FISHERY ASSESSMENT REPORT

IFFO GLOBAL STANDARD FOR RESPONSIBLE SUPPLY OF FISHMEAL AND FISH OIL





R1

FISHERY:	Sardina Austral /Falkland sprat (Sprattus fueguensis)
LOCATION:	Chile -Region X (de los lagos), FAO 87.3.3
DATE OF REPORT:	January 2018
ASSESSOR:	Deirdre Hoare

Global Trust Certification Ltd, 3rd Floor, Block 3, Quayside Business Park, Mill Street, Dundalk, Co. Louth, Ireland Tel: 042 932 0912 Fax 042 938 6864					
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1. APPLICATION DETAILS AND SUMMARY OF THE ASSESSMENT OUTCOME				
Name: Fiordo Austral				
Address:				
Country: Chile			Zin:	
Tel. No.			Fax. No.	
Email address:			Applicant Code	
Key Contact:			Title:	
Certification Body Details			- <u>v</u>	
Name of Certification Body:		Global Tru	st Certification Ltd.	
Assessor Name	Peer Reviewer		Assessment Days	Initial/Surveillance/ Re-certification
Deirdre Hoare	Conor Do	nnelly	7	Surveillance
Assessment Period			2017	
Scope Details				
1. Scope of Assessment			IFFO Global Standard fo Issue 1	or Responsible Supply –
2. Fishery			Sardina Austral /Falkla <i>fueguensis</i>)	nd sprat (<i>Sprattus</i>
3. Fishery Location			Chile – Region X (de los lagos), FAO 87.3.3	
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			Approve	
9. Recommendation			Approve	

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2. QUALITY OF INFORMATION

Good, primarily government publications.

3. COMPLIANCE LEVEL ACHEIVED

Medium

Recommendation

Approve fishery

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.

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 fishermen 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.

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 austral in regions 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.

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 no explicit management objectives for the fishery. However, the stock is largely managed in

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accordance with scientific advice produced using implicit management objectives based on scientificallyderived reference points. Additionally, there are generic commitments to long-term sustainability in the legislation.

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. 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.

Since 2013, there has been a legal requirement for SUBPESCA's technical recommendations (including TAC) to be adopted. Scientific advice is taken into account, when designing conservation and management measures, in a comprehensive manner.

There is consideration of uncertainty and the risks associated with management actions in the Chilean management process. In recent years, TACs have been set in line with the SUBPESCA advice, and have not been exceeded. Mechanisms are established to reduce capacity to allow for the recovery of the stock to sustainable levels and there are evidences of recovery.

There are management measures to prevent the impact of the fishing methods and fishing practices on nontarget species and the physical environment. However, as it is a relatively new fishery there is a lack of scientific information.

There is a framework allowing for the application of sanctions ranging from monetary fines to revocation of licence. There is evidence of a fisheries control and enforcement regime in place in Chile, but limited information to determine how effective this regime is.

HIGH Compliance A1, A2, B2, C1, D1, D2, E1 MEDIUM Compliance A3, B1, D3, E2 LOW Compliance

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IFFO Fishery Assessment Report

Issue No; 5; Issue Date; Jun 2015

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 Complianc	e:	High Compliance:			

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6. RATIONALE OF THE ASSESSMENT OUTCOME

A. THE MANAGEMENT FRAMEWORK AND PROCEDURE

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

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

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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 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.

RZ-0	
	LEVEL OF COMPLIANCE
A2. Fisherie	es management should be concerned with the whole stock unit over its entire area of distribution and take into
account fis	hery 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:
	All fishery removals
	The biology of the species
Determir	nation: The management unit reflects the biological stock, and the biology of the
charias	ic taken into account in the fishery management process. Discards and bysatch

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 two management units for *sardina austral* fisheries in Chilean waters:

- Regions X
- Region XI

This assessment focusses exclusively on the sardina austral stock in region X. Sardina austral is managed as a component of the multispecies small pelagic fishery.

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R2-6

The Patagonian sprat (*Sprattus fuegensis*) is a small pelagic clupeid with a similar spatial distribution in both the South Pacific and Atlantic Ocean. In Chile, this species occurs from far south in the fjords and channels to approximately 42°S in the inland sea (Radl & Culik, 1999; Aranis *et al.*, 2007; Bustos *et al.*, 2008; Leal *et al.*, 2011). According to Galleguillos *et al.* (2012), at the population level in Chile, *S. fuegensis* encompasses a single genetic stock with significant reproductive cohesion.

