

FISHERY ASSESSMENT REPORT

IFFO GLOBAL STANDARD FOR RESPONSIBLE SUPPLY OF FISHMEAL AND FISH OIL



FISHERY:	Common Sardine (<i>Strangomera bentincki</i>)
LOCATION:	Chile – Small Pelagic Fishery Regions V-X
DATE OF REPORT:	June 2015
ASSESSOR:	Sam Peacock

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1. APPLICATION DETAILS AND SUMMARY OF THE ASSESSMENT OUTCOME			
Name: Corpesca S.A; Camanchaca; Orizon S.A; Lota Protein S.A.; Blumar Seafoods			
Address:			
Country: Chile		Zip:	
Tel. No.		Fax. No.	
Email address:		Applicant Code	IFFO 125; IFFO 126; IFFO 128; IFFO 130; IFFO 132
Key Contact:		Title:	
Certification Body Details			
Name of Certification Body:		Global Trust Certification Ltd.	
Assessor Name	Peer Reviewer	Assessment Days	Initial/Surveillance/Re-certification
Sam Peacock	Deirdre Hoare	5	Re-certification
Assessment Period	June 2014		
Scope Details			
1. Scope of Assessment		IFFO Global Standard for Responsible Supply – Issue 1	
2. Fishery		Common sardine (<i>Strangomera bentincki</i>)	
3. Fishery Location		Chile – Small Pelagic Fishery Regions V-X	
4. Fishery Method		Purse seine	
Outcome of Assessment			
5. Overall Fishery Compliance Rating		Medium / High	
6. Sub Components of Low Compliance		None	
7. Information deficiency		None	
8. Peer Review Evaluation			
9. Recommendation		Approve fishery - conditionally	

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2. QUALITY OF INFORMATION

Good; primarily government publications.

3. COMPLIANCE LEVEL ACHEIVED

Medium

Recommendation

- Approve fishery - conditionally

4. GUIDANCE FOR ONSITE ASSESSMENT

- By-catch from the Chilean sardine fishery is not formally taken into account by the management organization. The Chileans operate a no discard policy for by-catch and all the catch is therefore landed. At landing the catch is sampled and weighed by SERNAPESCA; however, by-catch species are not recorded, representing a significant data shortfall. An improvement of this practice, by collecting species specific data, would allow a more thorough assessment of the impact of this fishery on the ecosystem.
- There is little information describing the scientific process used by IFOP to generate recommendations to SUBPESCA, and the recommendations themselves appear not to be publically available. Greater transparency in the methodology used to calculate quotas and make broader management decisions IFFO would allow a more thorough assessment.

On site assessors should review the following information on site.

- Verify what information fishermen need to submit in relation to landings of target and non-target species to SERNAPESCA, and what other information is collected when catches are landed.
- Ask and record how fisherman deal with birds, sea mammals, turtles, sharks and other finfish that enter/get caught within the purse seining net.
- Verify whether any type of management plan exists to address the by-catch issue in this fishery.
 - Determine if there is any mechanism to limit the fishing capacity of the artisanal sector

Based on HIGH compliance findings

Based on MEDIUM compliance findings

Based on LOW compliance findings

5. ASSESSMENT DETERMINATION

Although there have recently been concerns expressed by scientists in relation to some Chilean small pelagic stocks, the sardine in regions V-X currently appears to be exploited at sustainable levels. As when Chilean

fisheries have been assessed previously, the assessment team found a fully developed legal and administrative system in place which appears to be working towards the effective and sustainable management of the resource.

This said, the fishery has been awarded a high number of medium compliance ratings, due primarily to the lack of transparency in the stock assessment and management processes. Additional information was requested direct from IFOP, some of which was provided. However, the assessment team was specifically told that “information regarding the stock assessment conducted by IFOP...is not public and is not available to be disclosed”. It is likely that many of the medium compliance ratings in this report could be improved if the full stock assessments were made public.

Some management measures are in place to minimise the impacts of the fishery on non-target species, but on the whole there is limited available evidence to determine the extent of these impacts.

HIGH Compliance

A1, E1

MEDIUM Compliance

A2, A3, B1, B2, C1, D1, D2, D3, E2

LOW Compliance

Condition based on D3

The proposed management plan details the measures are in place to minimise the impacts of the fishery on non-target species. Approval of this fishery is conditional on this management plan being implemented. According to the client this management plan has been agreed between the local authorities, the artisanal and the industrial fishermen after a vast and deep discussion process and will be voted early March 2016 during the Fishing Management Committee meeting. Therefore the assessment team has decided to grant conditional approval of this fishery based on this management plan being adopted before the next assessment is due for this fishery – June 2016.

Client Action Plan

The onus is on the client to provide the assessment team with evidence of this plan being approved and provide us with the appropriate information to confirm that these conditions are met.

