisheries (previously Comité Científico Técnico de Pesquerías de Pequeños Pelágicos, CCT-PP, now there are different committees for each fishery), which is jointly formed by IFOP and SUBPESCA (the Undersecretariat of Fisheries). The CCT-PP analyzes updates on stock status, provides catch projections, and makes official recommendations to authorities, guiding sustainable fishing practices. To maintain transparency, all acts, reports, and news resulting from the committees' work are published on the SUBPESCA website (SUBPESCA 2024). The South Pacific Regional Fisheries Management Organisation (SPRFMO) also coordinates with IFOP for managing highly migratory stocks within the mixed pelagic fisheries (SPRFMO 2024).

Meanwhile, SERNAPESCA (the National Fisheries Service) compiles the necessary data for creating the Fisheries and Aquaculture Statistical Yearbooks, which include detailed landing information (SERNAPESCA 2024).

There is an organisation (IFOP) responsible for collecting data and (scientifically) assessing the fishery.

References

IFOP (2024). Instituto de Fomento Pesquero (Fisheries Development Institute). Available at: <https://www.ifop.cl/>

SUBPESCA (2024). Comites de manejo (Management committees). Available at: <https://www.subpesca.cl/portal//615/w3-propertyvalue-38010.html>

SPRFMO (2024). South Pacific Regional Fisheries Management Organisation. Available at: <https://sprfmo.int>

SERNAPESCA (2024). Servicio Nacional de Pesca y Acuicultura (National Fisheries Service). Available at: <https://www.sernapesca.cl/>

M1.4	M1.4 The fishery management system is based on the principles of sustainable fishing and a precautionary approach.
	<p><i>In reaching a determination for M1.4, the assessor should consider if the following is in place:</i></p> <p>M1.4.1 A policy or long-term management objective for sustainable harvesting based on the best scientific evidence and a precautionary approach is publicly available and implemented for the fishery.</p>

Outcome	Pass
Rationale	
<p>The General Law on Fisheries and Aquaculture No. 18.892 of 1989, along with its amendments (LGPA 2023), underscores this mission in Article 1° B. It establishes the law's primary objective as the conservation and sustainable use of hydrobiological resources through the application of a precautionary and ecosystem-based approach in fishing regulation, as well as the safeguarding of the marine ecosystems in which these resources exist.</p> <p>To achieve this objective within the framework of national fisheries policy, the law mandates several guiding principles for adopting conservation and management measures:</p> <ul style="list-style-type: none"> • Long-term Objectives: Establish long-term goals for the conservation and administration of fisheries and the protection of their ecosystems, with periodic evaluations to assess the effectiveness of the measures implemented. • Precautionary Principle: Exercise increased caution in the administration and conservation of resources when scientific information is uncertain, unreliable, or incomplete. The absence of sufficient scientific data should not be used as a justification for delaying or failing to adopt necessary conservation and management measures (LGPA 2023). <p>These principles align with SUBPESCA and IFOP's mission to ensure the sustainable use of Chile's marine resources through a science-based, precautionary approach.</p> <p>The fishery management system is based on the principles of sustainable fishing and a precautionary approach.</p>	
References	
<p>LGPA (2023). Ley General de Pesca y Acuicultura. https://www.subpesca.cl/portal/615/articles-88020_documento.pdf</p>	

M1.5	<p>M1.5 There is a clearly defined decision-making process which is transparent, with processes and results made publicly available.</p> <p><i>In reaching a determination for M1.5, the assessor should consider if the following is in place:</i></p>
	<p>M1.5.1 There is participatory engagement through which fishery stakeholders and other stakeholders can access, provide information, consult with, and respond to, the management systems' decision-making process.</p>
	<p>M1.5.2 The decision-making process is transparent, with results made publicly available.</p>
	<p>M1.5.3 The fishery management system is subject to periodic internal or external review to validate the decision-making process, outcomes and scientific data.</p>
Outcome	Pass
Rationale	

The Scientific and Technical Committee for Small Pelagic Fisheries (CCT-PP) and the National Fisheries Council play crucial roles in the consultation, development, revision, and implementation of Fisheries Management Plans (FMPs). These plans outline actions to address biological, economic, social, and ecological aspects of fisheries management. The Fishery Management Committees, established by law under SUBPESCA, serve as consultative and advisory bodies comprising stakeholders from key sectoral representatives, as well as officials from SUBPESCA and SERNAPESCA. In addition, Technical Scientific Committees provide scientific advice, with members appointed through a public selection process (LGPA 2023).

Each Fishery Management Committee is responsible for establishing the timeframe for FMP evaluation, which cannot exceed five years from the plan’s formulation. Specific committees, such as the Anchovy and sardine committee and the Technical Scientific Committee for Small Pelagic Fisheries, meet regularly to review and advise on stock status and management strategies.

Transparency is a key component of this process. Meeting minutes, reports, and proceedings from these committees are publicly accessible on the SUBPESCA and IFOP websites. The CCT-PP’s documentation has been available since 2013, while the Management Committee’s records date back to 2014, ensuring free access to information for stakeholders and the public (Seccion 1/2024). Additionally, the status of each managed stock is published annually in the memorandum "Estado de situación de las principales pesquerías Chilenas," further supporting transparency and informed decision-making (SUBPESCA 2024).

There is a clearly defined decision-making process which is transparent, with processes and results made publicly available.

References

LGPA (2023). Ley General de Pesca y Acuicultura. https://www.subpesca.cl/portal/615/articles-88020_documento.pdf

SESIÓN N° 01/2024. COMITÉ DE MANEJO DE LA PESQUERÍA DE ANCHOVETA Y SARDINA ESPAÑOLA DE LAS REGIONES DE ARICA Y PARINACOTA, TARAPACÁ Y ANTOFAGASTA. IQUIQUE, 03 y 04 de abril de 2024. ACTA EXTENDIDA.

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

M2 Surveillance, control and enforcement

M2.1	M2.1 There is an organisation responsible for monitoring compliance with fishery laws and regulations.
	<i>In reaching a determination for M2.1, the assessor should consider if the following is in place:</i>
	M2.1.1 There is an organisation responsible for monitoring compliance with specific monitoring, control and surveillance (MCS) mechanisms in place.
	M2.1.2 There are relevant tools or mechanisms used to minimise IUU fishing activity.

	M2.1.3 There is evidence of monitoring and surveillance activity appropriate to the intensity, geography, management control measures and compliance behaviour of the fishery.
Outcome	<i>Pass</i>

Rationale

Within Chile’s Exclusive Economic Zone (EEZ), the National Fisheries and Aquaculture Service (SERNAPESCA) leads the enforcement of compliance through inspections, surveillance mechanisms, and data collection. Vessel monitoring systems (VMS) are mandatory for industrial vessels, and since 2020, a video camera monitoring system has been installed on the entire fleet.

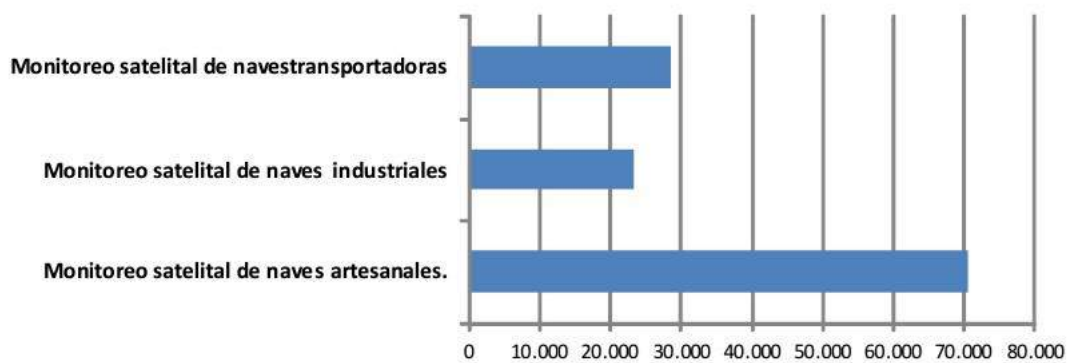


Figure 3 Number of VMS controls carried out in 2023 (From top to bottom: containers, industrial vessels and artisanal boats) (SERNAPESCA 2024).

Additionally, SERNAPESCA conducts audits of capture fisheries and enforces compliance through surveillance and control mechanisms. An on-board observer program is also in place, covering approximately 16% of the industrial fleet, to provide further oversight and data collection. The Chilean Navy also patrols the EEZ, safeguarding marine resources. A periodic observer program collects information on both target species and other harvested resources, enhancing monitoring efforts.

Chile implements a National Supervision Plan (NSP) to ensure that those engaged in fishing activities adhere to the established rules and requirements. SERNAPESCA designs the NSP annually, guided by a strategic framework that sets compliance priorities for various technical areas, including fisheries, aquaculture, and foreign trade (SERNAPESCA, 2024b). The NSP encompasses several inspection programs, such as satellite monitoring, landing certification, weighing systems, joint operations, and special control programs. In 2023, the oversight strategy focused on activities which represented the highest risk to sustainability. Within this framework, and as part of SERNAPESCA’s 2023 National Oversight Plan, two Special Oversight Programs were continued: “Landing Control (Fishing and Landing Zone)” and “Combating Illegal Fishing in the Value Chain.” Each program focused on specific hydrobiological resources, targeting areas with the most critical non-compliance risks.

According to SERNAPESCA’s 2023 Report on Oversight Activities in Fishing and Aquaculture, a total of 65,723 inspection activities were conducted, marking a 29.2% decrease compared to 2022. The satellite tracking system played a significant role, monitoring 94 industrial vessels and 401 artisanal vessels, resulting in 122,637 remote inspections—accounting for 65.2% of all inspection activities. The landing certification program inspected various landing points, certifying 40,574 landings

throughout the year. Additionally, 2,785 joint operations in commercial and recreational fishing were carried out, representing a 46.9% increase from 2022 (SERNAPESCA 2024).

In 2023, the satellite monitoring program tracked an average of 94 industrial fishing vessels daily, fluctuating between 85 and 104 vessels. For the artisanal sector, an average of 401 vessels were monitored daily, with a range between 301 and 508 vessels transmitting their positions (SERNAPESCA 2024).

In 2023, the inspection coverage increased a 12.2% for artisanal fisheries and 14.4% for industrial fisheries compared to 2022 (SERNAPESCA 2024). In the case of controls at the landing site, the report shows that in 2023, 61.9% of landing certifications in the industrial pelagic fishery were conducted in person, a 10% decrease from 2022. For the artisanal fleet, in-person attendance rose to 80.8%, a 4% increase. This effort helped control landings of both target species and accompanying fauna, deterring unreliable declarations. The accompanying fauna made up 5.41% in the industrial fishery and 6.1% in the artisanal fishery, both within normal ranges, continuing the trend of reduced bycatch in recent years.

The National Fisheries and Aquaculture Service (SERNAPESCA) is responsible for monitoring compliance with fishery laws and regulations under an annually National Supervision Plan (NSP).

References

SERNAPESCA (2024). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

M2.2	M2.2 There is a framework of sanctions which are applied when infringements against laws and regulations are discovered.
	<i>In reaching a determination for M2.2, the assessor should consider if the following is in place:</i>
	M2.2.1 The laws and regulations provide for penalties or sanctions that are adequate in severity to act as an effective deterrent.
	M2.2.2 There is no evidence of systematic non-compliance.
Outcome	<i>Pass</i>

Rationale

The General Law on Fisheries and Aquaculture (LGPA) specifies a range of sanctions for violations, including fines, suspension or revocation of fishing licenses, and confiscation of catch and gear. Offenses, such as industrial vessels landing more fish than their allocated quota, face penalties ranging from monetary fines to license suspension or revocation, depending on the severity of the infraction.

In 2023, there were 626 court summonses issued in the commercial fishing sector (excluding recreational fishing). Of these, 36.1% were related to issues with certifying the origin of the product, 22.5% were due to non-compliance with fishing bans, and 20.4% were for violations of authorization requirements (SERNAPESCA 2024).

According to the SERNAPESCA’s 2023 Report on Oversight Activities in Fishing and Aquaculture

(SERNAPESCA 2024), a total of close to 1,280 tons of hydrobiological species were confiscated due to non-compliance with regulations, which is an amount 54.3% lower than that seized in 2022. The five species with the highest levels of seizures were anchovy (240 t) and 4 species of algae (SERNAPESCA 2024).

There is therefore a framework of sanctions defined under the LGPA which are applied (in the form of court summonses, confiscation of seafood products, etc) when infringements are discovered.