Since 2008, the catch in this area has been regulated through an annual TAC, and since 2009, the Fisheries Development Institute of Chile (IFOP) has performed annual stock assessments and has estimated annual allowable catches through a size-structured model. 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.

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 sardina austral are recorded, information provided by IFOP indicates that there are issues with underreporting and misreporting of species. There is a no-discard policy in place and so this is unlikely to be a significant source of fishery removals.

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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 austral SSB target reference point acts as a proxy for B_{MSY} , and is equal to 55% SSB₀ (55% of the unexploited biomass). The proxy for F_{MSY} is set at $F_{60\%}$. The limit reference point is 27.5%SSB₀.

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 Region X, or any of its component species, appears to be still in development. The LGPA also includes commitments to manage fisheries sustainably.

B. S	STOCK ASSESSMENT PROCEDURES AND MANAGEMENT ADVICE
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LEVEL OF COMPLIANCE	
ervation and manaaement should exist.	

DI. Meseun	ch in support of fishenes conservation and management should exist.
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

Determination: Research to support the conservation and the management of the stock, nontarget species and physical environment exists, however research programmes could be significantly improved to decrease scientific advice uncertainty.

Fishery-dependent data

B1 Research in support of fisheries of

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.

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Figure 2. Offical annual landings of Sardina austral in the interior waters of the Mar de Chiloé from 2006-2016 (R11).

Fishery-independent data

Several fishery-independent surveys have been, and are still, carried out. These include acoustic biomass surveys (2006-2016).

- Programa de seguimiento de las Pesquerías Pelágicas Zona Centro- Sur, 2015.
- Evaluación Hidroacústica de Pequeños Pelágicos en aguas interiores de la X y XI Regiones, año 2015. IFOP
- Estatus y posibilidades de explotación biológicamente sustentables de los principales recursos pesqueros nacionales 2017. IFOP.

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.

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with regards to the setting of quotas. The LGPA also states that quotas should be established using MSY as the primary technical parameter. For 2017 20,000t was recommended by IFOP which corresponds to the established quota.

C. THE PRECAUTIONARY APPROACE

LEVEL OF COMPLIANCE	
C1. The pre	ecautionary 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.

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.

In its 2017 stock assessment report IFOP stresses the importance that developing fisheries such as sardina austral that have limited information should be managed using the precautionary approach. F60 is proposed as a Precautionary reference limit. In its stock assessment report IFOP takes into account a range of sources of uncertainty, eg. The variability in the CPUE data, the use of lights by some fishers can affect the capture of the fish, environmental factors, stock aggregation for habitat or reproduction, acoustic biomass estimation parameters. Life history parameters are also taken into account (growth, mortality and maturity), the process error inherent in the evaluation model and the short history of the fishery. IFOP also produces outputs which indicate the level of risk associated with potential fishery management actions.

The specific objective in relation to sardine austral 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%. A revision of these biological reference points was carried out by a group of international experts at a workshop in Vina del Mar August 2014, details of which can be found in the annex of the stock assessment in 2016.

R11

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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. 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. The level of fishing in the Region X sardine austral fishery is restricted by annual quotas. Quota Global Trust Certification Ltd, 3rd Floor, Block 3, Quayside Business Park, Mill Street, Dundalk, Co. Louth, Ireland Tel: 042 932 0912 Fax 042 938 6864

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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. For 2017 small percentages were deducted from the total quota for research (65t) and by-catch (50t), human consumption (200t) and the remaining TAC (19,685t) was divided: January – October (14,7464t), November – December (4,921t). This corresponds to the IFOP advice of 20,000t.

The table below compares landings and quotas for fishing years 2006 – 2013. The TAC was exceeded in 2008 and 2012.

Año	Desembarque (t)	Cuota (t)
2006	35961	40522
2007	44388	50872
2008	44953	41904
2009	48589	58481
2010	20519	30966
2011	14344	17693
2012	19763	14500
2013	21888	22000
2014 (agosto)	18000	18750 *

 Table 1. Historical comparison of landings (desembarque), quota (cuota) and of sardine austral in the Chilean southcentral fishery, 2006-2013. R10

There are closures in place for spawning and recruitment. D. Ex. No. 950/2012: D. Ex. No.35/2013. Gear restrictions are in place which only allows artisanal vessels with nets of certain size depending on the depth of the fishing grounds.