- 1. Evidence that the Proposed Management Plan is adopted by the Fisheries Management Committee by June 2016.**

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SUMMARY OF LEVEL OF COMPLIANCE					
	The Management Framework and Procedures	Stock assessment procedures and management advice	Precautionary approach	Management measures	Implementation
legal and administrative basis	A1				
Fisheries management should be concerned with the whole stock unit	A2				
Management actions should be scientifically based	A3				
Research in support of fisheries conservation and management should exist		B1			
Best scientific evidence available should be taken into account when designing conservation and management measures		B2			
The precautionary approach is applied in the formulation of management plans			C1		
The level of fishing permitted should be set according to management advice given by research organisations				D1	
Where excess fishing capacity exist, mechanisms should be in established to reduced capacity				D2	
Management measures should ensure that fishing gear and fishing practices do not have a significant impact on non-target species and the physical environment				D3	
A framework for sanctions of violation of laws and regulations should be efficiently exists					E1
A management system for fisheries control and enforcement should be established					E2

KEY: Low Compliance: Medium Compliance: High Compliance:

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6. RATIONALE OF THE ASSESSMENT OUTCOME

A. THE MANAGEMENT FRAMEWORK AND PROCEDURE

LEVEL OF COMPLIANCE

A1. The management of the fishery must include a legal and administrative basis for the implementation of measures and controls to support the conservation of the fishery.

LOW	An administrative framework that ensures an efficient management of the fishery for its conservation is not established.
MEDIUM	An administrative framework that ensures an efficient management of the fishery for its conservation is somehow established, but there is evidence of not being efficient to ensure the conservation of the stock.
HIGH	A legal and administrative framework that ensures an efficient management of the fishery for its conservation is established and works efficiently toward the conservation of the stock.

Determination: The Chilean fisheries management framework is extensive and robust, and includes specific commitments to ensuring the sustainability of marine stocks. H

Primary institutional framework

The Chilean institutional structure governing the fisheries and aquaculture sector centers around three key organisations, with a number of other institutions providing additional research and enforcement support (such as the Navy). These three organizations have a degree of operational independence while performing a crucial and interlinked function within the broad institutional framework.

- The Subsecretariat de Pesca (Undersecretariat of Fisheries, SUBPESCA or SSP) is positioned within the Chilean Ministry of Economy, and provides the policy settings and regulatory framework for the domestic management of the sector. It also manages policy direction and provides input into international fisheries issues. Law 20.657 created eight scientific-technical fisheries committees within SUBPESCA, to act as advisory bodies in the formulation of all reference points, quotas, and other technical measures. The law also rendered their technical recommendations mandatory – thus there is a legal requirement for scientific advice to be adopted.
- The Servicio Nacional de Pesca (National Fisheries Service, SERNAPESCA) is also based within the Ministry of Economy. It is responsible for executing national fisheries policy, for supervising its enforcement and for ensuring proper application of the legal rules and regulations on fishing. In practice, compliance is checked by Intertek Caleb Brett Chile SA, acting on behalf of SERNAPESCA.
- The Instituto de Fomento Pesquero (Fisheries Development Institute, IFOP) is the research arm of the institutional framework. A non-profit organisation created in 1964 under a joint agreement between the Chilean government, the FAO, and the UN Development Program, it is the primary source of scientific advice to the SSP on fisheries and aquaculture agreement issues. Its work includes stock assessment, advising on total allowable catch levels for the wild fisheries, and the environmental and health aspects of aquaculture production. It draws a proportion of its funding from SUBPESCA but also has to compete for funding from a range of public funding sources.

Fisheries councils

The National Fisheries Council was created by the Fisheries and aquaculture Law 18.892 for the purpose of managing the participation of all stakeholders in the fisheries and aquaculture sector. It is a ruling, advisory and consultative body for dealing with Fisheries and Aquaculture plans and Laws as well as for development proposals for small scale fishing. There are also five Zonal Fisheries Councils aimed at contributing to the decentralization of management measures to be taken by authorities, and to enhance

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regional participation of fisheries and aquaculture stakeholders. They communicate new and amended regulations through regional bulletins and acts published several times a year to fishery stakeholders. Finally, Regional Fisheries Councils are aimed at studying fisheries and aquaculture problems affecting their zones and to propose solutions and management measures to SUBPESCA. Until 2013 the Councils were responsible for approving the SUBPESCA-recommended TAC; however, the introduction of Law 20.657 (the General Law on Fisheries and Aquaculture, LGPA) in February 2013 adjusted this arrangement to render the Council as a purely consultative body for the purposes of TAC-setting.

Legal instruments

Since February 2013, the primary legal instrument for fisheries management in Chile has been Law 20.657 (LGPA). The LGPA is a modification of the previous fisheries legislation, and includes:

- A commitment to the sustainable use and conservation of marine resources.
- A commitment to make key decisions on conservation measures on the basis of scientific information above all other considerations. To this end, the recommendations of SUBPESCA’s scientific-technical committees have been made mandatory.
- A commitment to develop management plans for any fishery with restricted access, and the review and updating of these plans every five years.