References

SERNAPESCA (2024). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

M2.3	M2.3 There is substantial evidence of widespread compliance in the fishery, and no substantial evidence of IUU fishing.
	<i>In reaching a determination for M2.3, the assessor should consider if the following is in place:</i>
	M2.3.1 The level of compliance is documented and updated routinely, statistically reviewed and available.
	M2.3.2 Fishers provide additional information and cooperate with management/enforcement agencies/organisations to support the effective management of the fishery.
	M2.3.3 The catch recording and reporting system is sufficient for effective traceability of catches per vessel and supports the prevention of IUU fishing.
Outcome	<i>Pass</i>

Rationale

SERNAPESCA’s Report on Oversight Activities in Fishing and Aquaculture 16fulfils the requirements set forth in Article 4º B of the General Law of Fisheries and Aquaculture (LGPA), which mandates: “The Service must, in the month of March each year, prepare a report on the inspection activities and actions carried out in the area of fishing and aquaculture during the previous year. The report must also include the results of these inspection actions and the level of compliance with administration and conservation measures from the previous year. It must be published on the Service’s website” (LGPA 2023). By complying with this requirement, SERNAPESCA ensures that the level of compliance is documented, updated, and made publicly available each year.

Additionally, Article 63 of the LGPA requires industrial and artisanal shipowners to report their catches and landings for each vessel to the Service. Hydrobiological resources may only be landed at points or ports authorized by SERNAPESCA. Article 64 A further stipulates that fishing and research vessels operating at sea must have an automatic positioning system. The data generated by this system must be publicly accessible, updated monthly, and published on SERNAPESCA’s website (LGPA 2023).

These articles emphasize the legal obligations of fishers to collaborate with SERNAPESCA and

comply with various activities required by law. This compliance is essential to demonstrate the legality of their operations and to maintain their fishing permits.

In the tables shown in section A.3.3 information on the TACs set for the anchovy fisheries and the catches by the industrial and artisanal fleets operating in the area are given. As seen, compliance with quotas is adequate.

As seen compliance in the fishery seems to be adequate. There is substantial evidence of widespread compliance in the fishery, and no substantial evidence of IUU fishing.

References

LGPA (2023). Ley General de Pesca y Acuicultura. https://www.subpesca.cl/portal/615/articles-88020_documento.pdf

SERNAPESCA (2024). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

Species requirements

This section, or module, comprises of four species categories. Each species in the catch is subject to an assessment against the relevant species category in this section (see clauses 1.2 and 1.3 and Table 6).

Type 1 species can be considered the ‘target’ or ‘main’ species in the fishery under assessment. They make up the bulk of the catch and a subjected to a detailed assessment. Type 1 species must represent 95% of the total annual catch. If a species-specific management regime is in place for a Type 1 species, it shall be assessed under Category A. If there is no species-specific management regime in place for a Type 1 species, it shall be assessed under Category B.

Type 2 Species can be considered the ‘non-target’ species in the fishery under assessment. They comprise a small proportion of the annual catch and are subjected to a relatively high-level assessment. Type 2 species may represent a maximum of 5% of the annual catch. If a species-specific management regime is in place for a Type 2 species, it shall be assessed under Category C. If there is no species-specific management regime in place for a Type 2 species, it shall be assessed under Category D.

Species that comprise less than 0.1% of the catch are not required to be assessed or listed here

Category A species

2.1. All clauses must be met for a species to pass the Category A assessment.

2.1.1. If a species fails any of the Category A clauses, it should be re-assessed as a Category B species.

Anchovy (*Engraulis ringens*). Two stocks are covered in this section, the northern (region XV-II) and northern-central stocks (Region III-IV).

A1 Data collection

<p>A1.1</p>	<p>A1.1 Landings data are collected such that the fishery-wide removals of this species are known.</p>
<p>Outcome</p>	<p><i>Pass</i></p>
<p>Rationale</p> <p><u>Both anchovy stocks</u></p> <p>For both fisheries, fishery landings data are collected through mandatory logbooks, port sampling of landings conducted by inspectors belonging to the National Fisheries and Aquaculture Service (SERNAPESCA) and data collected by observers (IFOP). Fishery removals for both anchovy stocks are known.</p> <p>In the figures below landings from both fisheries are shown.</p> <div data-bbox="263 1182 1327 1644" data-label="Figure"> <p>The figure is a stacked area chart titled 'Figure 4 Weekly landings by location in Northern Chile (IFOP 2024)'. The y-axis is labeled 'Desembarques (miles t)' and ranges from 0 to 20. The x-axis represents weeks from 1 to 53. Three data series are shown: Arica (teal), Iquique (yellow), and Mejillones (blue). Landings are concentrated in the first 27 weeks and the final 13 weeks. A pie chart inset shows the total distribution: Arica 33%, Iquique 35%, and Mejillones 32%.</p> </div> <p style="text-align: center;"><i>Figure 4 Weekly landings by location in Northern Chile (IFOP 2024)</i></p>	

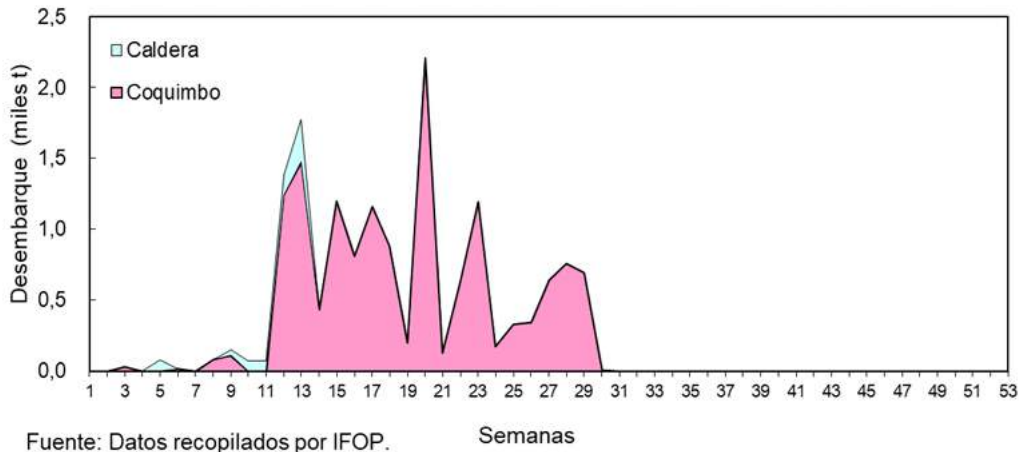


Figure 5 Weekly landings of anchovy in the northern-central area (IFOP 2024)

IFOP also considers discards of the target species. Discarded catch estimations are design-based and rely on a stratified two-stage cluster sampling method, where trips serve as the first-stage unit and fishing sets as the second. Stratification is based on spatial (region or macro-zone), temporal (year or semester), and operational (fleet) factors, with the annual fishing trips of the fleet used as an expansion factor, sourced from the SERNAPESCA landing database. Only trips by vessels exceeding a specific length, which carry scientific observers, are considered (IFOP 2024b)

Retained and discarded catches per set are visually estimated using the vessel’s detection equipment and the hold’s filled volume in weight (t). For full net discards, the species proportion is estimated visually. In cases of partial discards, it is assumed that the species proportion in the discarded catch mirrors that of the retained catch.

Landings data are collected such that the fishery-wide removals of this species (including discards) are known.

References

IFOP (2024). Informe Final Convenio de Desempeño, 2023 Programa de seguimiento de las principales pesquerías pelágicas de la zona norte de Chile, entre las regiones de Arica y Parinacota y Coquimbo, año 2023. Subsecretaría de Economía y EMT Junio, 2024. 702 pp. Available at: www.ifop.cl

IFOP (2024b). Segundo Informe. Estatus y posibilidades de explotación biológicamente sustentable de anchoveta y sardina española, Región de Atacama a la Región de Coquimbo, CBA año 2024. Subsecretaría de Economía y EMT Junio 2024. 133 pp. Available at: www.ifop.cl

A1.2	A1.2 Sufficient additional information is collected to enable an indication of stock status to be estimated.
Outcome	<i>Pass</i>

Rationale

Both anchovy stocks

Hydroacoustic surveys have been conducted biannually since 1999 by means of two cruises: RECLAS in January (summer season; over the recruitment period) and PELACES in May (autumn season). As

this method does not consider stock reproductive dynamics, assessments of Spawning Stock Biomass (SSB) for small pelagic fish with partial spawning are conducted through the Daily Egg Production Method (DEPM). Intra-annual updates of stock assessment, advice and quota are conducted as updated information becomes available from (April-May) and summer (Dec-Jan) based on the research surveys mentioned above.

In the case of the Chilean northern-central anchovy stock, the temporal structure of the assessment model covers the period 1985-2024. The information used in the model corresponds to historical series of catches (landings plus discards), catch per unit of standardized industrial effort (CPUE Ind) and artisanal (CPUE Art), size composition of specimens from commercial catches, biomass and size compositions observed in the acoustic cruise (Bcru) and spawning biomass estimated by the MDPH cruise (BD mph) (IFOP 2024b).

References

IFOP (2024b). Segundo Informe. Estatus y posibilidades de explotación biológicamente sustentable de anchoveta y sardina española, Región de Atacama a la Región de Coquimbo, CBA año 2024. Subsecretaría de Economía y EMT Junio 2024. 133 pp.

A2 Stock assessment

<p>A2.1</p>	<p>A2.1 A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock) and considers all fishery removals and the biological characteristics of the species.</p>
<p>Outcome</p>	<p><i>Pass</i></p>
<p>Rationale</p> <p><u>Both anchovy stocks</u></p> <p>The stock assessment is conducted by IFOP annually based on the information collected by the different monitoring program and surveys in order to provide recommendations for a precautionary catch quota. This evaluation is normally updated twice a year using data from annual research cruises as part of the hydroacoustic monitoring program, which estimates the abundance and biomass of recruits.</p> <p>For the northern stock, the biomass and fishing mortality reference points are dynamic and recalculated annually. Two assessments of the stock are made per season - one in October and the second one in March. For the northern-central stock, advice is updated several times a year.</p> <p>The results of the stock assessments are presented by the IFOP to the relevant management committees (Comite de manejo de la pesqueria de anchoveta y sardina Española XV-II for the northern stock and Comite de manejo de la pesqueria de anchoveta y sardina Española III-IV, for the northern-central stock) of SUBPESCA, where the information provided is reviewed and the advice is validated.</p>	

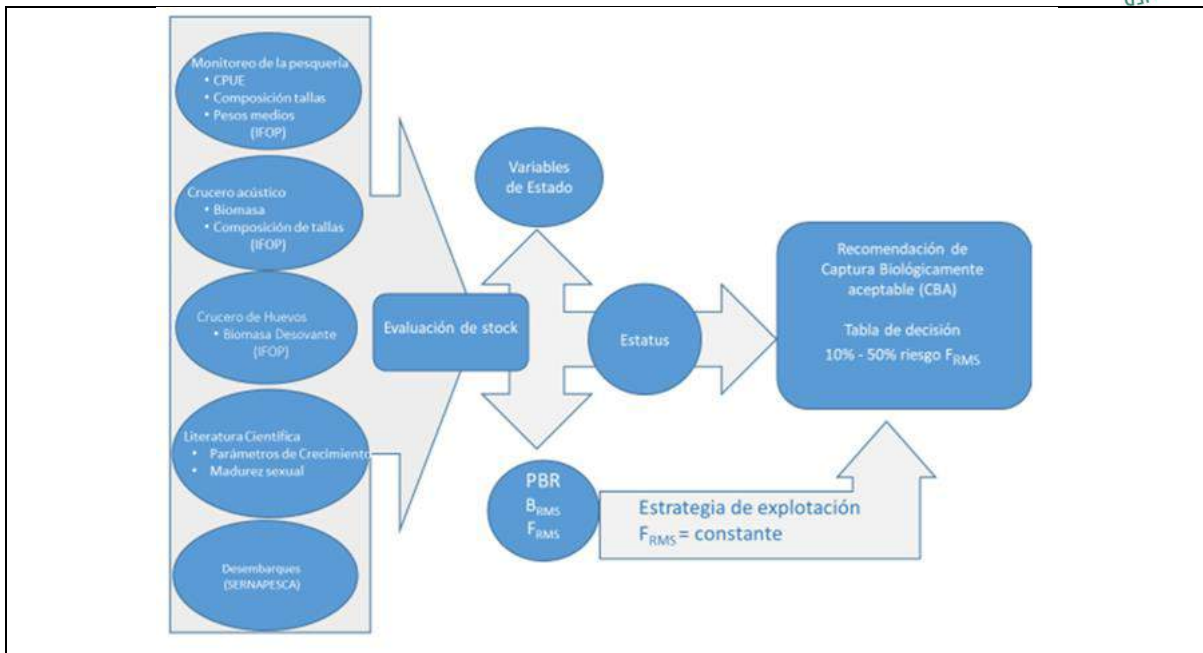


Figure 6 Stock assessment procedure for northern-central anchovy stock (IFOP 2024b)

Stock assessments are conducted at least twice a year.