R9,10

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	o 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 the	ere
	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 a	nd
	there are evidences of recovery.	
Determin	nation: Mechanisms are established to reduce capacity to allow for the recovery of the	н
stock to s	sustainable levels and there are evidences of recovery.	
There is a	a requirement for artisanal fishers to be registered on the National Registry for Artisanal	
Fisherme	en (NRAF) which is used to control their number per regional area. Inscription to the	
NRAF and	d the entry of new applications is suspended until the 05/07/17. (R. Ex. No. 1.840/2012).	

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The first 6 years of the fishery saw a decrease in the biomass and spawning biomass of Sardina austral. From 2010 there was an increase in biomass due to the implementation of measures to reduce fishing mortality. From 2007-2010 the fishery was in a state of overfishing and then from 2008-2012 a state of over exploitation.

Keeping in mind that the most recent years estimates are more uncertain, from the data we see that since 2013 the stock has been fished at MSY (plena explotación), which is consistent with the management objectives.



and fishing practices on non-target species and the physical environment. However, as it is a relatively new fishery there is a lack of scientific information.

Non-target species

A new law D-.S N° 76-2015 was put in place in 2017 regarding the capture of images aboard vessels greater than 15m in length. This law obliges the installation of a camera to record images of all discarding that can occur during a fishing trip. There is no information regarding the data collected from this practice, as yet. According to the Law D. Ex. No. 22 of 2016 the proportion of bycatch and the corresponding annual reserve associated with the fishery for sardine austral, sardina común and anchovy was established.

Table 2. Bycatch quota of sardina austral, common sardine and anchovy artisanal fisheries 2016. (R12)

Target	Bycatch	Región	Reserva anual
Sardina Austral	Anchoveta	Х	60
	Sardina común		80
Anchoveta/Sardina común	Sardina austral	X	50

Bycatch information is systematically collected for the fishery with weekly monitoring by IFOP in some regions. 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.



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Pesquería Artesanal de Cerco		
Sardina Austral X Región		
	Anchoveta	
	Bacaladillo o mote	
	Caballa	
Fauna	Jurel	
acompañante	Machuelo o tritre	
	Pampanito	
	Sardina común	
	Langostino de los canales	

Table 3. Bycatch species associated with the Sardina austral artisanal fisheries in Region X de Los Lagos.

Ecosystems

Forage species such as sardines and anchovy has a key role in the ecosystem forming the basis of the diet of mammals, birds and larger fish species (Pikitch et.al., 2012). 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

Overall there is limited evidence available on the extent to which 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.

R11, 12,13, 15

	IIVIPLEIVIENTATION		
	LEVEL O	F COMPLIANCE	
E1. There	e 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.		
MEDIUN	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.		
moneu	ary fines to revocation of licence.		
The LG	BPA defines a range of sanctions for offe ding, incorrect logbook use, failure to rep	nces including fishing with an ur port landings, fishing in a region	nlicensed vessel, or fishery other
The LG discard	GPA defines a range of sanctions for offe ding, incorrect logbook use, failure to rep Certification Ltd, 3 rd Floor, Block 3, Quayside Business Par	nces including fishing with an ur port landings, fishing in a region k, Mill Street, Dundalk, Co. Louth, Ireland Tel: 0	nlicensed vessel, 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.

LEVEL OF COMPLIANCE		
E2. A management system for fisheries control and enforcement should be established.		
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.	
Determination: There is ouidance of a fisheries control and enforcement regime in place in M		

Determination: There is evidence of a fisheries control and enforcement regime in place in M Chile, but limited information to determine how effective this regime is.

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.

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.

Enforcement of fisheries legislation is the responsibility of SERNAPESCA. Industrial vessels operate under mandatory VMS monitoring.

Sernapesca;

- Carry out audits of capture fisheries and implement the surveillance and control of compliance with legal provisions relating to the fisheries.
- Health and environmental monitoring of aquaculture, surveillance. Developing strategies and procedures for prevention, surveillance and control of high-risk diseases.
- Information and sectoral statistics. Managing fisheries and aquaculture records.

Within the Exclusive Economic Zone the Chilean Navy also monitors an area covering approximately 4,542,990 Km², ensuring the prevention of depredation of natural resources in an effort to protect the ecosystem from unauthorized activities.

R3, 5, 14

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7. KEY STAKEHOLDERS

8. REFERENCES

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