LEVEL OF COMPLIANCE

A2. Fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account fishery removals and the biology of the species.

LOW	Fisheries management is not concerned with the whole stock unit over its entire area of distribution and do not take into account any of the matters listed in ‘A1’.
MEDIUM	Fisheries management is concerned with matters listed in ‘A1’ but not entirely. Fisheries, in relation to ‘A1’ statement, should improve to ensure the long term conservation of the marine resource.
HIGH	Fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account: <ul style="list-style-type: none"> • All fishery removals • The biology of the species

Determination: The management unit reflects the biological stock, and the biology of the species is taken into account in the fishery management process. Discards and bycatch sampling takes place on landing

There are three management units for sardine fisheries in Chilean waters:

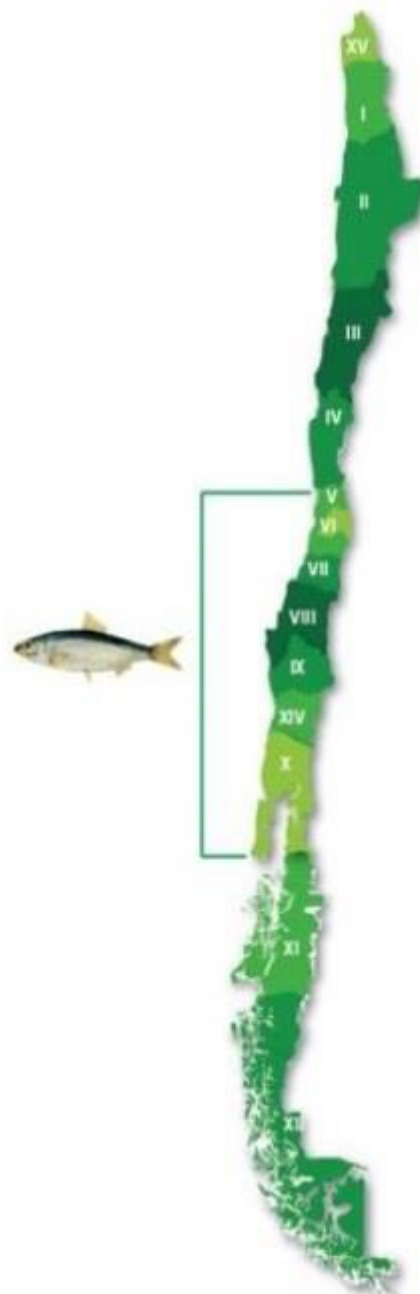
- Spanish sardine in Regions XV-I-II, managed by both Chile and Peru;
- Spanish sardine in Regions III-IV, managed by Chile;
- Common sardine in Regions V-X (south-central stock), also managed by Chile.

This assessment focusses exclusively on the common sardine stock in regions V-X. Sardine is managed as a component of the multispecies small pelagic fishery, and in particular in parallel with the region V-X anchovy fishery. It is very difficult for both the industrial and artisanal components of the fishing fleet to catch one species without also catching the other. Although the sardine stock is considered by scientific organisations to be in good condition, one of the main challenges for fishery managers is to exploit the sardine resource without further damaging the anchovy stock, which is considered to be in poor condition.

Stock assessments are carried out separately for each management unit. The management units reflect the current best scientific understanding of the biological stocks. Although all landings of sardine are recorded,

information provided by IFOP indicates that no bycatch or discard data are included in assessments. There is a no-discard policy in place and so this is unlikely to be a significant source of fishery removals. Official statistics from the landing sampling of the artisanal fleet 2005-2015 give an average catch composition of 63% sardine followed by 23% anchovy. The industrial fleet had a catch composition for the same period of 59% sardine and 39% anchovy.

The biology of the species is taken into account during assessments. IFOP utilises information associated with life history parameters, such as natural mortality, growth and maturity data. These are all factored into the modelling process for predicting potential future harvest rates.