References

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

A2.2	A2.2 The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.
Outcome	<i>Pass</i>
<p>Rationale</p> <p><u>Both anchovy stocks</u></p> <p>Biological reference points for the pelagic stocks were defined in the Report CCT-PP N°01/2015, and in Res. Ex. N°291 de 2015 (SUBPESCA 2024).</p> <p>In 2023, for the northern anchovy stock, reference points were calculated as:</p> <ul style="list-style-type: none"> • Proxy FRMS = F55% BDPR = 0,84 • Proxy BRMS = 55% BDPR (ó 50%B0) = 639.000 (t.) • Blim = 25% B0 = 319.500 (t.) <p>For the northern-central anchoveta stock, reference points were calculated as:</p> <ul style="list-style-type: none"> • Proxy FRMS = F60% BDR = 0,85 • Proxy BDRMS = 60%BDPR (o 55%BDo) = 52.900 t. • BD límite = 27,5%BDo = 26.450 t. 	

<p>Defined as:</p> <p>(BRMS) SSBMSY = Spawning biomass at maximum sustainable yield</p> <p>(BDPR) SSBR = Spawning Biomass per Recruit</p> <p>(BD0) SSBO = Virginal spawning biomass spawning (estimated from stock-recruitment models: biomass of equilibrium, without fishery exploitation)</p> <p>(BD limite) SSBlim = Limit reference point for Spawning Stock Biomass</p> <p>(FRMS) FMSY = the fishing mortality that will maintain a stock at maximum sustainable yield</p> <p>The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.</p>
<p>References</p> <p>SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf</p>

A2.3	A2.3 The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.
Outcome	<i>Pass</i>
<p>Rationale</p> <p>Based on the stock assessment, and the defined reference points, the management committees (until 2023 CCT-PP) provided advice on a biologically acceptable quota (CBA) for the assessed fisheries.</p> <p><u>Northern anchovy stock</u></p> <p>The CCT-PP recommended CBA (Biologically Acceptable Catch) ranges aimed at achieving MSY (Maximum Sustainable Yield) for scenarios both without and with remnants, considering the potential approval of a new law authorizing remnants, as detailed below (SUBPESCA 2024):</p> <ul style="list-style-type: none"> • Without a Remnant Law: A maximum CBA of 688,700 tons, after accounting for discards, with a recommended range between 550,960 and 688,700 tons of anchovy. • With a Remnant Law: A maximum CBA of 633,500 tons, factoring in discards and remnants, with a recommended range between 506,800 and 633,500 tons of anchovy. <p>The determination of these CBA ranges took into account discard rates of 1.7% for the first semester and 0.98% for the second semester, as well as the historical average recruitment from the 2000-2021 series for each semester. A 10% risk of not meeting the management objective was factored in, resulting in an 8% reserve without remnants and a 15% reserve with remnants. This risk margin also considered the current El Niño conditions.</p> <p><u>Northern-central anchovy stock</u></p> <p>The CCT-PP recommended CBA (Biologically Acceptable Catch) ranges that align with MSY (Maximum Sustainable Yield) for scenarios both without and with remnants, considering the potential approval of a new law authorizing remnants, as outlined below (SUBPESCA 2024):</p> <ul style="list-style-type: none"> • Without Remnant Law: A maximum CBA of 61,181 tons, accounting for discards, with a 	

recommended range of 48,945 to 61,181 tons of anchovy.

- With Remnant Law¹: A maximum CBA of 48,038 tons, accounting for discards and remnants, with a recommended range of 38,430 to 48,038 tons of anchovy.

In determining these ranges, a 2.46% discount for discards, an average historical recruitment, and a 30% risk of not meeting the management objective were considered. This is equivalent to a 5% reserve without remnants and a 6% reserve with remnants. Despite the presence of El Niño conditions, the risk level was maintained because the precautionary approach is based on a recruitment scenario well below the current condition.

References

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023.
https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

A2.4	A2.4 The assessment is subject to internal or external peer review.
Outcome	<i>Pass</i>
Rationale	
Both anchovy stocks	
<p>As indicated previously, stock assessments are conducted by the IFOP and then the results presented to the relevant management committees (In this case, the Comité de manejo de la pesquería de anchoveta y sardina Española XV-II for the northern stock; and the Comité de manejo de la pesquería de anchoveta y sardina Española III-IV, for the northern-central stock), where the information provided is reviewed, discussed and the advice is validated. These committees comprise representatives from both the artisanal and industrial fishing sectors across various regions, along with SERNAPESCA, SUBPESCA, and other relevant institutions.</p> <p><i>Table 1 Example of some of the members who attended the last meeting of the Comité de manejo de la pesquería de</i></p>	

¹ The Remnants Law (Ley Num. 21.525) states that the remaining quotas not consumed during the year may be taken by artisanal fisheries. This will apply provided that the global catch quota has a minimum of 10% of uncaptured availability in the year and that the fishery has not been declared in conditions of depletion or collapse by the Scientific Committee. However, the transfer of remaining quotas may not exceed 30% of the global quota from the previous year (DORC 2022).

anchoveta y sardina Española XV-II for the northern stock (SESIÓN N° 01/2024)

REGIONES	CARGOS	NOMBRE	Día 1 fecha	Día 2 fecha	
Regiones de Arica y Parinacota, Tarapacá y Antofagasta	Representa Sector pesquero Industrial	Miguel Escobar Miguel Ahumada (s)	V* A	V* A	
	Representa Sector pesquero Industrial	Carlos Merino Manuel Guajardo (s)	J P	J P	
	Representa Planta de Proceso	Pedro Moreno Carlos Chavarini (s)	V A	V A	
	SERNAPESCA	Nelson Iturra	V	V	
	SERNAPESCA	Cynthia Labarca (s)	P	P	
	Regiones de Arica y Parinacota, Tarapacá y Antofagasta	SUBPESCA	Karen Guissen	P	P
		SUBPESCA	Víctor Espejo (s)	P	P
		SUBPESCA	Juan Carlos Villarroel	P	P
	Invitado por CORPESCA	Hugo Arancibia		V	

P = Presencial
V = Virtual
A = Ausente
J = Justifica
(*) = Se retira antes del término de la sesión

Therefore, it is considered that the assessment is subject to internal and external review.

References

SESIÓN N° 01/2024. COMITÉ DE MANEJO DE LA PESQUERÍA DE ANCHOVETA Y SARDINA ESPAÑOLA DE LAS REGIONES DE ARICA Y PARINACOTA, TARAPACÁ Y ANTOFAGASTA. IQUIQUE, 03 y 04 de abril de 2024. ACTA EXTENDIDA.

A2.5	A2.5 The assessment is made publicly available.
Outcome	<i>Pass</i>
Rationale	
Stock assessment reports and other scientific data, including monitoring programs, are available on the IFOP website (https://www.ifop.cl/busqueda-de-informes/). Information on decisions made by the management committees can be found on the SUBPESCA website	

(<https://www.subpesca.cl/portal//615/w3-propertyvalue-38010.html>).

References

A3 Harvest strategy

A3.1	A3.1 There is a mechanism in place by which total fishing mortality of this species is restricted.
Outcome	<i>Pass</i>
Rationale	
<p>In Chile, the management of anchovy fishing is governed by the General Law of Fisheries and Aquaculture (Law No. 18,892) and the Regulation of Fishing of Hydrobiological Resources (LPGA 2023). SERNAPESCA plays a key role in regulating the fishery by setting catch quotas based on scientific assessments and stock data to ensure the sustainability of the resource.</p> <p>These quotas, reviewed and updated annually, are based on scientific recommendations, historical data, and biannual surveys. Total Allowable Catches (TACs) are divided into categories for research, industrial, and artisanal fisheries. While TACs are set at the start of the fishing season, they can be adjusted mid-year based on acoustic and fishery surveys. The LPGA mandates that catch recommendations be provided as a range, with the lower boundary set at 80% of the maximum sustainable yield (MSY) (LPGA 2023).</p> <p>Additional management measures include regulating the fishing season, enforcing minimum catch size restrictions, and controlling fishing effort to limit total mortality. Temporary closures are imposed when high numbers of juvenile anchovy are detected. Workshops provided by the government also promote best fishing practices, including measures to reduce discards and bycatch. These regulations are continuously updated in response to scientific studies and changes in the status of the resource, ensuring the long-term sustainability of the anchovy fishery and the broader marine ecosystem.</p>	
References	
<p>LPGA. (2023). Ley General de Pesca y Acuicultura. https://www.subpesca.cl/portal/615/articles-88020_documento.pdf</p>	

A3.2	A3.2 Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.
Outcome	<i>Pass</i>
Rationale	
<p>As previously mentioned, annual quotas are established by SUBPESCA based on recommendations from IFOP and the management committees. These quotas may be adjusted during the year. The tables below present the quotas and catches for both fisheries in 2023. As shown, the actual catches</p>	

for both the industrial and artisanal fleets were below the allocated quotas.

Table 2 Quotas and landings for the industrial fleet in 2023 (SERNAPESCA 2024).

Resumen LTP y PEP (industrial) 2023				
Recurso	Unidad de pesquería	Cuota Final (t)	Desembarque total (t)	% consumido 2023
Anchoveta	XV- I - II	580.872	55	0%
Anchoveta	III - IV	8.658	0	0%
Anchoveta	V - X	2.710	1.568	58%
Bacalao de prof.	47°L.S.-57°L.S.	2.046	1.969	96%
Camarón nailon	II-VIII	5.527	3.935	71%
Congrio dorado	Norte Exterior	568	445	78%
Congrio dorado	Sur Exterior	451	311	69%
Jibia (*)	XV- XII			
Jurel	XV - I - II	81.583	81.250	100%
Jurel	III - IV	1.033	0	0%
Jurel	V - IX	553.475	554.642	100%
Jurel	XIV - X	276	1	0%
Langostino amarillo	III-IV	1.024	381	37%
Langostino amarillo	V-VIII	2.610	2.137	82%
Langostino colorado	II-IV	627	51	8%
Langostino colorado	V-VIII	8.188	7.523	92%
Merluza común	IV- 41º 28, 6	26.602	22.834	86%
Merluza de cola	V -X	1.988	1.741	88%
Merluza de cola	XI -XII	10.317	9.199	89%
Merluza de tres aletas	41º28,6 - XII	5.460	2.683	49%
Merluza del sur	Norte Exterior	12.625	11.723	93%
Merluza del sur	Sur Exterior	1.046	674	64%
Sardina común	V -X	1.666	961	58%
Sardina española	XV- I - II	1.485	0	0%
Sardina española	III - IV	610	0	0%

Notas: (*) Para el año 2023 no hubo fraccionamiento de la cuota de Jibia entre el sector Artesanal e Industrial, el valor del resultado anual se indica en la Tabla con los resultados artesanales.

Table 3 Quotas set and landings for the artisanal fleet in 2023 (SERNAPESCA 2024).

		Resumen Cuotas Artesanales 2023		
Recurso	Unidad de pesquería	Cuota Final (t)	Desembarque total (t)	% consumido 2023
Anchoveta	XV, I y II	119.004	100.351	84%
Anchoveta	III y IV	31.127	4.238	14%
Anchoveta	V a X	124.898	101.468	81%
Bacalao de prof.	XV al 47°L.S.	1.822	1.912	105%
Camarón nailon	II a VIII	1.188	1.077	91%
Congrio dorado	X a XII	992	623	63%
Jurel	XV, I y II	5.115	3.948	77%
Jurel	III y IV	27.810	27.632	99%
Jurel	V -IX	17.161	17.937	105%
Jurel	XIV-X	2.305	2.260	98%
Jibia	XV- XII	195.000	107.340	55%
Langostino amarillo	III y IV	381	193	51%
Langostino colorado	II a IV	492	205	42%
Merluza común	IV a X y XIV	13.814	7.507	54%
Merluza del sur	X, XII y XII	5.721	5.364	94%
Sardina española	XV, I y II	3.060	2.562	84%
Sardina española	III - IV	1.300	951	73%
Sardina común	V a X y XIV	205.030	169.589	83%
Sardina austral	X y XI	8.752	3.255	37%

References

SERNAPESCA (2024). Fiscalización en Pesca y Acuicultura, Informe de Actividades, Servicio Nacional de Pesca y Acuicultura. https://www.sernapesca.cl/app/uploads/2024/03/IFPA_2023_v20240522-1.pdf

A3.3	A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).
Outcome	<i>Pass</i>

Rationale

The General Fisheries Law (LGPA) does not mandate catch restrictions when stocks fall below the limit biomass, primarily for social, economic, and research-related reasons. Instead, a resource recovery plan must be implemented. Management committees are tasked with developing and executing these recovery plans (Article 9 of the LGPA), which require reducing fishing mortality to levels at or below FRMS (LGPA 2023).