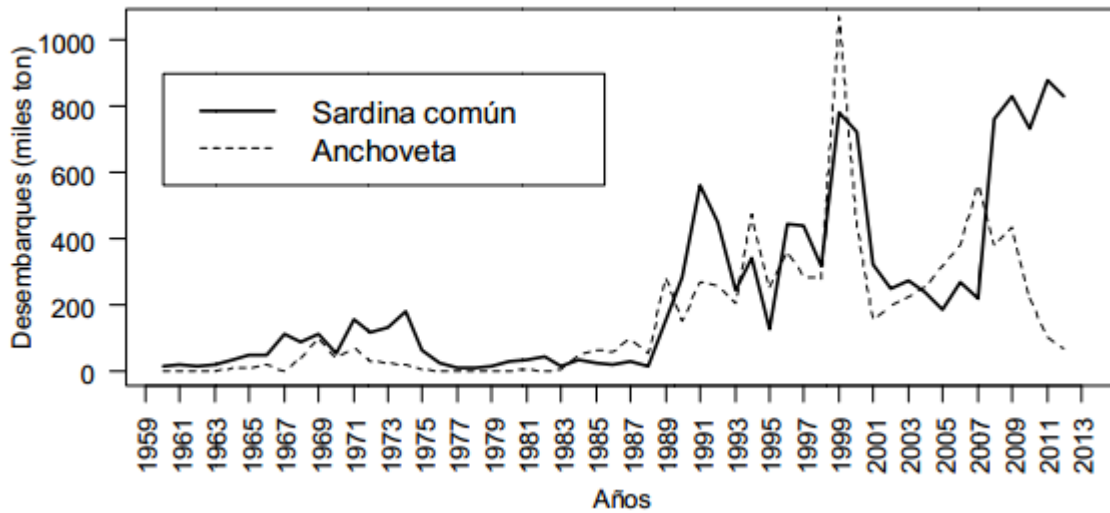
Map of Chile, indicating the location of administrative regions V to X (R13).		
LEVEL OF COMPLIANCE		
<i>A3. Management actions should be based on long-term conservation objectives</i>		
LOW	Management actions are not based on long term management objectives.	
MEDIUM	Management actions are based on long term management objectives. However the actions are not scientifically formulated.	
HIGH	Management actions are based on long term management objectives, and actions are science based.	
<p><i>Determination: There are no explicit management objectives for the fishery. However, the stock is largely managed in accordance with scientific advice produced using implicit management objectives based on scientifically-derived reference points. Additionally, there are generic commitments to long-term sustainability in the legislation.</i></p> <p>There is no explicit management plan in place for the fishery, and no officially implemented harvest control rules. The LGPA states that all stocks should be exploited around the MSY level, and that the MSY is the objective to be taken into account when quotas are established. In general both scientific advice and management measures are based on this generic objective. SSB reference points were recently set for the fishery, and have been used as the basis for the TAC advice. The sardine SSB target reference point acts as a proxy for B_{MSY}, and is equal to $60\%SSB_0$ (60% of the unexploited biomass). Similarly, the proxy for F_{MSY} is set at $F_{60\%}$. The limit reference point is $20\%SSB_0$.</p> <p>The LGPA includes a commitment to develop a management plan for any fishery with restricted access; however, the development of a management plan for the small pelagic fishery in V-X, or any of its component species, appears to be still in development. The LGPA also includes commitments to manage fisheries sustainably.</p>		M
B. STOCK ASSESSMENT PROCEDURES AND MANAGEMENT ADVICE		
LEVEL OF COMPLIANCE		
<i>B1. Research in support of fisheries conservation and management should exist.</i>		
LOW	Research to support the conservation and management of the stock, non-target species and physical environment does not exist	
MEDIUM	Research to support the conservation and the management of the stock, non-target species and physical environment exists, however research programmes could be significantly improved to decrease scientific advice uncertainty.	
HIGH	Research to support the conservation and the management of the stock, non-target species and physical environment exist, and existent research is considered most adequate for the long term conservation of the target, non-target and physical environment	
<p><i>Determination: Research and stock assessment activities are carried in support of the management of the stock; however the full stock assessments were not made available to the assessment team. The FIP identifies a number of potential data improvements.</i></p> <p>Fishery-dependent data</p> <p>Fishery-independent data collected from the small pelagic fishery includes total landings and age and size estimates from sampling. Information collected at landing sites and directly from fishing vessels includes location and time of catch, length, weight, sex, and age data, and size frequency distribution data.</p> <p>Fishery-independent data</p> <p>Several fishery-independent surveys have been, and are still, carried out. These include spawning biomass</p>		M

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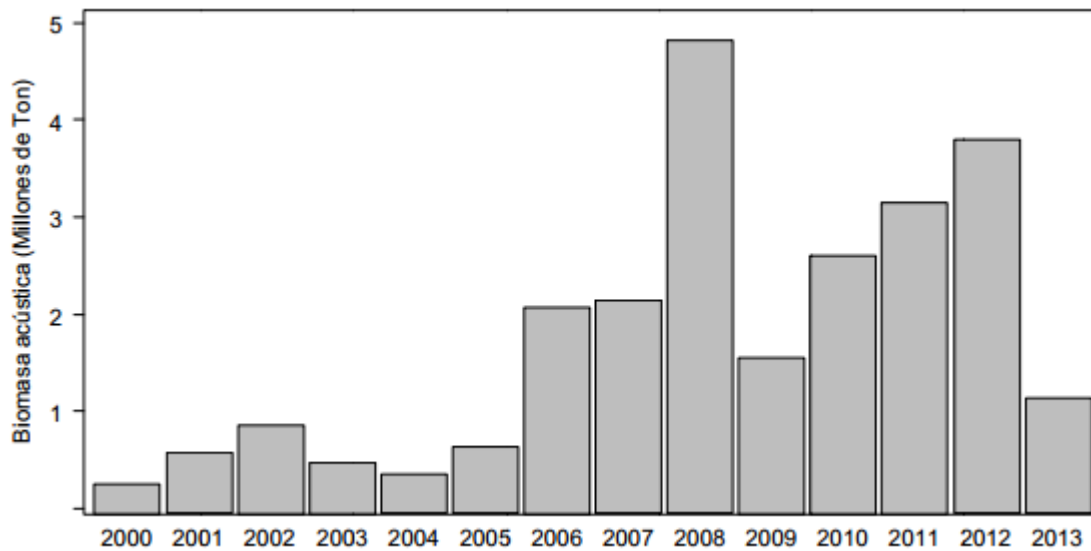
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surveys (2002-2010), summer (“RECLASS”, 2000-present) and autumn (“PELACES” 2003-present) acoustic surveys.

Additional research which would improve the reliability of the stock assessment includes an improved understanding of population structure and migration patterns, location of spawning and nursery grounds, growth and age parameters, discards and under-reported catches, fishing effort/CPUE, and environmental influence on stock parameters.



Landings of common sardine (sardine común) and anchovy (anchoveta) in the Chilean south-central fishery. From the 2013 stock assessment report.



Estimated common sardine biomass from the summer acoustic cruise data, 2000 – 2013. From the 2013 stock assessment report.

CRUCERO RECLAS 2014

Fecha: 05 Enero – 01 Febrero 2014
 32°40,9'S – 41°40,6'S
 78 lances de pesca

Sardina común	RECLAS 2014	RECLAS 2013	Diferencia 2014–2013
Biomasa (ton)	3.079.434	1.133.477	1.945.957
Abundancia (millones de peces)	768.494	87.069	681.425
Abundancia reclutas (%)	96,4%	42%	54,4%

Anchoveta	RECLAS 2014	RECLAS 2013	Diferencia 2014–2013
Biomasa (ton)	116.472	71.376	45.096
Abundancia (millones de peces)	9.512	5.303	4.209
Abundancia reclutas (%)	65,6%	50%	15,6%

Results of the summer acoustic (RECLASS) survey, 2013 and 2014 (R12)

LEVEL OF COMPLIANCE

B2. Best scientific evidence available should be taken into account when designing conservation and management measures.

LOW	Scientific advice is not taken into account when designing conservation and management measures.
MEDIUM	Scientific advice is taken into account, when designing conservation and management measures. However some areas of discrepancy are identified that could have a significant impact in the long term conservation of the marine environment.
HIGH	Scientific advice is taken into account, when designing conservation and management measures, in a comprehensively manner.

Determination: *Since 2013, there has been a legal requirement for SUBPESCA’s technical recommendations (including TAC) to be adopted. However, as the original IFOP advice is not available to the assessment team, it is not possible to determine how fully these recommendations reflect the original scientific advice.*

The main scientific advice for the fishery is the recommendation for the annual TAC, which is given in three stages each year. A pre-season recommendation is followed by an initial in-season recommendation, which makes use of landings data and a January survey. A third, final recommendation is made after a second survey is conducted in June; the results of the two surveys are also used to produce the pre-season TAC estimate for the following year. These three TAC recommendations are made by IFOP to SUBPESCA, and do not appear to be made publically available. SUBPESCA then passes on its own recommendations, which are publically available, to the CNP and SERNAPESCA.

Prior to the update of the fishery management legislation in 2013, quota recommendations made by IFOP and SUBPESCA had to be approved by a majority vote in the appropriate fishery council. The update to the LGPA made it mandatory for the management recommendations of SUBPESCA’s scientific/technical advisory boards to be adopted by fishery managers, including with regards to the setting of quotas.

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However, examples of the recommendations of the scientific/technical boards were not available to the assessment team and it is not clear whether this component of the law has yet been applied in practice. Although final TACs do reflect the SUBPESCA recommendations, it is not clear the extent to which they reflect the original IFOP advice.

The LGPA also states that quotas should be established using MSY as the primary technical parameter.

C. THE PRECAUTIONARY APPROACH

LEVEL OF COMPLIANCE

C1. The precautionary approach is applied in the formulation of management plans.

LOW The precautionary approach is not applied in the formulation of management plans.

MEDIUM The precautionary approach is applied, however not all uncertainties are taken into account.

HIGH The precautionary approach is applied, taking into account uncertainties relating to the dynamic of fish population (recruitment, mortality, growth and fecundity), and the impact of the fishing activities, such as discards and by-catch of non-target species as well as on the physical environment (Habitats).

Determination: There is consideration of uncertainty and the risks associated with management actions in the Chilean management process. However without access to the original stock assessments it is not possible to be certain of how these are applied.