A Total Allowable Catch (TAC) mechanism is in place. Adjustments to the TAC are made as needed, with updated information is released. Currently both anchovy stocks are over the limit reference point (see section E3.2).

References

LGPA. (2023). Ley General de Pesca y Acuicultura. https://www.subpesca.cl/portal/615/articles-88020_documento.pdf

A4 Stock status

<p>A4.1</p>	<p>A4.1 The stock is at or above the target reference point; OR IF NOT: the stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure; OR IF NOT: the stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.</p>
<p>Outcome</p>	<p>Pass</p>
<p>Rationale</p> <p><u>Northern anchovy stock</u></p> <p>Based on the biological reference framework and stock assessment provided by IFOP, which uses a size model with age dynamics on a semiannual scale and by fleet, the Northern Zone anchovy stock was in a state of full exploitation as of 2022. The spawning biomass (BD/BDRMSY=1.63) was 63% above the biomass at maximum sustainable yield (BDRMSY), while fishing mortality (F/FMSY=0.66) was 44% below FMSY. These values reflect the average trajectory of reductions in FMSY and BDRMS during the first and second semesters of 2022 (SUBPESCA 2024).</p> <p>The 2023 stock assessment report by IFOP appears to be unavailable. However, the latest management committee report (Session No. 01/2024) indicates that the anchovy stock's status is at BD2023/BDRMS=0.82, which is 18% below the target reference point. This status is expected to be similar for 2024.</p> <div data-bbox="395 1205 1177 1832" data-label="Figure"> </div> <p><i>Figure 7 Stock status of the northern anchovy stock (SUBPESCA 2023).</i></p> <p>The stock is below the target reference point but over the limit reference point.</p>	

Northern-Central anchovy stock

The spawning stock reduction index (BD/BDRMSY) for anchovy in the north-central zone indicates that by 2023, when the information is complete, the stock condition is healthy in terms of biomass (BD2023/BDRMS=1.1) and without overfishing (F2023/FMSY=0.32). For the current year, the results indicate a certain probability $p(\text{BD}2024 < \text{BDRMS}) = 1$ that the anchovy in the north-central zone is overexploited and a $p(\text{BD}2024 < \text{BDRMS}) = 0.5$ of being in a depleted condition. Meanwhile, the F level with respect to the management objective was estimated at $F2024/FMSY = 0.7$ with a probability of $p(F2024 > FMSY) = 0.43$ of being overfished (IFOP 2024b).

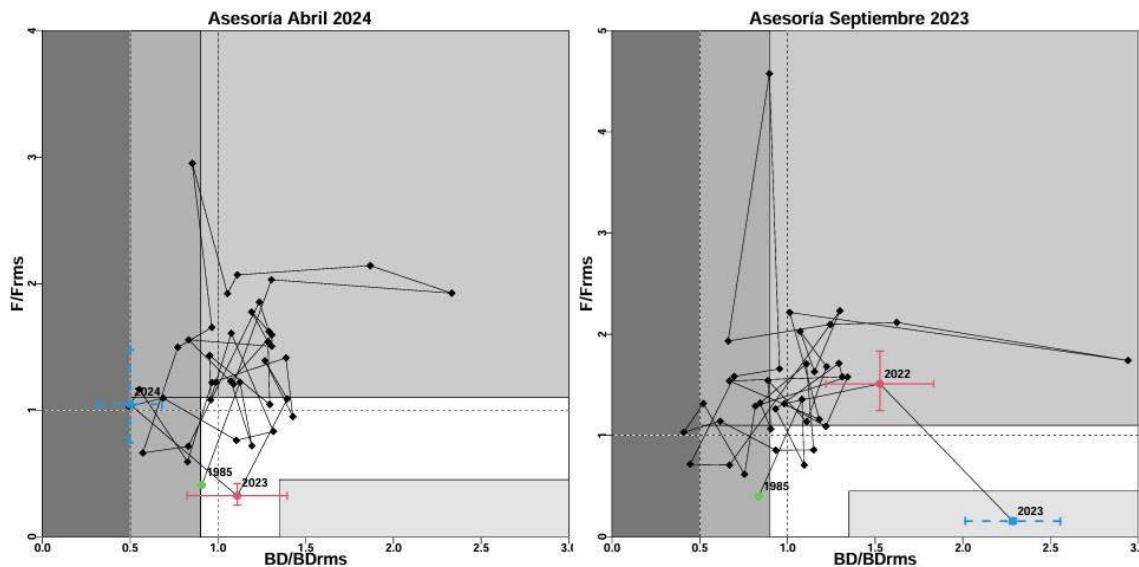


Figure 8 This diagram compares the exploitation phases of the central-northern anchovy based on advice provided in April 2024 (left) and September 2023 (right) (IFOP 2024).

In 2024, the stock is expected to be below the target reference point, but it seems to be slightly above the limit reference point.

References

IFOP (2024b). Segundo Informe. Estatus y posibilidades de explotación biológicamente sustentable de anchoveta y sardina española, Región de Atacama a la Región de Coquimbo, CBA año 2024. Subsecretaría de Economía y EMT Junio 2024. 133 pp.

SESIÓN N° 01/2024. COMITÉ DE MANEJO DE LA PESQUERÍA DE ANCHOVETA Y SARDINA ESPAÑOLA DE LAS REGIONES DE ARICA Y PARINACOTA, TARAPACÁ Y ANTOFAGASTA. IQUIQUE, 03 y 04 de abril de 2024. ACTA EXTENDIDA.

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

Category B species

Category B species are assessed using a risk-based approach.

- 2.2. The risk matrix in Table B(a) shall be used when assessing a Category B species when estimates of Fishing mortality (F), Biomass (B) and reference points are available.
- 2.3. The risk matrix in Table B(b) shall be used when assessing a Category B species when no reference points are available.

No category B species identified

B1	A3.3 Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).
Table used B(a) or B(b)	
Outcome	Choose an item.
Rationale	
References	

Category C species

2.4. All clauses must be met for a species to pass the Category C assessment.

2.4.1. Where a species fails this Category C clause, it should be assessed as a Category D species instead, except if there is evidence that the species is currently below the limit reference point.

Jack mackerel (*Trachurus murphyi*)

C1.1	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.
Outcome	<i>Pass</i>

Rationale

Members and Cooperating Non-Contracting Parties (CNCs) participating in the Jack mackerel fishery (*Trachurus murphyi*) fishery shall report in an electronic format the monthly catches of their flagged vessels to the SPRFMO Secretariat within 20 days of the end of the month, in accordance with CMM 02-2022 (CMM 01- 2024).

Since 2013, the SPRFMO has conducted annual stock assessments of jack mackerel in the South-East Pacific, utilizing catch data from all member nations. Detailed information on the stock assessment process, including catch (and other) data and assumptions can be found in the 11th SPRFMO Scientific Committee Meeting Report (SPRFMO 2023).

In 2023, the total catch of jack mackerel was estimated at around 1,135,000 tonnes (see table below). The jack mackerel catch in the anchoveta fishery would be a low percentage of the total catch.

Table 4 Advised catch, Catch Limits and reported catch of jack mackerel in the southeast Pacific (SPRFMO 2023).

Year	Advice	Recommended Maximum Catch	Catch Limit CMM area	Catch Limit throughout range	Catch throughout range
2019	The SC recommended status quo fishing effort which gives 2019 catches throughout the range of the Jack mackerel stock(s) at or below 591 kt. Although the stock is estimated to be in the "second tier" of the harvest control rule (>80% of B_{MSY}), the retrospective analysis shows a tendency of overestimating the stock size. In addition, there is information that suggests that the growth of jack mackerel has been underestimated. These two factors warrant additional precaution and further investigation.	591,000	531,061	591,000	635,569
2020	In line with the accepted rebuilding plan ("Adjusted Annex K") and because the Jack mackerel biomass is estimated to be above B_{MSY} , the SC recommended a 15% increase in 2020 catches throughout the range of Jack mackerel resulting in a total catch limit at or below 680 thousand tonnes.	680,000	618,001	680,000	725,945
2021	In line with the accepted rebuilding plan ("Adjusted Annex K") and because the Jack mackerel biomass is estimated to be above B_{MSY} , the SC recommended a 15% increase in 2021 catches throughout the range of Jack mackerel resulting in a total catch limit at or below 782 thousand tonnes.	782,000	710,702	782,000	802,048
2022	In line with the accepted rebuilding plan ("Adjusted Annex K") and because the Jack mackerel biomass is estimated to be above 100% of B_{MSY} , the SC recommended: a precautionary 15% increase in 2022 catches throughout the range of Jack mackerel- at or below 900 kt.	900,000	817,943	900,000	961,428
2023	In line with the accepted rebuilding plan ("Adjusted Annex K") and because the jack mackerel biomass is estimated to be above B_{MSY} , the SC recommended a precautionary 15% increase in 2023 catches throughout the range of jack mackerel- at or below 1,035 kt. This advice for catch limits in 2023 does not depend on the stock structure hypothesis that is used.	1,035,000	981,832	1,080,000	1,134,612*
2024		1,242,000			

2013 advice was given by the Science Working Group.
* Preliminary value estimated at SC11

Fishery removals of the species in the fishery under assessment are included in the stock

assessment process.
References SPRFMO (2023). 11th Scientific Committee meeting report 91 p. Wellington, New Zealand 2023. SPRFMO (2024). CMM 01- 2024 Conservation and Management Measure for <i>Trachurus murphyi</i> (supersedes CMM 01- 2023).

C1.2	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.
Outcome	<i>Pass</i>
Rationale	
<p>Jack mackerel (<i>Trachurus murphyi</i>) was most recently assessed in 2022 during the 10th annual SPRFMO Scientific Committee meeting. This assessment followed a benchmark workshop held earlier in the year, where scientists from around the world reviewed input data, evaluated and revised the assessment model, and developed model diagnostics to ensure the most accurate scientific guidance for the stock assessment (SPRFMO 2024).</p> <p>The assessment was conducted using the Joint Jack Mackerel (JJM) statistical catch-at-age model, which has been the standard assessment method since its adoption in 2010. With updated data inputs and indicators, the model results indicate that the jack mackerel stock status has remained relatively stable since the 2022 benchmark assessment, and the population trend is showing signs of increase (SPRFMO 2024).</p>	

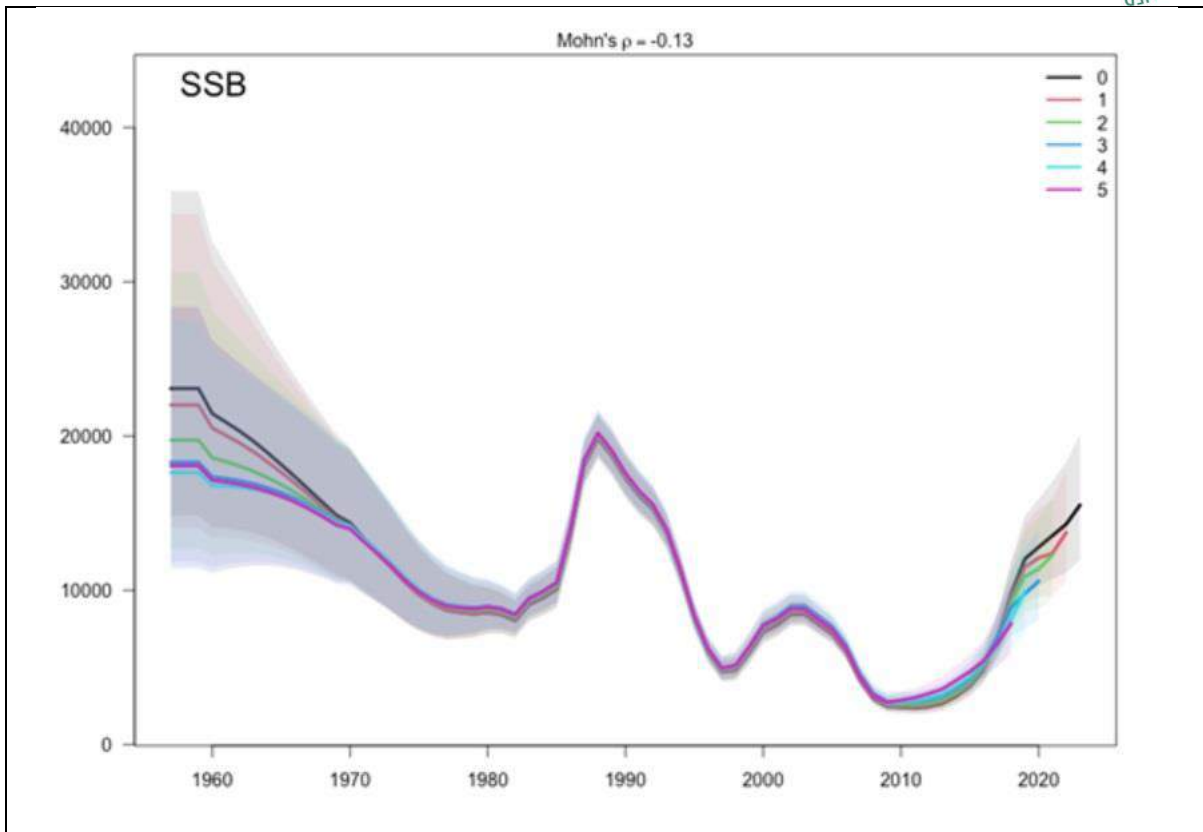


Figure 9 Model retrospective of spawning biomass from 5 separate model runs, based on Model h1_1.02 (single-stock hypothesis).