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According to the LGPA, the stated objective of fisheries management in Chile is “to foster the conservation and sustainable use of aquatic resources through the application of a precautionary approach, an ecosystem approach to fisheries regulation, and the protection of marine ecosystems”. Calculations of Biologically Acceptable Catch (BAC), which form the basis for setting catch quotas, are based on stock assessment and consideration of uncertainty, using Bayesian methods to estimate the risk associated with potential catch rates. Although the assessment team was not provided with the full stock assessment or methodology, direct communication with IFOP indicates that the stock assessment process takes into account a range of sources of uncertainty, and also produces outputs which indicate the level of risk associated with potential fishery management actions.

The specific objective in relation to sardine is to maintain a spawning biomass equal to 60% of the level if the stock was unexploited, with a risk of failing this to be not more than 10%.

D. MANAGEMENT MEASURES

LEVEL OF COMPLIANCE

D1. The level of fishing permitted should be set according to management advice given by research organisations.

LOW The level of fishing permitted is not set according to management advice given by research organisations.

MEDIUM The level of fishing permitted is higher than management advice given by research organisations. However, the difference is not considered to have a significant impact of the sustainability of the stock

HIGH The level of fishing permitted is set according to management advice given by research organisations.

Determination: In recent years, TACs have been set in line with the SUBPESCA advice, and have not been exceeded. However, most of the original IFOP recommendations and the process by which they were arrived at were not available to the assessment team.

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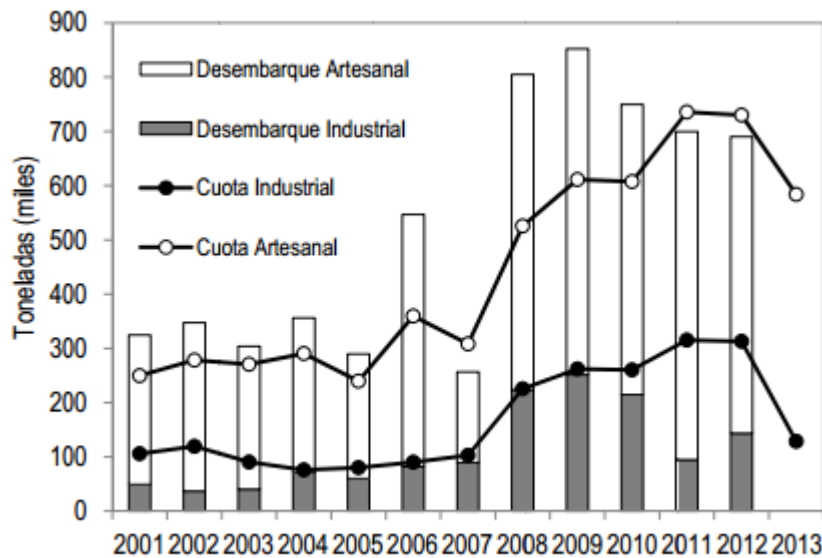
The level of fishing in the south-central sardine fishery is restricted by annual quotas. Quota recommendations are initially provided by IFOP to the scientific/technical committees of SUBPESCA. These committees in turn make recommendations for the final quota, which according to the LGPA must be adopted by fishery managers. Small percentages are deducted from the total quota for research and non-commercial (i.e. direct human consumption) uses, and the remaining TAC is divided between the industrial and artisanal components of the fleet according to a fixed ratio described in the primary fisheries

legislation. As of 2013, this ratio is 22% to the industrial fleet and 78% to the artisanal sector.

The SUBPESCA technical report for the 2014 quotas, which includes the TAC recommendations along with some basic explanation of the process behind their determination, were available to the assessment team. However, the original IFOP report and stock assessment was not, and although the original IFOP quota recommendation was obtained via direct communication with the organisation, it is not possible to determine how these original recommendations were derived.

The graph below compares landings and quotas for fishing years 2001 – 2013. Artisanal landings have frequently exceeded the artisanal share of the quota, although in recent years this has been counteracted by underperformance in the industrial sector. The combined TAC has not been exceeded since 2010: final landings in 2013 totalled 231,816t against a TAC of 605,000t. The initial IFOP recommendation for fishery removals in 2014 was 505,000t, based on ensuring with more than 90% certainty that biomass would be maintained above 60% of the unfished level. The TAC for 2014 was initially set at 373,000t and later increased to 572,000t as a result of the in-seasons survey. As of October 2014 the accumulated total landings stood at 491,995t (note that the majority of the sardine catch is landed in March and April).

Artisanal landings exceeding the artisanal TAC share is not necessarily indicative of illegal activity or poor enforcement. Vessels are permitted to land catch which is up to 20% bycatch of either sardine or anchovy, even when the TAC for that species has been filled, if the other species still have TAC remaining.



Historical comparison of artisanal landings (desembarque artesanal), industrial landings (desembarque industrial), industrial quota (cuota industrial) and artisanal quota (cuota artesanal) of common sardine in the Chilean south-central fishery, 2001-2013. From the 2013 stock assessment.

LEVEL OF COMPLIANCE

D2. Where excess fishing capacity exist, mechanisms should be in established to reduce capacity to allow for the recovery of the stock to sustainable levels.

LOW	Mechanisms to allow for recovery of the stock to sustainable levels are not established.
MEDIUM	Mechanisms to allow for recovery of the stock to sustainable levels are somehow established. However there is no evidence of the efficiency of the methods used.
HIGH	Mechanisms are established to reduce capacity to allow for the recovery of the stock to sustainable levels and there are

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evidences of recovery.	M
<p>Determination: There does not appear to be any mechanism in place to limit the fishing capacity of the artisanal sector. In recent years this has been offset by poor performance in the industrial sector; however, it remains the case that the artisanal sector is capable of catching considerably more fish than is sustainable according to the scientific advice.</p> <p>There is clearly an excess of fishing capacity in the artisanal sector, which is effectively open-access and has exceeded its share of the TAC in every year since 2008. The majority of the resource is distributed in the artisanal-exclusive zone within five miles of shore, which goes some way to explaining the inability of the industrial fleet to fill its share of the TAC in many years. In theory the requirement for artisanal fishers to be registered on the National Registry for Artisanal Fishermen (NRAF) is used to control their number per regional area. However, although there is no evidence available to determine the extent to which, or even whether, such restriction occurs, it is clearly not effective at restricting the artisanal fleet’s effort to TAC-defined levels. There is an implementation error between the assigned quotas and the actual landings. A number of options have been identified to avoid this in the future such as limiting effort and alternative distribution methods for quota. However it is not clear which methods are going to be used and when this will happen.</p> <p>Industrial vessels require a licence to fish and, based on the repeated inability of the industrial fleet to fill its share of the quota, there does not appear to be an excess of capacity in this component of the fishery.</p>	

LEVEL OF COMPLIANCE	
D3. Management measures should ensure that fishing gear and fishing practices do not have a significant impact on non-target species and the physical environment.	
LOW	There are no management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment.
MEDIUM	There are management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment. However it is not science based.
HIGH	There are management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment. Measures are based on scientific information.

<p>Determination: The proposed management plan details the measures are in place to minimise the impacts of the fishery on non-target species. Approval of this fishery is conditional on this management plan being implemented.</p> <p>Non-target species</p> <p>In the proposed management plan according to the Law D. Ex. No. 39 of 2015 the proportion of bycatch and the corresponding annual reserve associated with the fishery for sardine and anchovy was established.</p> <p>Table 1. Bycatch quota of common sardine and anchovy artisanal fisheries 2015.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Target</th> <th>Bycatch</th> <th>Región</th> <th>% F.A</th> <th>Reserva anual</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Sardina Austral</td> <td>Anchoveta</td> <td rowspan="2">V – X</td> <td rowspan="2">5%</td> <td>40</td> </tr> <tr> <td>Sardina común</td> <td>70</td> </tr> <tr> <td rowspan="2">Otros</td> <td>Anchoveta</td> <td rowspan="2">X</td> <td rowspan="2">5%</td> <td>60</td> </tr> <tr> <td>Sardina común</td> <td>80</td> </tr> </tbody> </table>		Target	Bycatch	Región	% F.A	Reserva anual	Sardina Austral	Anchoveta	V – X	5%	40	Sardina común	70	Otros	Anchoveta	X	5%	60	Sardina común	80	M
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Bycatch information is systematically collected for the fishery with weekly monitoring by IFOP in some regions. In 2014, the anchovy TAC in regions V-X was set considerably higher than the most conservative scientific advice in an effort to ensure that the sardine fishery would not be limited by anchovy bycatch. Additionally, even when the TAC of one species has been filled but quota for the other remains, 20% bycatch of the species with no remaining quota is permitted per trip.

Ecosystems

The availability of sardine and anchoveta as a prey is considered to be one of the major threats to Humboldt Penguin. Chile has implemented five marine reserves, with the objective of conserving natural banks of scallop, oyster and mussel, but also dolphins and penguins. Additionally, the introduction of the five-mile artisanal-exclusive zone near the shoreline has provided significant protection to spawners and other shallow-water organisms from industrial fishing activities.

ETP species

The incidence of dolphins in catches is considered to be minimal, with the majority of marine mammal interactions involving sea lions (which are not categorised as at risk by the IUCN). Seabirds also interact with the fishery, including the kelp gull, Peruvian pelican and Franklin’s gull (all either Least Concern or Near Threatened). Overall there is limited evidence available on the extent to which these species, and other ETP species, are impacted by the fishery.

Physical environment

The impact of purse seine nets on the physical and biological environment of the sea floor is considered minimal, as nets are generally used at depths considerably greater than their size.