Stock projections are promising, even under the most conservative stock recruitment scenarios. Biomass is projected to be above BMSY in 2024 (estimated as 7,819 kt in 2022 for the single stock hypothesis (SPRFMO 2022)), with a high level of confidence. Based on these results, the group indicated that the fourth tier of the jack mackerel rebuilding plan should be applied, using FMSY as the basis for catch advice (SPRFMO 2024).

In 2024, the biomass of jack mackerel is projected to be above the target and limit reference points.

References

SPRFMO (2022): 10th Scientific Committee meeting report. 86 p. Wellington, New Zealand 2022.
 SPRFMO (2024): Jack mackerel science. Stock assessment. Available at:
<https://sprfmo.int/science/jack-mackerel/>

Category D species

Category D species are assessed against a risk-based approach.

- 2.5. The Productivity-Susceptibility Analysis (PSA) in Table D(a) shall be used when assessing Category D species.
- 2.6. Table D(b) shall be used to calculate the overall PSA risk rating for the Category D species.
- 2.7. Should the PSA indicate a high risk, further assessment shall be completed against the requirements in Table D(C).

Three category D species identified: jellyfish, pacific chub mackerel and Pacific bonito

Productivity Susceptibility Analysis (PSA) and scores

Table D(a) provides detailed values and scores for the species productivity and susceptibility attributes and attributes, the assessor shall use Table D(a) to the PSA table.

Table D(b) is used to calculate the overall PSA risk rating for the Category D species.

Species name	Pacific chub mackerel (<i>Scomber japonicus</i>) ²	
Productivity attributes	Value	Score
Average age at maturity	2	1
Average maximum age	7.9	1
Fecundity	Min (86,616)	1
Average maximum size	64	1
Average size at maturity	22	1
Reproductive strategy	Broadcast spawning	1
Mean Trophic Level (MTL)	3.4	3
Susceptibility attributes		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	<10% overlap	1
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	High overlap	3
Selectivity of gear type: Potential of the gear to retain species	Juveniles can escape	1
Post-capture mortality (PCM):	Retained	3

² Productivity attributes based on <https://www.fishbase.se/summary/Scomber-japonicus.html>

The chance that, if captured, a species would be released and that it would be in a condition permitting subsequent survival	
Average productivity score	1.29
Average susceptibility score	2
PSA risk rating (from Table D(b))	PASS
Compliance rating	PASS

Productivity Susceptibility Analysis (PSA) and scores

Table D(a) provides detailed values and scores for the species productivity and susceptibility attributes and attributes, the assessor shall use Table D(a) to the PSA table.

Table D(b) is used to calculate the overall PSA risk rating for the Category D species.

Species name	Pacific bonito (<i>Sarda chilensis</i>) ³	
Productivity attributes	Value	Score
Average age at maturity	2	1
Average maximum age	7.9	1
Fecundity	Unknown	-
Average maximum size	79	1
Average size at maturity	50	2
Reproductive strategy	Broadcast spawning	1
Mean Trophic Level (MTL)	4.5	3
Susceptibility attributes		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	<10% overlap	1
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	High overlap	3
Selectivity of gear type: Potential of the gear to retain species	Juveniles can escape	1
Post-capture mortality (PCM): The chance that, if captured, a	Retained	3

³ Productivity attributes mainly based on: <https://www.fishbase.se/summary/113>

species would be released and that it would be in a condition permitting subsequent survival		
Average productivity score		1.5
Average susceptibility score		2
PSA risk rating (from Table D(b))		PASS
Compliance rating		PASS

Productivity Susceptibility Analysis (PSA) and scores

Table D(a) provides detailed values and scores for the species productivity and susceptibility attributes and attributes, the assessor shall use Table D(a) to the PSA table.

Table D(b) is used to calculate the overall PSA risk rating for the Category D species.

Species name	Jellyfish ⁴	
Productivity attributes	Value	Score
Average age at maturity	<18 months	1
Average maximum age	6-18months	1
Fecundity	Unknown	-
Average maximum size	40cm	1
Average size at maturity	<40cm	1
Reproductive strategy	Broadcast spawning	1
Mean Trophic Level (MTL)	Unknown	-
Density dependence (to be used when scoring invertebrate species only)	Unknown	-
Susceptibility attributes		
Areal overlap (availability): Overlap of the fishing effort with a species concentration of the stock	<10% overlap	1
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	High overlap	3
Selectivity of gear type: Potential of the gear to	Juveniles can scape	1

⁴ Productivity attributes based on <https://www.thoughtco.com/sea-nettle-facts-4782495>

retain species		
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	Dead	3
Average productivity score		1
Average susceptibility score		2
PSA risk rating (from Table D(b))		PASS
Compliance rating		PASS

Further assessment for Category D species

Should the PSA indicate a high risk, further assessment shall be completed against the requirements D1 and D2 – Table D(c).

D1	D1. The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts.
Outcome	Choose an item.
Rationale	
References	

D2	D2. There is no substantial evidence that the fishery has a significant negative impact on the species.
Outcome	Choose an item.
Rationale	
References	

Ecosystem requirements

This section, or module, assesses the impacts that the fishery under assessment may have on key ecosystem components: ETP species, habitat and the wider ecosystem.

- 3.1. All ecosystem criteria must be met (pass) for a fishery to pass the Ecosystem Requirements.
 - 3.1.1. The sub-criteria offer a structured evidence base to demonstrate that the fishery sufficiently meets the ecosystem criteria, it is not expected that sub-criteria are assessed independently of the main criterion.

E1 Impact on Endangered, Threatened or Protected species (ETP species)

E1.1	E1.1 Information on interactions between the fishery and ETP species is collected. <i>In reaching a determination for E1.1, the assessor should consider if the following is in place:</i>
	E1.1.1 ETP species which may be directly affected by the fishery have been identified.
	E1.1.2 Interactions between the fishery and ETP species are recorded and reported to management organisations.
	E1.1.3 Collection and analysis of ETP information is adequate to provide a reliable indication of the impact the fishery has on ETP species.
Outcome	<i>Pass</i>
Rationale <p>The Fisheries Development Institute (IFOP), through its Research Program on Discards and Bycatch (Programa de Investigación del Descarte y Captura de Pesca Incidental), has been gathering data since 2013 on the interactions of Endangered, Threatened, and Protected (ETP) species with pelagic and demersal fisheries (IFOP 2015). This information is collected by onboard observers and supplemented by self-reported logbooks (Bitácoras de pesca).</p>	

BITÁCORA DE PESCA DE EMBARCACIONES CERQUERAS (CAPITANES O PATRONES)
 Version: 1.1 Fecha: 03-10-2015 Instituto de Fomento Pesquero
 Programa de Investigación del Descarte en Pesquerías de Cerco de Pequeños Pelágicos

Formulario actual corresponde a un lance por hoja

Nombre Embarcación	Doña Rosa
Matricula	
Cod. IFOP	
Largo Red (bz)	600
Alto Red (bz)	300
N° de Tripulantes	10

Fecha	22/12/16	Hora	07:00	Puerto	Lota
Zarpe	22/12/16	07:00	Lota		
Recalada	23/12/16	18:47	Lota		

Artesanal Industrial

Datos del Lance y Captura Estimada

NUMERO DEL LANCE	1
Especie objetivo lance	Sardina común
Fecha lance (dia/mes/año)	23 / 12 /16
Hora inicio lance (hh:mm)	08 :32
Hora fin lance (hh:mm)	09 :54
Latitud	36°26,22'
Longitud	73°03,73'
Captura Total (ton)	50
Captura Recibida (ton)	
Captura Entregada (ton)	30
Causa Entrega y/o Recepción	23

Proporción de la Captura (%)

1. Muestreo con Balanza (kilos)		X
2. Muestreo con Balde (litros)		
3. Observación visual de captura (ton)		

JUREL	
SARDINA COMUN	3,5
ANCHOVETA	0,5
Mote	1,0

Muestra (kilos o litros) o Captura Total (ton) 5,0

Descarte

Lance con descarte:	Total	Parcial	X
Volumen Descartado	Cantidad	Causa Descarte (*)	
Menos de 1 Tonelada			
De 1 a 9 Toneladas	5	11	
De 10 a 39 Toneladas			
De 40 a 79 Toneladas			
De 80 a 199 Toneladas			
Igual o mas de 200 Ton			

Principales Especies Descartadas

1	Sardina común
2	Anchoqueta
3	

Especies capturadas en menor cantidad (kilos)

Especie	Total Estimado	Descarte Estimado	Causa Descarte
Corvina	50		
Salmon	30		
Jibia		100	3

Captura incidental aves, mamíferos y tortugas (Nota abajo)

Especie	N° ejemplares	Estado (+)
Fardela	15	2

(+) Estado: Vivo (1) Muerto (2)
 Si el ejemplar muestra herido, considerar como muerto

Reglas de Pesca:

- ESPECIES NO AUTORIZADAS EN VEDA
- CONDICIONES DE OPERACION DE VIDA
- CAPACIDAD DE BODEGA EN OPERACION DE VIDA
- LIMITES DE CAPTURA
- OPERACION PERMITIDA DE FAUNA ACOMPAÑANTE (SARDINA, ANCHOVETA)
- EJEMPLARES BAJO VEDA
- OPERACION DURANTE OPERACION DE VEDA
- ESPECIES SIN VALOR
- PLANTAS MARINAS
- OPERACION CON PETROLEO
- POR ALTA ABUNDANCIA DE LOBOS EN
- POR PESCADO ENMALLADO
- LANCE DE INVESTIGACION (ABATE MOLINA / CABO DE HORNO)

NOTA Captura incidental: aves, mamíferos o tortugas retenidas por el arte de pesca antes de succionar la captura, entendiéndose que estos no pueden escapar.

Figure 10 Logbook (Bitácora de pesca) for the purse seine fishery, complete with detailed instructions for filling out each section (IFOP 2024).

According to IFOP 2023, 830 observer trips were conducted in 2022, covering a 6.8% of all the fishing trips. In the case of the industrial anchoveta fleet operating in the northern region, 264 fishing trips, reaching a coverage level of 20.4% of the trips made by that fleet in the area. In the case of the artisanal anchovy fleet fishing in the northern/central region, the level of observer coverage was of 4.3% and 9.6% in Atacama and Coquimbo respectively.

Data collected by observers and in logbooks is reviewed and the impacts presented in an annual report. That information is used by SEBPESCA for management purposes.

References

IFOP (2015). Instituto de Fomento Pesquero, a través del proyecto “Programa de Investigación del Descarte y Captura de Pesca Incidental, y proyecto GEF Humboldt Chile organizaron “Taller internacional de Descarte en Pesquerías”. Available at: <https://www.ifop.cl/instituto-de-fomento-pesquero-a-traves-del-proyecto-programa-de-investigacion-del-descarte-y-captura-de-pesca-incidental-y-proyecto-gef-humboldt-chile-organizaron-taller-intern/>

IFOP (2017). Programa de Estudio del Descarte en las Pesquerías Demersales y Pelágicas. Available at: <https://www.ifop.cl/nuestro-que-hacer/la-investigacion-pesquera/depto-de-evaluacion-de-pesquerias/proyectos-de-descarte/>

E1.2	E1.2 The fishery has no significant negative impact on ETP species.
	<i>In reaching a determination for E1.2, the assessor should consider if the following is in place:</i>
	E1.2.1 The information collected in relation to E1.1.3 indicates that the fishery does not have a significant negative impact on ETP species.
Outcome	<i>Pass</i>

Rationale

The most recent IFOP report from the Research Program on Discards and Bycatch reveals that, between 2017 and 2022, the industrial fleet targeting anchovy species off the coast between Arica and Parinacota and Antofagasta recorded an incidental capture of 7,081 animals. This included 20 species and one unidentified dolphin.

Marine mammals accounted for 83% of these captures, primarily occurring from the northern limit of the Arica and Parinacota Region (18°21'S) to Punta Piedras (24°40'S). The common sea lion (*Otaria byronia*) (LC) had the highest average captures but a low mortality rate (0.16%), while dolphins experienced a 44% incidental mortality rate.

Coastal seabird captures were mostly concentrated between the ports of Arica and Tocopilla (22°07'S), with guanay birds making up 71% of the captures and 93% of the mortality in this group. The capture of Procellariiformes was mainly between the Tarapacá and Antofagasta regions, where the sooty shearwater (*Ardenna grisea*) (NT) comprised 98% of the captures and 69% of the mortalities.

Marine reptiles represented 1% of the captures, mainly observed between the regions of Arica and Tarapacá, with no reported mortality (see table below).

For the artisanal fleet operating in the central-northern zone, a total of 551 incidental captures were reported. The common sea lion was the only mammal caught, accounting for 85% of the total captures, with records in the Atacama Region, from Punta Achurra (26°13'S) to Caleta Matamoros (27°57'S), and in the Coquimbo Region, from Punta Choros (29°16'S) to Bahía Tongoy (30°16'S). Only one mortality was reported in the Atacama Region.

Coastal seabirds made up 8.9% of the captures, comprising six species, with boobies and pelicans being the most frequently caught. This group also showed a high incidence of mortality, particularly in the Coquimbo Region. Procellariiformes were represented solely by the Peruvian driving petrel (*Pelecanoides garnotii*) (NT), with higher capture rates in the Atacama Region and an 80% mortality rate.

Table 6 below list the species caught in the fishery.

Table 5 Incidental capture and mortality by species in the industrial purse seine fleet targeting anchovy in the Arica-Parinacota and Antofagasta regions. Data sourced from the scientific observer registry, covering 4,026 commercial

fishing trips from 2017 to 2022 (IFOP 2023).

Nombre común	Nombre Científico	Captura	Muertos	Mort (%)	CIP	CV _{CIP}	MIP	CV _{MIP}
Lobo Marino Común	<i>Otaria flavescens</i>	5708	9	0,16	1,42	351,5	0,002	2112,9
Fardela negra	<i>Ardenna grisea</i>	568	390	68,7	0,14	3513,1	0,10	3450,2
Guanay	<i>Phalacrocorax bouganvilli</i>	452	420	92,9	0,11	4125,4	0,10	4407,5
Delfin común	<i>Delphinus delphis</i>	72	23	31,9	0,02	2255,2	0,006	2571,5
Piqueros	<i>Sula variegata</i>	71	59	83,1	0,02	2166,8	0,015	2366,6
Gaviotín monja	<i>Larosterna inca</i>	61	0	0	0,02	6241,9	0	-
Delfin oscuro	<i>Lagenorhynchus obscurus</i>	56	38	67,9	0,01	2611,8	0,009	2701,2
Pelicano peruano	<i>Pelecanus thagus</i>	31	17	54,8	0,008	2154,4	0,004	2268,4
Delfin sin especificar	-	15	0	0	0,004	6345,1	0	-
Pingüino de Humboldt	<i>Spheniscus humboldti</i>	12	1	8,3	0,003	2478,4	0,0002	6345,1
Fardela Blanca	<i>Ardenna creatopus</i>	8	8	100	0,002	6345,1	0,002	6345,1
Gaviota garuma	<i>Leucophaeus modestus</i>	6	6	100	0,001	6345,1	0,001	6345,1
Delfin nariz de botella	<i>Tursiops truncatus</i>	4	4	100	0,001	6345,1	0,001	6345,1
Yeco	<i>Phalacrocorax bouganvilli</i>	4	4	100	0,001	6345,1	0,001	6345,1
Tortuga verde	<i>Chelonia mydas</i>	3	0	0	0,001	3662,4	0	-
Tortuga olivácea	<i>Lepidochelys olivacea</i>	3	0	0	0,001	3662,4	0	-
Gaviota de Franklin	<i>Larus pipixcan</i>	2	2	100	0,000	6345,1	0,0005	6345,1
Tortuga Laúd	<i>Dermochelys coriacea</i>	2	0	0	0,000	4486,1	0	-
Albatro Ceja negra	<i>Thalassarche melanophris</i>	1	1	100	0,0002	6345,1	0,0002	6345,1
Tortuga cabezona	<i>Caretta caretta</i>	1	0	0	0,0002	6345,1	0	-
Lobo fino austral	<i>Arctocephalus australis</i>	1	0	0	0,0002	6345,1	0	-

Mort (%) = Mortalidad = Número de animales muertos/Número de animales capturados

Captura Incidental Promedio (CIP) = Número de animales capturados/Número de lances observados

Coefficiente de Variación Captura Incidental Promedio (CV_{CIP})

Mortalidad Incidental Promedio (MIP) = Número de animales muertos/Número de lances observados

Coefficiente de Variación Tasa Mortalidad Incidental (CV_{MIP})

In Chile, the Ministry of the Environment (MMA) publishes an annual list of species present in the country, which includes protected species (<https://clasificacionespecies.mma.gob.cl/procesos-de-clasificacion/180-proceso-de-clasificacion-de-especies-2022/>). The most recent list is summarized in the table below. Among the most affected species, in terms of mortality, are the sooty shearwater (*Ardenna grisea*) and the guanay cormorant (*Leucocarbo bougainvilliorum*), both classified as Near Threatened.

The sooty shearwater is listed as Near Threatened due to a suspected moderately rapid population decline caused by fisheries impacts, harvesting of its young, and possibly climate change. Similarly, the guanay cormorant is in decline due to interactions with fisheries, including bycatch, competition for anchovies (its primary prey) with the industrial fishing sector, direct persecution, and climate variability linked to El Niño events.

However, the total population numbers of both species remain relatively high: between 19.0 and 23.6 million individuals for the sooty shearwater and between 2.5 and 5.0 million individuals for the guanay cormorant. Mortality levels attributed to this fishery are estimated at 0.004% for the sooty shearwater and 0.025% for the guanay cormorant.

Table 6 List of classified species in Chile (Source: MMA 2023).

Group	Common (Chilean) name	Scientific name	Orden	Family	Distribution	Category	Decree
Pelicans	Bandurria	<i>Theristicus melanopis</i>	Pelecaniformes	Thereskiorni	II-XII	LC	DS 06/2017
	Bandurria de la puna	<i>Theristicus branckii</i>	Pelecaniformes	Thereskiorni	XV	EN	DS 06/2017
	Cuervo de pantano	<i>Plegadis chihii</i>	Pelecaniformes	Thereskiorni	II-X	NT	DS 16/2020
	Cuervo de pantano de la puna	<i>Plegadis ridgwayi</i>	Pelecaniformes	Thereskiorni	XV-II	NT	DS 13/2013
	Garza cuca	<i>Ardea cocoi</i>	Pelecaniformes	Ardeidae	I-XII	LC	DS 16/2016
Flamingos	Huairavillo	<i>Ixobrychus involucris</i>	Pelecaniformes	Ardeidae	III-X	LC	DS 16/2016
	Pelicano peruano, pelicano de Humboldt	<i>Pelecanus thagus</i>	Pelecaniformes	Pelecanidae	XV-X	NT	DS 23/2019
	Flamenco andino, parina grande	<i>Phoenicoparrus andinus</i>	Phoenicopteriformes	Phoenicopte	XV-III	VU	DS 38/2015
	Flamenco chileno	<i>Phoenicoparrus chilensis</i>	Phoenicopteriformes	Phoenicopte	XV-XII	NT	DS 23/2019
	Parina chica	<i>Phoenicoparrus jamesi</i>	Phoenicopteriformes	Phoenicopte	XV-III	VU	DS 23/2019
Albatrosses	Albatros de Buller	<i>Thalassarche bulleri</i>	Procellariiformes	Diomedidae	XV-V, VI-XI	NT	DS 44/2021
	Albatros de cabeza gris	<i>Thalassarche chrysostoma</i>	Procellariiformes	Diomedidae	XI-XII	VU	DS 23/2019
	Albatros de ceja negra	<i>Thalassarche melanophris</i>	Procellariiformes	Diomedidae	III-XII	LC	DS 38/2015
	Albatros de frente blanca	<i>Thalassarche cauta</i>	Procellariiformes	Diomedidae	V, VI-XII	NT	DS 44/2021
	Albatros de las antipodas	<i>Diomedea antipodensis</i>	Procellariiformes	Diomedidae	XV-V, VI-X, JF	EN	DS 44/2021
	Albatros de las Galápagos	<i>Phoebastria irrorata</i>	Procellariiformes	Diomedidae	XV-V, VI-VIII, CR	EN	DS 44/2021
	Albatros de las Islas Chatham, albatros de las Chatham, albatros de las Islas Chatham	<i>Thalassarche eremita</i>	Procellariiformes	Diomedidae	V, XII, JF	VU	DS 44/2021
	Albatros de manto claro, albatros tiznado	<i>Phoebastria palpebrata</i>	Procellariiformes	Diomedidae	XII, DV	EN	DS 44/2021
	Albatros de Salvin	<i>Thalassarche salvini</i>	Procellariiformes	Diomedidae	XV-XII	VU	DS 23/2019
	Albatros errante, albatros viajero	<i>Diomedea exulans</i>	Procellariiformes	Diomedidae	II-V, VI-XII, AI	VU	DS 44/2021
	Albatros oscuro	<i>Phoebastria fusca</i>	Procellariiformes	Diomedidae	Presencia ac	Taxón con p	DS 44/2021
	Albatros real del norte	<i>Diomedea sanfordi</i>	Procellariiformes	Diomedidae	I-V, VI-XII	EN	DS 44/2021
	Albatros real del sur	<i>Diomedea epomophora</i>	Procellariiformes	Diomedidae	IV-XII, ANT	VU	DS 44/2021
	Fardela blanca	<i>Ardenna creatopus</i>	Procellariiformes	Procellariidae	XV-V, VI-X, JF	EN	DS 10/2023
	Fardela blanca de Juan Fernández, petrel de Juan Fernández	<i>Pterodroma externa</i>	Procellariiformes	Procellariidae	IP, JF, DV	EN	DS 23/2009
Fardela blanca de Más a Tierra	<i>Pterodroma defillipiana</i>	Procellariiformes	Procellariidae	XV-V, JF, DV	VU	DS 23/2009	
Fardela de Cook	<i>Pterodroma cooki</i>	Procellariiformes	Procellariidae	Sólo oceánico	VU	DS 79/2018	
Fardela de Más Afuera	<i>Pterodroma longirostris</i>	Procellariiformes	Procellariidae	XV-V, JF	EN	DS 23/2009	
Fardela de Pascua	<i>Puffinus nativitatis</i>	Procellariiformes	Procellariidae	IP, SG	VU	DS 79/2018	
Fardela negra de Juan Fernández	<i>Pterodroma neglecta</i>	Procellariiformes	Procellariidae	XV-V, IP, JF, S	EN	DS 23/2009	
Fardela negra, yegua	<i>Ardenna grisea</i>	Procellariiformes	Procellariidae	XV-XII, ANT, JNT	EN	DS 23/2019	
Petrels	Golondrina de mar chica	<i>Oceanites gracilis</i>	Procellariiformes	Oceanitidae	XV-V	DD	DS 79/2018
	Golondrina de mar de collar, Ringed Storm Petrel (Inglés)	<i>Hydrobates hornbyi</i>	Procellariiformes	Hydrobatidae	XV-III	VU	DS 16/2020
	Golondrina de mar de garganta blanca	<i>Nesofregatta fuliginosa</i>	Procellariiformes	Oceanitidae	IP, SG	EN	DS 79/2018
	Golondrina de mar de vientre blanco	<i>Fregatta grallaria</i>	Procellariiformes	Oceanitidae	JF, DV	EN	DS 23/2009
	Golondrina de mar negra, Markham's storm-petrel	<i>Hydrobates markhami</i>	Procellariiformes	Hydrobatidae	XV-III	EN	DS 79/2018
	Golondrina de mar peruana, Wedge-rumped Storm Petrel (Inglés)	<i>Hydrobates tethys</i>	Procellariiformes	Hydrobatidae	III	VU	DS 16/2020
	Petrel de Westland	<i>Procellaria westlandica</i>	Procellariiformes	Procellariidae	XV-XII	EN	DS 10/2023
	Petrel gigante antártico, petrel gigante del Sur	<i>Macronectes giganteus</i>	Procellariiformes	Procellariidae	III-XII	VU	DS 23/2019
	Yunco	<i>Pelecanoides garnotii</i>	Procellariiformes	Procellariidae	XV-XIV	EN	DS 79/2018
	Papúa o pingüino Juanito	<i>Pygoscelis papua</i>	Sphenisciformes	Spheniscidae	XII, ANT	LC	DS 10/2023
Penguins	Pingüino de Adelia	<i>Pygoscelis adeliae</i>	Sphenisciformes	Spheniscidae	ANT	EN	DS 10/2023
	Pingüino de barbijo	<i>Pygoscelis antarcticus</i>	Sphenisciformes	Spheniscidae	XII, ANT	LC	DS 10/2023
	Pingüino de Humboldt	<i>Spheniscus humboldti</i>	Sphenisciformes	Spheniscidae	XV-V, VI-X	VU	DS 50/2008
	Pingüino de Magallanes	<i>Spheniscus magellanicus</i>	Sphenisciformes	Spheniscidae	IV-V, X-XII	NT	DS 10/2023
	Pingüino emperador	<i>Aptenodytes forsteri</i>	Sphenisciformes	Spheniscidae	ANT	VU	DS 10/2023
	Pingüino macaroni	<i>Eudyptes chrysolophus</i>	Sphenisciformes	Spheniscidae	XII, ANT	VU	DS 10/2023
	Pingüino penacho amarillo del sur	<i>Eudyptes chrysolome</i>	Sphenisciformes	Spheniscidae	XI-XII, ANT	LC	DS 10/2023
Pingüino rey	<i>Aptenodytes patagonicus</i>	Sphenisciformes	Spheniscidae	XII	EN	DS 10/2023	
Terns, gannets	Ave fragata grande	<i>Fregata minor</i>	Suliformes	Fregatidae	IP, SG	VU	DS 79/2018
	Guanay	<i>Phalacrocorax bougainvillii</i>	Suliformes	Phalacrocoracidae	XV-XII	NT	DS 79/2018
	Lile	<i>Phalacrocorax gaimardi</i>	Suliformes	Phalacrocoracidae	XV-XII	NT	DS 79/2018
	Piquero	<i>Sula variegata</i>	Suliformes	Sulidae	XV-V, VI-X	LC	DS 79/2018