E. IMPLEMENTATION

LEVEL OF COMPLIANCE

E1. There should be a framework for sanctions of violation of Laws and regulations.

LOW	A framework for sanctions of violation of Laws and regulations do not efficiently exist.
MEDIUM	A framework for sanctions of violation of Laws and regulations do exist but do not work efficiently.
HIGH	A framework for sanctions of violation of Laws and regulations exists and is proven to be efficient.

Determination: There is a framework allowing for the application of sanctions ranging from monetary fines to revocation of licence.

H

The LGPA defines a range of sanctions for offences including fishing with an unlicensed vessel, discarding, incorrect logbook use, failure to report landings, fishing in a region or fishery other than the one for which the vessel is licenced, and for industrial vessels which land more fish than they have quota for. Depending on the offence, sanctions can include one or a combination of monetary penalties dependant on tonnage; suspension of fishing licence; and revocation of licence entirely. Punitive proceedings are the responsibility of the regional SERNAPESCA director. In 2005, a national action plan was approved with the aim of preventing, deterring and eliminating IUU fishing. There is no evidence available to determine the level of success this plan enjoyed.

LEVEL OF COMPLIANCE

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<i>E2. A management system for fisheries control and enforcement should be established.</i>	
LOW	A management system for fisheries control and enforcement is not established.
MEDIUM	A management system for fisheries control and enforcement is established but do not work efficiently.
HIGH	A management system for fisheries control and enforcement is established and work efficiently.
<p>Determination: <i>There is evidence of a fisheries control and enforcement regime in place in Chile, but limited information to determine how effective this regime is.</i></p> <p>The guiding instrument of fisheries management in Chile is the General Law on Fisheries and Aquaculture (LPGA). No. 18.892 of 1989 Act, as amended (Decree 430) plus other intermediate laws, regulated the activities of fisheries and aquaculture until February 9, 2013 when the new Law on Fisheries and Aquaculture No. 20,657, was published in the Official Journal amending the previous one in the field of sustainability of aquatic resources, access to industrial, craft and regulations for research and monitoring fishing activity.</p> <p>Article 10 of Law 19713 states that industrial vessels must submit information on capture by fishing trip in Article 63 of the General Law on Fisheries and Aquaculture, certified by concerns an Audit Institution accredited by the National Fisheries Service. The way, conditions and procedures of certification and accreditation of audit entities, shall be established by resolution of the Service.</p> <p>Enforcement of fisheries legislation is the responsibility of SERNAPESCA. Industrial vessels operate under mandatory VMS monitoring.</p>	
M	

7. KEY STAKEHOLDERS

8. REFERENCES

- R1 – SUBPESCA home: <http://www.subpesca.cl/>
- R2 – SERNAPESCA home: <http://www.sernapesca.cl/>
- R3 – IFOP home: <http://www.ifop.cl/>
- R4 – Fisheries Law 20.657: http://www.subpesca.cl/normativa/605/articles-764_documento.pdf
- R5 – Fisheries Law 20.657, “History of the Law”: <http://www.leychile.cl/Navegar/scripts/obtienearchivo?id=recursoslegales/10221.3/43656/3/HL20657.pdf>
- R6 – Szary, AL, 1997, *Regiones ganadoras y regiones perdedoras en el retorno de la democracia en Chile: poderes locales y desequilibrios territoriales*, EURE (Santiago) v.23 n.70 Santiago dic: http://www.scielo.cl/scielo.php?pid=S0250-71611997007000004&script=sci_arttext

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R7 – Estatus y posibilidades de explotación biológicamente sostenibles de los principales recursos prequeros nacionales, año 2013: sardine comun regiones V-X.

R8 - Fraccionamiento y distribución de la cuota global anual de captura anchoveta y sardina común, regiones V a X, año 2014: http://www.subpesca.cl/publicaciones/606/articles-82271_documento.pdf

R9 – Landings year to date (south-central small pelagic fishery), October 2014: <http://www.ifop.cl/wp-content/uploads/2%C2%BA-QUINCENA-OCTUBRE-2014-N%C2%B020.pdf>

R10 – CeDePesca FIP information, Chilean Anchovy and Sardine, V-X: <http://cedepesca.net/promes/small-pelagics/chilean-anchovy-and-sardine/>

R11 – Fishsource fishery information, Chilean Anchoveta and Sardine, Regions V-X: <http://www.fishsource.com/fishery/summary?fishery=Anchoveta+--+Chilean+regions+V-X+%5BFIP%3A+Chilean+Anchovy+and+Sardine%2C+CeDePesca%5D>

R12 – Information from the IFOP small pelagic working group, via email, March 2015.

R13 – “Estado de Situacion de las Principales Pesquerias Chilenas, 2014” (The situation in leading Chilean fisheries, 2014): http://www.subpesca.cl/prensa/601/articles-87256_recurso_1.pdf

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