References

BirdLife International (2019). *Ardenna grisea*. The IUCN Red List of Threatened Species 2019: e.T22698209A154440143. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22698209A154440143.en>. Accessed on 07 October 2024.

BirdLife International. 2018. *Leucocarbo bougainvilliorum*. The IUCN Red List of Threatened Species 2018: e.T22696810A133553624. Accessed on 19 November 2024.

BirdLife International (2020). *Pelecanoides garnotii*. The IUCN Red List of Threatened Species 2020: e.T22698280A179971538. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22698280A179971538.en>. Accessed on 07 October 2024.

Cárdenas-Alayza, S., Crespo, E. & Oliveira, L (2016). *Otaria byronia*. The IUCN Red List of Threatened Species 2016: e.T41665A61948292. <https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T41665A61948292.en>. Accessed on 07 October 2024.

IFOP (2023). INFORME FINAL. Convenio de Desempeño 2021. Programa de observadores científicos: Programa de investigación y monitoreo del descarte y de la captura de pesca incidental en pesquerías pelágicas, año 2022-2023. Available at: <https://www.ifop.cl/busqueda-de-informes/>

E1.3	E1.3 There is an ETP management strategy in place for the fishery. <i>In reaching a determination for E1.3, the assessor should consider if the following is in place:</i>
	E1.3.1 There are measures applied to the fishery which are designed to manage the impacts of the fishery on ETP species.
	E1.3.2 The measures are considered likely to achieve the objectives of regional, national and international legislation relating to ETP species.
Outcome	<i>Pass</i>
Rationale <p>The Chilean General Fisheries Law (LGPA) requires (article 7) SUBPESCA to develop discard and bycatch plans for the main fisheries aimed at reducing the impact of fisheries on ETP species (LGPA 2023).</p> <p>On April 30, 2019, SUBPESCA approved the Plan for the Reduction of Discards and Incidental Catches for the industrial and artisanal anchovy fisheries in the maritime areas of the Arica and Parinacota, Tarapacá, and Antofagasta Regions (Exempt Resolution No. 1,625/2019). This plan was detailed in Technical Report (R. Pesq.) No. 105-2019, which is considered part of that resolution (SUBPESCA 2019).</p> <p>Technical Report (R. Pesq.) No. 58/2021 provides the background for establishing a reduction plan for discards and incidental catches in the artisanal fisheries for anchovy (<i>Engraulis ringens</i>), horse mackerel (<i>Trachurus murphyi</i>), and associated fauna in the Atacama and Coquimbo Regions, in line with the provisions of Title II, Paragraph 1° bis, of the LGPA (SUBPESCA 2021). A Plan for the Reduction of Discards and Incidental Catches for the fishery was also approved in 2021 (Exempt Resolution No. 1468/2021).</p> <p>Additionally, specific regulations to reduce the capture and incidental mortality of seabirds during fishing operations were established through Exempt Resolutions No. 2110/2014, 2941/2019, and 2569/2021. These regulations mandate the use of deterrent devices, such as bird-scaring lines, and promote good fishing practices, including night setting and proper discard management to avoid attracting birds. These measures apply to both industrial and artisanal longline fleets, as well as industrial trawler fleets.</p> <p>Similarly, in 2021, a series of measures were enacted for incidental catches of marine mammals in industrial purse seine fisheries, artisanal traps, industrial trawling, and artisanal gillnets. Through Exempt Resolutions No. 2667/2021, No. 2827/2021, No. 3120/2021, and No. 3122/2021, the use of specific devices was required, along with the implementation of fishing maneuvers for safely releasing specimens back into the water, onboard management protocols, codes of good practice, and the reporting of incidental catches in logbooks (SUBPESCA 2024).</p> <p>A management strategy is in place in both fisheries for addressing the bycatch of ETP species. No ETP species bycatch has been recorded in the assessed fisheries in recent year.</p>	
References INFORME TÉCNICO (R. PESQ.) N° 58/2021. Plan de Reducción del Descarte y de la Captura de Pesca Incidental para la pesquería artesanal de anchoveta (<i>Engraulis ringens</i>), jurel (<i>Trachurus murphyi</i>) y	

su fauna acompañante en las Regiones de Atacama y Coquimbo Valparaíso, abril 2021. 109 pp.

LGPA. (2023). Ley General de Pesca y Acuicultura. Available at: https://www.subpesca.cl/portal/615/articles-88020_documento.pdf

Resolución 1625_Exenta Autoriza Plan De Reducción Del Descarte Y De La Captura De Pesca Incidental Para La Pesquería Industrial Y Artesanal De Anchoqueta Y Su Fauna Acompañante, Regiones De Arica Y Parinacota, Tarapacá Y Antofagasta.

SUBPESCA (2024). Estado de situación de las principales pesquerías chilenas, año 2023. https://www.subpesca.cl/portal/618/articles-121344_recurso_1.pdf

E2 Impact on the habitat

E2.1	E2.1 Information on interactions between the fishery and marine habitats is collected.
	<i>In reaching a determination for E2.1, the assessor should consider if the following is in place:</i>
	E2.1.1 Habitats which may be directly affected by the fishery have been identified, including any habitats which may be particularly vulnerable.
	E2.1.2 Information on the scale, location and intensity of fishing activity relative to habitats is collected.
E2.1.3 Collection and analysis of habitat information is adequate to provide a reliable indication of the impact the fishery has on marine habitats.	
Outcome	<i>Pass</i>
Rationale The anchovy fisheries use purse seine gear, which operates on the surface from coastal to ocean waters. Since the net does not contact the seabed, it is considered a fishing method with no significant impact on the habitat. Occasionally, in shallow waters, the bottom of the net may touch the seabed; however, as it is not dragged across the bottom, any effects are minimal (MSC 2024, FAO 2024, Sustain 2024, SUBPESCA 2003).	

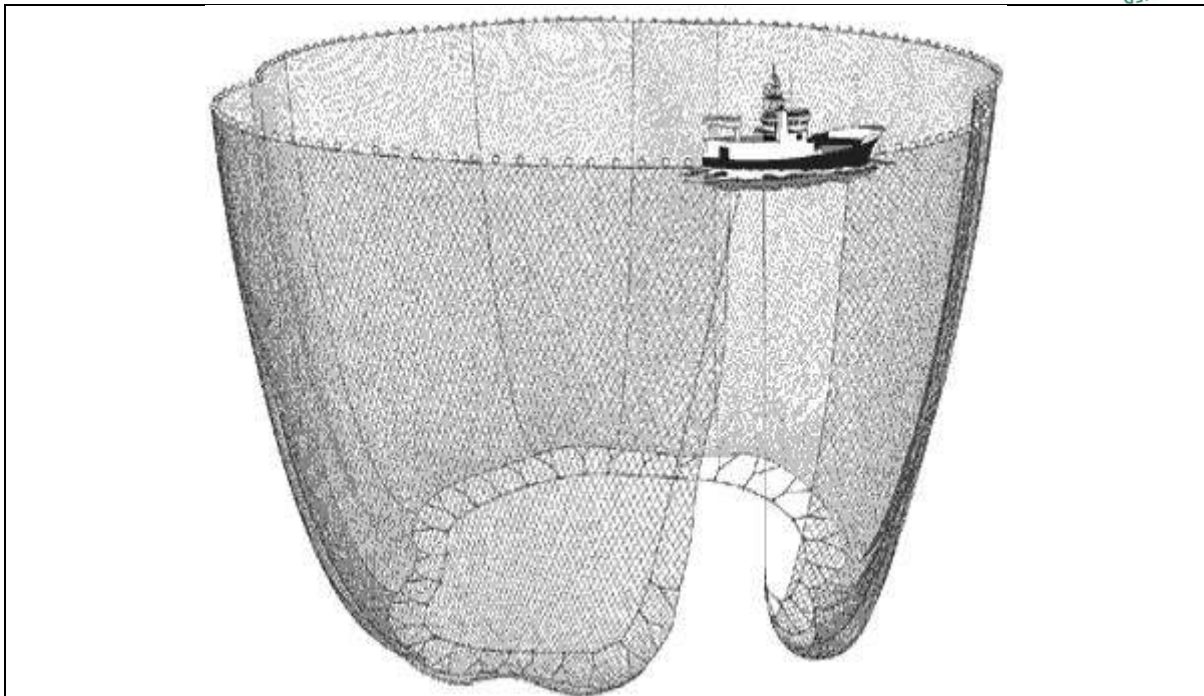


Figure 11 Purse seine (<https://espesca.com/pesca-al-cerco/>)

Given this lack of interaction with habitats, purse seine fisheries do not pose a risk of serious or irreversible harm to any habitat type.

References

FAO. (2024). Fishing gear type. Purse seines. <https://www.fao.org/fishery/en/geartype/249/en>
 SUBPESCA. (2003). Cerco con jareta. https://www.subpesca.cl/portal/616/articles-9188_documento.pdf

E2.2	E2.2 The fishery has no significant impact on marine habitats.
	<i>In reaching a determination for E2.2, the assessor should consider if the following is in place:</i>
	E2.2.1 The information collected in relation to E2.1.3 indicates that the fishery does not have a significant negative impact on marine habitats.
Outcome	Pass
Rationale	
As indicated above, the purse fishery operates in open waters. Therefore, an impact on seabed habitats apart from the water column is not expected.	
References	
FAO. (2024). Fishing gear type. Purse seines. https://www.fao.org/fishery/en/geartype/249/en SUBPESCA. (2003). Cerco con jareta. https://www.subpesca.cl/portal/616/articles-9188_documento.pdf	

E2.3	E2.3 There is a habitat management strategy in place for the fishery.
	<i>In reaching a determination for E2.3, the assessor should consider if the following is in place:</i>
	E2.3.1 There are measures applied to the fishery which are designed to manage the impact of the fishery on marine habitats.
	E2.3.2 The measures are considered likely to prevent the fishery from having a significant negative impact on marine habitats.
Outcome	Choose an item.
Rationale	
Due to the lack of impact of the purse seine fishery on the seabed, it is considered that a management strategy is not necessary.	
References	
FAO. (2024). Fishing gear type. Purse seines. https://www.fao.org/fishery/en/geartype/249/en	
SUBPESCA. (2003). Cerco con jareta. https://www.subpesca.cl/portal/616/articles-9188_documento.pdf	

E3 Impact on the ecosystem

E3.1	E3.1 Information on the potential impacts of the fishery on marine ecosystems is collected.
	<i>In reaching a determination for E3.1, the assessor should consider if the following is in place:</i>
	E3.1.1 The main elements of the marine ecosystems in the area(s) where the fishery takes place have been identified.
	E3.1.2 The role of the species caught in the fishery within the marine ecosystem is understood, either through research on this specific fishery or inferred from other fisheries.
	E3.1.3 Collection and analysis of ecosystem information is adequate to provide a reliable indication of the impact the fishery has on marine ecosystems.
Outcome	<i>Pass</i>
Rationale	
As indicated previously, IFOP conducts regular surveys to assess the status of the target species, while fisheries observers collect data on bycatch and monitor the status of species potentially	

affected by the fishery. Management and specific plans for reducing discards and incidental catch are based on the results of that monitoring.

The marine ecosystem in northern Chile, where the pelagic fishery operates, has undergone significant short- and long-term oceanographic and climatic changes over time. For anchovy, a species with a surface and coastal distribution, these oceanographic alterations introduce destabilizing factors that impact migration, recruitment, and reproduction processes, as well as alter its schooling behavior.

Given the influence of these climatic and oceanographic changes on the biological and fishery aspects of the pelagic ecosystem, environmental indicators are integrated by the scientific institutes to facilitate a more comprehensive analysis of the resource. This approach aims to improve the diagnosis and management of the resources.

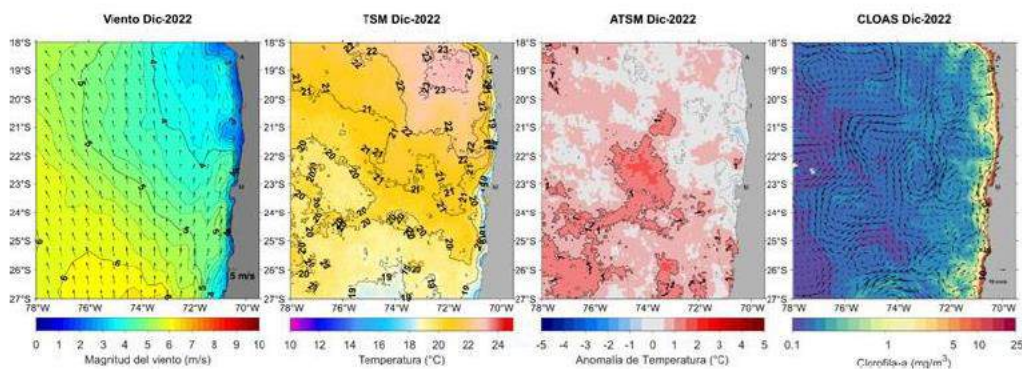


Figure 12 Climatic and oceanographic information collected by the IFOP during the surveys (IFOP 2024b).

Information on the potential impacts of the fishery on marine ecosystems is collected.

References

IFOP (2024b). Segundo Informe. Estatus y posibilidades de explotación biológicamente sustentable de anchoveta y sardina española, Región de Atacama a la Región de Coquimbo, CBA año 2024. Subsecretaría de Economía y EMT Junio 2024. 133 pp.

E3.2	E3.2 There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.
	<i>In reaching a determination for E3.2, the assessor should consider if the following is in place:</i>
	E3.2.1 The information collected in relation to E3.1.3 indicates that the fishery does not have a significant negative impact on marine ecosystems.
Outcome	<i>Pass</i>
Rationale	
The primary ways this fishery may impact the ecosystem are through the removal of target species, effects on non-target and ETP species, and physical impacts on marine habitats. However, as	

indicated in the previous sections, the impacts of the fishery on those elements of the ecosystem and low and a number of measures have been implemented in order to address them.

Anchovy serve as key prey for several top predators, including marine mammals (dolphins, sea lions, seals), seabirds, and larger fish (mackerel, sierra, hake, conger eels, cojinobas, sea bass) [SUBPESCA, 2016], as well as jumbo squid (Ibáñez et al., 2008). However, the fisheries are currently considered fully exploited (northern stock) and underexploited (northern-central stock) and a TAC set based on the scientific recommendations.

Table 7 Status of the pelagic stocks (IFOP 2024).

ESTATUS DE LAS PRINCIPALES PESQUERIAS NACIONALES, AÑOS 2014 A 2023			AÑO									
TIPO DE PESQUERIA	PESQUERIA	REGIONES	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Crustaceos	Camarón nailon	ANTOF-BBIO	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Langosti no amarillo	ATCMA-COQ	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Langosti no colorado	AYP-COQ	Green	Yellow	Green	Green	Green	Yellow	Green	Green	Green	Green
	Langosti no amarillo	VALPO-BBIO	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Langosti no colorado	VALPO-BBIO	Green	Yellow	Yellow	Yellow	Green	Green	Green	Green	Green	Green
Pelagicos	Jurel	AYP-LAGOS	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
	Anchoveta	AYP-ANTOF	Yellow	Yellow	Green	Green	Yellow	Green	Green	Green	Green	Green
	Anchoveta	ATCMA-COQ	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
	Anchoveta	VALPO-LAGOS	Red	Red	Red	Red	Red	Yellow	Green	Green	Green	Green
	Sardina común	VALPO-LAGOS	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green
	Sardina española	AYP-ANTOF	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
	Sardina española	ATCMA-COQ	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
	Sardina austral	LAGOS	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Yellow
	Sardina austral	AYSEN	Green	Green	Green	Green	Green	Yellow	Yellow	Green	Green	Green

It is considered that the fishery does not have a significant negative impact on marine ecosystems.

References

E3.3	E3.3 There is an ecosystem management strategy in place for the fishery. <i>In reaching a determination for E3.3, the assessor should consider if the following is in place:</i>
	E3.3.1 There are measures applied to the fishery which are designed to manage the impacts of the fishery on marine ecosystems.
	E3.3.2 The measures are considered likely to prevent the fishery from having a significant negative impact on marine ecosystems.
Outcome	<i>Pass</i>
Rationale The General Fisheries and Aquaculture Law (LGFA), enacted in 2013, aims to conserve and sustainably use fisheries resources by applying the precautionary approach and Ecosystem-Based Fisheries Management (EBFM). According to Porobic et al. (2018), the law introduced several significant changes, including: i. Development of management plans (MPs).	

- ii. Establishment of management committees (MCs).
- iii. Creation of technical scientific committees (TSCs).
- iv. Incorporation of regulations for bycatch.
- v. Establishment of biological reference points (BRPs).
- vi. Changes in the responsibilities of the national fishing committee (NFC).

In line with these changes, IFOP conducts regular surveys to assess stock status, while fisheries observers collect data on bycatch and monitor the status of species potentially affected by the fishery. Management plans have been developed for both anchovy fisheries, and specific plans for reducing discards and incidental catch have also been approved.

Various technical and management measures, such as seasonal closures, have been implemented to protect spawning stocks and juveniles. A Total Allowable Catch (TAC) is set for these fisheries, which is reviewed and updated annually based on scientific recommendations, historical data, and biannual surveys.

These efforts indicate that a comprehensive ecosystem management strategy is in place for the fishery.

References

Porobic et al (2018): Porobic, J., Fulton, E. A., Frusher, S., Parada, C., Haward, M., Ernst, B., & Stram, D. (2018). Implementing Ecosystem-based Fisheries Management: lessons from Chile's experience. *Marine Policy*, 97, 82-90.

<https://www.sciencedirect.com/science/article/pii/S0308597X17307510>

Annex 1: External Peer Review report

Insert report from Fisheries Assessment Peer Review Group. Reference this report in Tables 3 & 4



Fishery Assessment Peer Review Report

Document TEM-013 – Version 1.1

Issued August 2024 – Effective August 2024

*Anchovy (Engraulis ringens) – Chile – FAO 87, Chilean EEZ
Regions XV-IV*

WF16

Assessment and determination summary

Fishery name	Anchovy (<i>Engraulis ringens</i>) – Chile – FAO 87, Chilean EEZ Regions XV-IV
MarinTrust report code	WF16
Type 1 species (common name, Latin name)	Anchovy (<i>Engraulis ringens</i>)
Fishery location	Chile – FAO 87, Chilean EEZ Regions XV-IV
Gear type(s)	Purse sein e
Management authority (country/state)	Chilean Undersecretary of Fisheries and Aquaculture (SUBPESCA)
Certification Body recommendation	Approved
FAPRG reviewer recommendation	Agree with CB determination

Summary of peer review outcomes

<p>Summary</p> <p><i>Provide any information about the fishery that the reviewers feel is significant to their decision. This summary is used by the Certification Body in the Fishery Assessment Report.</i></p> <p>Currently is being executed the phase 2 of the Humboldt Current Large Marine Ecosystem Project, financed by GEF and directed by UNDP. Among others, it is expected that the southern Peru and northern Chile (SPNCH) anchovy shared stock will be administrated under a common approach. IMARPE in Peru and IFOP in Chile are working in a scientific protocol to perform joint fish stock assessments of anchovy. Also it is expected that PRODUCE in Peru and SUBPESCA in Chile can achieve an agreement to sustains the cooperation beyond the project, which will end by late 2026. Then, there is an optimistic framework for the common fisheries. This permits to overfome the problem described by SFP, in which independently Peru and Chile had been assigninng a TAC without considering that both, summed up, would produce overfishing.</p>
<p>General comments on the draft report provided to the peer reviewer</p> <p>The report is well documented, the author used the most recent available information. There has been much progress in Chile (and Peru) in effectively managing the by catch of ETP species, also discards are not condered a problem anymore. The report contain a detailed description of Type A and D species, all the scores including PSA seems to be cdoorrectly assigned.</p> <p>A consultancy was made by Intelfin under request from the GEF.UNDP Humboldt 2 project. In the consultancy document they are described and compared the legal aspects of management of the anchovy fishery in the southern Peru and norther Chile (SPNCh). The document includes specific recommendations to harmonize the way both countries are managing this shared stock. There are then good perspectives, including the fact that from now on, IMARPE in Peru, and IFOP in Chile, have this year to start to produce joint surveys on anchoveta. There was a first joint survey during August, and a second one will be performed next December’</p>

Peer reviewers should review the fishery assessment report with the primary objective of answering the key questions listed in the table below. When the situation is more complicated, reviewers may answer “See Notes” instead.

1. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	Yes
2. Does the Species Categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	Yes
3. Are the scores in the following sections accurate (i.e. do the scores reflect the evidence provided)?	Yes
Section M - Management	Yes
Category A Species	Yes
Category B Species	n/a
Category C Species	Yes
Category D Species	Yes
Section E – Ecosystem Impacts	Yes

Detailed Peer Review Justification

Peer reviewers should provide support for their answers in the boxes provided, by referring to specific scoring issues and any relevant documentation as appropriate.

Detailed justifications are only required where answers given are one of the ‘No’ options. In other (Yes) cases, either confirm ‘scoring agreed’ or identify any places where weak rationales could be strengthened (without any implications for the scores).

Boxes may be extended if more space is required.

1. Is the scoring of the fishery consistent with the MarinTrust requirements, and clearly based on the evidence presented in the assessment report?	Yes
scoring agreed	
Certification Body response	

2. Has the fishery assessment been fully completed, using the recognised MarinTrust fishery assessment methodology and associated guidance?	Yes
scoring agreed	
Certification Body response	

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3. Does the species categorisation section of the report reflect the best current understanding of the catch composition of the fishery?	Yes
scoring agreed	
Certification Body response	

3a. Are the “Category A Species” scores clearly justified?	Yes
scoring agreed	
Certification Body response	

3b. Are the “Category B Species” scores clearly justified?	n/a
Certification Body response	

3c. Are the “Category C Species” scores clearly justified?	Yes
scoring agreed	
Certification Body response	

3d. Are the “Category D Species” scores clearly justified?	Yes
scoring agreed	
Certification Body response	

Are the scores in “Section E – Ecosystem Impacts” clearly justified?	Yes
<p>scoring agreed</p> <p>You have added what looks like comprehensive lists of species affected by the fishery, and then make the conclusion that ‘ None of those species is considered an ETP species (no mortalities of turtles registered) under the MT definition.’</p> <p>I would like to see a stronger justification of why only turtles are considered ETP. Bear in mind the definition of ETP is not limited to the IUCN red-list, it’s also all appendices to CITES and there may be national legislation to protect certain species as well. I realize the latter is not in the guidance box, but is referenced in the examples of sources of evidence to support the assessment.</p> <p>From the scoring rationales provided elsewhere, I do not think it will affect the outcome of the assessment, but I would like to see more justification, in a table format if you wish, that makes it clearer which ones are ETP species and which are not. Then the capture and mortality information you provided is anchored to clearer rationales and evidence.</p> <p>This justification should ideally be in E1.1 and the mortality and capture data remain in E1.2.</p>	
Certification Body response	
A list of "protected species" in E1 has been included.	

Optional: General peer reviewer comments on the draft report	
<p>The report is complete and well documented, it contains all that is expected under the current version of the Marine Trust Standard. There is however an aspect that the report does not contain, which is the apparent lack of proper coordination between the Peruvian and Chilean governments. However they both are committed to go to at least a compatible management of the shared anchovy stock, the Humboldt 2 is in development and good perspectives exist to get a longstanding cooperation to support fishery management in the region.</p>	
Certification Body response	
Noted, thank you.	